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THE GARDENER'S MAGAZINE,

AND

REGISTER

OF

RURAL AND DOMESTIC IMPROVEMENT:

COMPRISING

TREATISES ON LANDSCAPE GARDENING,
ARBORICULTURE, FLORICULTURE, HORTICULTURE,
AGRICULTURE, RURAL ARCHITECTURE,
GARDEN STRUCTURES,
PLANS OF GARDENS AND COUNTRY RESIDENCES,
SUBURBAN VILLAS, &c.

ALSO

LISTS OF NEW AND RARE PLANTS, FRUITS AND VEGETABLES.

CONDUCTED BY

J. C. LOUDON, F.L.S. H.S. &c.

AUTHOR OF THE ENCYCLOPÆDIAS OF GARDENING, OF AGRICULTURE, &c.

VOL. II.

NEW SERIES.

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PREFACE.

The summary View of the Progress of Gardening during the year 1836, which will be found in the present Volume, p. 613., renders a Preface unnecessary, except for the purpose of introducing the Contents. These are arranged under the following heads: — Original Communications; Reviews of Books; Miscellaneous Intel- ce; List of Plants; List of Fruits; List of Culinary Vegetables; of Horticultural, Botanical, and Floricultural Societies; List of ns and Country Seats; List of Engravings; List of Contributors.

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Shortly will be Published, illustrated by numerous Engravings on Wood,

THE SUBURBAN GARDENER,

AND

VILLA DIRECTORY;

By J. C. Loudon, Author of the Encyclopædia of Cottage, Farm, and Villa Architecture and Furniture.

This Work is preparing for publication, and will contain: —

1. An Introduction, showing the Use and Enjoyments which may be derived from a Garden, however small; with a Plan of the Work.

2. Directions for the Choice of a House and Garden in a Town or its Suburbs; or in a Village, or Country Town, or its Neighbourhood.

3. Designs for laying out small Gardens, and Cottage and Villa Grounds from One Perch to Ten Acres or more in extent; including Plans and Elevations for appropriate Houses, Offices, &c.; with different Degrees of Accommodation, and in different Styles of Architecture; including Plans of some of the more interesting small Gardens in the Suburbs of London, Edinburgh, Dublin, Paris, Berlin, Munich, and Vienna.

4. Directions for the Planting, Culture, and General Management of the Grounds of small Suburban Residences; and for the Building or Altering, and Keeping in Repair, of the House.

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7. A Monthly Calendar of Work to be done; including Directions respecting Poultry, Pigs, Cows, Grass Fields, &c.

8. A Priced List of the Trees, Shrubs, Plants, Tools, &c., usually required for small Gardens.

The whole intended as a complete Gardening Book for such as are not professed Gardeners.

The work will be illustrated by numerous Engravings on Wood.

THE

GARDENER'S MAGAZINE.

JANUARY, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *On the relative Temperatures of the Earth, under Surfaces covered with a Vegetable Coat, and under Surfaces preserved bare; with a Table of Observations.* By ROBERT MALLET, Esq.

THE following table contains the results of a series of morning and evening observations, continued for about a month, in order to determine whether, and how far, the temperature of the earth's surface is affected, at small depths, by the vegetation which subsists upon it. It is uncertain whether the results observed are due merely to differences of radiating and absorbing power, or to some specific consequences of vegetable life.

Two Fahrenheit's thermometers of considerable delicacy, which had both been previously accurately compared, were placed at about 20 ft. apart, the one beneath a surface covered with a short close coat of turf or grass, and the other under a portion of the soil, the surface of which was preserved bare, the termination of the surface of grass being midway between the two instruments. Both were so arranged, that they could be examined without removal, and without danger of change of temperature during observation.

The thermometer for aerial temperature was hung at about 5 ft. from the ground, in the immediate neighbourhood of the two terrestrial instruments; and it was shaded so as to prevent any effects from sun heat, or from radiation from surrounding bodies, as far as possible.

The table sufficiently explains its own nature. The hours of 9 A.M. and 8 P.M. were chosen, chiefly because they are nearly those of diurnal mean temperature, and partly as a matter of convenience.

It will be observed from the table, that, with two exceptions, viz. on the 10th and 30th of July, the earth beneath the surface of grass was uniformly at a higher temperature than that under a bare surface, or that not covered with vegetation.

TABLE OF

Of the respective Temperatures of Surfaces covered with Grass, and of those on the North Side of Dublin, at an Elevation of about

The Observations taken and register made, at Nine o'Clock A. M. and

Date.	Grass. Morning.	Earth. Morning.	Grass. Evening.	Earth. Evening.	Air. Morning.	Air. Evening.
1835. July 9	63·5	61·	61·	61·4	67·5	56.5
10	59·	59·2	60·	59·	59·8	54·
11	59·1	58·6	60·3	59·6	60·4	57·7
12	61·2	60·5	61·	60·6	62·9	55·3
13	60·	58·9	61.1	60·8	61·9	55·
14	60·4	59·4	63·	61·8	63·	60·1
15	64·3	62·8	62·7	62·1	68·3	57·1
16	60·7	60·1	62·8	61·2	60·8	57·7
17	63·	62·3	64·4	63·9	64·6	61.7
18	64·5	63·1	63·3	62·1	67·6	59·7
19	63·	60·8	63·5	61·4	65·7	60·7
20	64·	62·5	66·2	64·9	66·8	61·
21	65·2	64·1	66·4	65·9	63·5	58·8
22	67·	65·2	68·1	67·2	66·	59·9
23	67·5	66·3	68·	67·6	66·	61·9
24	67·	66·5	69·5	68·	67·	62·8
25	68·	66·8	69·7	68·7	66·4	62·
26	69·	67·3	69·9	69·4	65·4	60·1
27	68·7	68·1	68·3	68·5	65·7	56·5
28	68·2	67·4	66·9	66·7	67·2	58·4
29	72·2	66·1	71·5	69·5	65·6	63·1
30	66·7	67·	68·9	68.7	65·8	60·4
31	65·5	65·3	68·2	68·	63·3	58·8
August 1	69·3	68·	68·	66·5	69·	62·7
2	66.2	65·3	70·5	68·5	63·6	61·
3	69·5	66·8	68·7	68·	67·8	58·6
4	69·	67·5	68·5	66·7	69·3	63·3
5	66·	64·8	66·	64·4	63·6	61·2
6	65·7	65·	65·5	64·3	65·2	62·8
7	65·3	64·5	63·5	62·	63·	55·
8	66·8	66·7	66·4	66·	64·	53 8
Averages -	65·3	64·1	65·8	65·0	65 05	59·20

It will be observed, that the difference of temperature occasionally amounted to as much as 3°; and that the average difference in the morning was above 1°, and in the evening nearly 1°.

A careful examination of the table will present some interesting relations between the aerial temperature, the state of the weather, &c., and the temperatures of the surfaces of grass and earth. They are hardly sufficient, however, to enable it to be pronounced with certainty to what cause the difference of temperature is to be assigned; whether to some result of the prin-

OBSERVATIONS

preserved bare, at a Depth of 5 in. under the Surface of the Soil; made 25 ft. above the Sea, with a free Exposure to the South.

at Eight o'Clock P. M., together with the aerial Temperature in the Shade.

Date.	General Weather. Morning.	General Weather. Evening.	Observations.
9	Sun, clouds, slight wind, w.	Rain, clouds, little wind, w.	Grass shaved.
10	Chilly, clouds, dry wind, E. by S.	Clouds, dry, chilly, wind, w.	
11	Heavy rain, no wind, S.W.	Cold, clouds, dry, windy, w.	
12	Showery, wind and sun, S.W.	Damp, cold, hazy, dry, S.W.	
13	Warm, windy, clouds, S.W.	Damp, chilly, cloudy, S.W.	
14	Dry, warm, sun, windy, S.W.	Warm, still, cloudy, no wind, S.W.	
15	Dry, calm, hazy, no sun, S.	Dry, warm, cloudy, S.W.	
16	Dry, dark, close, cloudy, S.	Dry, windy, cloudy, S.	
17	Dry, clouds and sun, still, S.W.	Dry, cloudy, close, still, S.W.	
18	Dry, sun, warm, still, S.W.	Dry, clear, still (showers, mid-day), S.W.	Grass shaved.
19	Most genial, sun, calm, S.W.	Heavy clouds, damp, windy, S.W.	
20	Dry, mild, little wind, S.E.	Warm, dry, sun, little breeze, S.E.	
21	Dry, mild, no wind, S.E.	Fine, dry, mild, S.E.	
22	Dry, warm, no wind, S.E.	Mild, wm, showery, little wind, E.	
23	Sun (heavy dew last night), S.E.	Dry, wm (lightning), no wind, E.	
24	Sultry, sun, no wind, S.E.	Fine, dry, clouds, no wind, S.E.	
25	Hot, sun (hvy dew last n), N.W.W.	Clear, warm, no wind, S.E.	
26	Hot, sun (hvy dew again) N. by W.	Fine, warm, very clear, N. by W.	
27	Fine, sun, warm, dry, N.W.	Warm, dry, hazy, N.W.	
28	Strong sun, no wind, N.W. [N.W.	Warm, dry, sun, no wind, N.W.	Grass shaved.
29	Fine, sun, windy, slight chill, w.	Very warm, no wind (day sultry)	
30	Dry, clouds, slight wind, N.W.	Fine, slight clouds, wind, W.N.W.	
31	Fine, sun, little wind, S.	Dry, warm, still, S.	
1	Clouds, fine, no wind, S.	Rain, warm, hazy, S.W.	
2	Rain, warm, no wind, S.	Clouds, warm, no wind, S.W.	
3	Sun, warm, little wind, S.W.	Dry, mild, little wind, S.W.	
4	Sun, warm, light breeze, S.W.	Dry, very wm, light breeze, S.W.	Grass shaved.
5	Cloudy, moist, little wind, S.W.	Dry, mild, calm, S.W.	
6	Clouds, dry, windy, S.W.	Cloudy, warm, windy, S.W.	
7	Sun, dry, light wind, w.	Fine, temperate, calm, S.W.	
8	Sun, dry, windy, w. by S.	Fine, clouds, windy, w. by S.	

ciple of vegetable life, altogether distinct from the mere phenomena of heat; to chemical or other forces, put in motion by the assimilative powers of the plants; or to the simple effects of varying powers of absorption and radiation. To the latter of these conclusions I myself incline; but one most interesting, and, I believe, novel, fact is thus established; namely, that the surface of our earth is considerably affected, as to its temperature, by the vegetation that subsists upon it. Its temperature is proved to be increased by this covering; and we cannot fail to recognise in this one of those innumerable and ever wondrous adaptations

by which the Author of nature has most fitted our system to the living beings it is destined to support.

It would hardly have been anticipated, that such a difference of temperature should exist in the same soil, within so short a distance as little more than 20 ft.; but the effects of radiation and absorption, in some particular instances, are even far more remarkable. Humboldt mentions a granitic sand, which he traversed in South America, the temperature of which was, I think, about 140° Fahrenheit; and I have myself found the temperature of the interior of a mass of hard turf, or dry peat, exposed on a bog, at mid-day in summer, to reach 117° Fahrenheit. The peat was intermixed with granitic sand.

The soil in which the above observations were made is a fine, good, compact, aluminous garden earth, of a bistre brown colour, which extends to a depth of 18 ft., lying on a coarse bed of gravel, composed of shingle of the aluminous limestone of the county of Dublin; which reposes on the solid beds of the same stone, the calp of Kirwan, at a depth of 29 ft. The temperature of a well of 29 ft. in depth, near the site of these observations, is = 52·6 Fahrenheit, in the present month (August 10. 1835).

The principal object held in view in making this series of observations was, to determine how far it was advantageous, or otherwise, to cover the surfaces of vine and peach borders with a clothing of turf.

The opinion of working gardeners is usually, I believe, unfavourable to this, under the impression that the grass makes the soil beneath cold and damp. The table shows that this view is unfounded, and that a great advantage may be expected from the covering, both by increase of temperature, and the preservation of a more equable degree of moisture. The advantage, in point of appearance, of a vine or peach border, clothed with velvety turf, over one bare and brown, is sufficiently obvious. I believe it is admitted, that plants or crops should never be grown on such borders; but the amount of vegetable nutriment abstracted from the soil by a short turf kept close is exceedingly small: and, where borders are made very rich, they should be covered with 3 in. of sharp sand, and over that 2 in. of soil, in which the grass might be sown; thus placing a stop between the grass and the rich earth, in order to prevent the former from becoming rank, and the latter from being deteriorated. Further experiments on the subject should be made, to determine the effects of other vegetable surfaces, as mint, thyme, &c., upon temperature; the variations produced by long and short grass; and also its effects on temperature in winter as well as in summer.

I may mention that a peach border of eighty yards in length, which has been treated in the above way now for three years, produces luxuriantly.

ART. II. *On the Necessity of the Study of Botany and Entomology to Gardeners.* By JOSHUA MAJOR, Esq., Landscape-Gardener.

SOME time ago I visited a large town, in which a very respectable Horticultural Society had for some time been established; and my visit happened to be made at the time the managing committee was sitting to arrange plans for the exhibitions that were shortly after to take place. The chairman of the committee very kindly invited me to attend, and I was much pleased with the meeting, every thing being pleasantly and properly discussed.

It struck me at the time, that, as the great object of horticultural societies is to promote the science of gardening, two most important branches of that science particularly claim the attention of such societies; viz. botany and entomology; which are so little attended to by gardeners generally, that we might suppose they were quite unconnected with the profession; while, at the same time, I think it requires no argument to show to the gardener who is ignorant of them, that he is much beneath the point of knowledge which he ought to have attained. Perhaps, when I say botany and entomology ought to be studied as a part of the science of gardening, I am imposing a task upon some gardeners, which neither their time nor their education will allow them to accomplish; but every gardener who can read and write, without a knowledge of which he has no business to be a gardener, ought at least to inform himself of the names of plants, their native places, the time of their introduction and flowering, and the proper mode of their culture. The same may be said of entomology: although a gardener may fancy himself unable to acquire that science, there is no reason why he should not acquaint himself with the habits of those insects which prove injurious to vegetation generally, in order that he may know the best time and season for their destruction; and of such other insects, and insectivorous birds which Providence has appointed for their extermination, that he may not inadvertently destroy the insect-destroyer. Certainly, this knowledge will be found to require no small labour; but it is so essential, that, if it is possessed and properly applied, the gardener, instead of being disappointed by the loss of a great part of his plants, fruits, and vegetables (which, although, perhaps, not totally destroyed, will at least assume a dirty and crippled appearance), will find them, is most cases, to flourish in health and beauty. Perhaps the young gardener might assist himself, in some degree, by consulting the work which I published, some time ago, on this subject (although it is far from being complete); but I fear the price of it is so high, that but few will

be able to possess it. I have been frequently requested to bring out another edition, at half the price, which would equally answer the purpose of the gardener; and, having only six or eight copies of the first edition left, I may, perhaps, at some future period, be inclined to publish another edition, though it is at present quite out of the question, as my professional engagements totally prevent me from doing it. Having only time to give these few hints, I must beg to leave it to the councils of the respective horticultural societies to arrange such plans as they may think most likely to induce the young gardener to inform himself efficiently on these subjects; and I would just say to him, "Let these two important branches have full share of your attention with the rest of your professional pursuits; collect specimens of plants wherever you can; dry them, and fix them in the usual way in your specimen book; and, if your instructor should be ignorant of the names of any of them, take every opportunity of asking other gardeners." I think I need not add that these acquirements will lift a young man much above those gardeners who have repeatedly to confess, on being asked the names and descriptions of flowers or trees, that they have not paid much attention to plants, having almost exclusively applied themselves to forcing and the kitchen-gardening department. A young man, following the study I have pointed out, instead of thus degrading himself, will be daily acquiring the most important knowledge of a part of his profession, which will, at the same time, be most interesting and useful to himself, and of inestimable value to his patrons.

Knosthorpe, August 1. 1835.

ART. III. *Notes of a Gardening Tour from Berlin through Part of Prussia, Saxony, Germany, Hungary, Switzerland, and Italy.* By M. KLAUSE, in the Gardens of the King of Prussia.

BEFORE I set out on my long journey, I went to the Island of Rugen, and passed through Neustadt, Leckweld, and Stettin. The king's garden here is not worth mentioning; the king's garden at Schwedt is of more consequence: the gardener's name is Kelder. It has a good situation, and contains some fine oaks and limes; and, although it is old-fashioned, it affords the inhabitants an agreeable promenade. The grounds round Stettin are tolerably large; but it is too much crowded, and it is to be wished that an experienced hand would improve it. The garden in Pulbus, on the island, is large. The clumps and winding walks around the palace are well laid out. The few plants which I saw look well; and, as the present prince is fond of gardening, it is hoped it will soon be in good order. The soil of the Island

of Rugen is generally loamy; so that there is a great difference in the vegetation there from that on the Continent. The botanic garden at Greiswald is small: there are few green-house plants, and much improvement is wanted.

After my return, I also made a journey through all Silesia, and found the only garden that was worth mentioning at Caralate. M. Kleeman, the head gardener, has rendered himself celebrated by applying liquid manure to orange trees, which, when used with prudence, is always successful. The garden is small, but it is situated on a mountain, and has a beautiful view of the village. The orangery, and a tolerably large collection of ericas, are worthy of notice.

The promenades round Breslau are beautifully laid out. The small well-formed squares (plätze) are not overcrowded with trees and shrubs; and one garden has a most beautiful view of the Oder. The botanic garden at Breslau (the gardener's name is Leebig) has, for some years, been much improved: the plants look well, but the collection is not valuable enough to deserve notice. From the situation of the garden, and the abundance of water, it might easily be made very beautiful, if laid out with taste. Professor Nees von Esenbeck is a most suitable person to improve it.

From Breslau I went to Neiss, and to the celebrated Johannisberg. The castle and garden lie very high on a mountain, and there is a most delightful view from it. The pine-apple and plum forcing-houses are in a very bad condition; but the orchard is somewhat better. From the latter place we went up some small mountains, called Heuscheuer, on which there are high rocks lying on each other; on the top of which I found the following plants, which had been planted there: — *D*áphne *Mezèreum*, *A*cer *p*latanòides, Lonícer*a*, *F*ráxinus, and *B*étula, which looked well. Not far from there lies the celebrated Cidova, which is a better bathing-place than those mentioned in p. 9. There is a good garden here, but it might be improved. In Silesia there are very few gardens: there are some at Fürstenstein, Attwasser, &c., to which nature has done more than art.

Not far from Schmiedeberg lies the village of Fischbals, which belongs to Prince William of Prussia. The castle is surrounded by a garden, which is charmingly situated, and which might be made the most beautiful in all Silesia. At Logarl is M. Pfenning's celebrated nursery: the trees and shrubs are all in good order.

The love of gardening increases every day more and more in Silesia, particularly in Upper Silesia. As soon as the people know the easiest and cheapest way to set about improving their gardens, they will do so, as the love of gardening is already

excited in their minds, and they only want the power to carry their wishes into effect.

On the frontiers of Silesia, not many miles from Dresden, stands Muskau. This garden is considered one of the most beautiful in Germany; and its well-placed single trees, its fine vistas, and its beautifully laid out walks, show that it has been planned by a clever man. Among the single trees, the most remarkable are some tulip trees, and some fine beeches. The river which runs through the garden, however, sometimes overflows its banks; and it is much to be lamented that there is no good view from the garden, as it would make it much more interesting.

Next I went, by Torgau, to Oranienbaum, where the garden is partly in the French, or geometric, style, and partly in the English, or natural, manner. It is very interesting to see espaliers formed of cypress, and the avenues of young oaks, which are very beautiful. I also saw there the large orangeries which have rendered M. Klevitz, the gardener, so celebrated. Four miles farther lies the celebrated Wörlitz, which is remarkable for its castle and garden. The garden is large, and the Elbe runs through part of it, and forms an island; but, in my opinion, there are too many ornamental buildings in it (although some of them are very remarkable); and they, with the badly laid out walks, and ill-formed groups of trees, materially lessen the beauty of the scene. The trees are, however, very interesting. There are some fine specimens of *Q*uércus coccínea, Liriodéndron Tulipífera, Salisbùr*ia* *a*diantifòlia, and Liquidámbar Styracíflua, &c.

There are, on the beautiful road from Wörlitz to Dresden, the most remarkable oaks that ever were seen. Not far from the city lies the park of Louisiana, which is much neglected. The water near the castle looks very well. I found here a beautiful collection of pelargoniums, roses, and auriculas. The George Garden is two miles from Dresden; it is larger, but in a much wilder state. It is a pity that more attention is not paid to this garden, as it might be made one of the first in the country; and it is not the fault of the gardener, but of the duke.

From Dresden I went to Halle, where the university garden is; and, although it is small, it is well worthy of notice.

Amongst the gardens at Dresden I may mention that of Lieutenant Weber, which has particularly fine green-house plants and shrubs; where the gardener, M. Sidel, has enormously large fig trees, which stand out in the open air, and only require a slight covering in winter. It is well known that these trees are 200 years old. The king's large garden here (gardener's name, M. Therscheck) has a few pretty spots, but it is now much neglected. The fruit nursery only is particularly worthy of notice.

The garden under the direction of M. Lehman is valuable on account of its vegetables.

From Dresden I went to Leipsig, where the parks round the city are particularly tastefully laid out: the part near the water is also very well planned. Amongst the nurserymen, M. Breiten deserves particular notice; he has a valuable collection of cactuses; and, as he spares no trouble to get the newest sorts, it is expected that he will soon have the largest collection in Germany. In the plantations at Thavant there are some very pretty shrubs, but they are far from being what they should be.

From Leipsig I went to Tetshe, where there is a very fine garden; it belongs to Count Thun of Hohenstein. His pine-apples and forced kidneybeans were particularly remarkable. Hence I now travelled over the mountainous country of Swiss Saxony, and arrived at Töplitz, a bathing-place, which has a very beautiful garden: it cannot be called badly laid out, but it might, by a practical man, be much improved. This garden has a very good collection of trees and shrubs, and the situation is extremely fine.

I then went to Carlsbad, Eger, and Marienbad. The public walks and gardens of these bathing-places are not remarkable. Near Marienberg lies the country seat of Prince Metternich: it has a very large garden, quite new, which is situated on a hill, and has a fine view. One of the most important gardens at Prague is that of Prince Kinsky. This garden is situated on an artificial hill, which must have cost an immense sum of money: the garden is not so good as might be expected. Count Salm has the best collection of green-house plants in Germany, and the best method of propagating ericas, epacris, &c.

I went from Vienna to Bruck on the Leytha, where I was astonished to see such a beautiful garden; and it is the only one I have seen which is perfect in every part. It is very unfortunately situated, and the gardener has had a great many difficulties to overcome. Its situation is not only bad with respect to prospect, but the river Leytha, which runs through it, overflows its banks every summer. I found in this garden some most magnificent North American trees and shrubs, the remarkably vigorous growth of which was probably owing to the loamy deposit (6 in. or 9 in. deep) which the water leaves every year. I also saw the *Nelúmbium* speciòsum in such quantities as to be thought of little value; M. Wancke having, for a long time, bestowed so much care on these plants, that every seedling flowers once in two years.

From Bruck I went, by Presburg and Raab, to Pesth and Buda; but I had not time to see the gardens there. On my road I passed by Eisenstadt, and found a garden which has particularly good green-house plants. From the large specimens I

saw there of the newest plants, I judged they must have been purchased when very rare. The part round the castle is well laid out, and it is only a pity that enough money is not spent to keep it in order.

On my return to Vienna, I went to Salzburg, a city with a beautiful view; which there is also all the way from Vienna to Salzburg. There are four gardens in Salzburg, not worth mentioning. The most remarkable gardens in Germany are those at Munich, laid out by M. Sckell. The garden at Inspruck, under M. Eshenlohr, is not in good order, and very little money is spent on it. In this place I found a great number of the *Pìnus Cémbra*, the fruit of which is commonly eaten.

In Trieste, the garden of Capaletti is the most remarkable: it is not large, but has very good plants, particularly *Cácteæ*. There is also a magnificent collection of orange trees in the open air; and the *Hibíscus syrìacus*, trained as an espalier, which is common all over Italy, is here particularly fine. In Romano are seen very magnificent cypresses, uncommonly large, and cut in the form of a pyramid.

On the way to Venice are seen plants of *Céltis*, *Cércis*, *Rhús Cótinus*, &c., by the road-side. Here is the celebrated Lago di Garda, on the banks of which are planted beautiful lemon trees, and, immediately behind them, olive trees. The Giardino Giusti is only remarkable for its fine views: it is laid out in the old-fashioned style, as most of the gardens are in the upper part of Italy. The box trees, trained as espaliers, are very remarkable. On the way to Padua are seen many olive trees, bignonias, *Sàlix babylónica*, but more particularly the *Mòrus álba*, round the stems of which the vines grow of an enormous size. The botanic garden in Padua is remarkable for its specimens, in the open air, of *Magnòlia grandiflòra*, of an enormous size; *Quércus Ilex*, *Quércus coccínea*; *Cratæ`gus Oxyacántha*, monógyna, and *Crús-gálli salicifòlia*; *Bignònia*, *Kölreutèria*, *Vibúrnum cassinòides*, *Tamarix*, *Stercùlia*, *Cércis*, &c. The roses, trained as espaliers on the walls, and almost covering the houses, are well worthy of a stranger's notice.

The promenade round Milan is very extensive, and contains remarkably fine trees of *Liriodéndron*, *Sophòra*, *Plátanus*, &c. On both sides of the promenade are beautiful trees, trained as espaliers.

On the road to Pavia the rice fields are very remarkable. These fields are entirely under water, which is supplied from the canals on both sides of the road.

Among the numerous gardens at Monza, the government garden is certainly the most remarkable. The gardener's name is Rossi. It is more like a nursery than a garden. He has immense quantities of beautiful deciduous cypresses, partly in

groups, some of them, by the aid of art, stand in the water. There are some particularly large liriodendrons, Magnòl*ia* tripétala, and grandiflòra, and also a great collection of roses. The garden of the Villa Reale (the gardener's name is Casemetti) is tolerably large: it is rich in plants and beautiful shrubs. There are some fine specimens of Magnòl*ia* macrophýlla, *F*àgus sanguínea, *Æ*'sculus rùbra, *P*ópulus caroliniàna, and a large collection of camellias, pines, and roses. There is also a very large collection of oranges. The pine-apples are pretty large; and yet the plants do not look particularly well. The English garden is very large, and has a few pretty scenes in it near the castle. Not far from Como begins an avenue of Liriodéndron and *F*ráxinus, in which are some very good specimens. Among the beautiful villas which lie on the Lake of Como is, particularly, the villa of Somma Riva, with a very excellent garden, more especially near the castle. Here are seen groups of myrtle, *L*aúrus nóbilis, Magnòl*ia*, *C*ìtrus, and particularly *C*ìtrus *s*alicifòlia; also plants of the citrus family, and roses trained as espaliers. On the Lago Maggiore are two small islands, on which grow the following plants in the open air: — Agàve, *F*ìcus, *C*ápparis, Erythrìna, Casuarìna, *L*aúrus, Leptospérmum, *E*rìca, *Sophòra*, *H*ibíscus, Mimòsa, Metrosidèros, *R*hododéndron, Bonapárte*a*, *P*rùnus, Magnòl*ia*, *T*áxus, *C*órylus purpùrea, &c. Besides these there are also a few espaliers of the citrus. The garden has beautiful views over the lake, the towns, and villages. Although the Isola Bella has also very beautiful plants, it is more remarkable for the various castles, grottoes, and caverns in its celebrated garden.

The nursery at Lausanne, belonging to M. Barrand, has a very fine collection of plants, and he is particularly celebrated there for his pelargoniums. The gardens at Lausanne contain nothing particular. In general, the gardens in Switzerland are not much known. Messrs. Baumann's nursery, at Bollwyller, makes an impression which one seldom feels. Fruit trees, and other trees, were in the best order. The collections of pears, apples, *Æ*'sculus, *F*ráxinus, roses, *R*hododéndron, Azàlea, Kálm*ia*, *T*ilia, *Q*uércus, *J*ùglans, *C*àrya, Caméll*ia*, and *E*rìca are, one may with truth say, better than any other that can be seen in Germany. M. Hadel's nursery contains a particularly good collection of North American shrubs. The garden at Schwetzingen is tolerably large, but does not form a whole, as it is partly in the old French, and partly in the English, style, which do not harmonise. The view from the castle is exceedingly beautiful. The arrangement of trees round the water is, on the whole, very good.

The botanic garden in Heidelberg is only just beginning. The agricultural garden, which is near it, is beautifully situated:

it is expected that it will be carried on with much eagerness, and that both gardens will, in time, become celebrated. The court garden is remarkable for its beautiful views; it has also one very fine specimen of *Thùja occidentàlis*. The garden at Manheim, under M. Stihler, has some very well laid out scenes, and some very good clumps of shrubs. This garden has not enough water, and very fine views, but better ones might easily be made. Darmstadt has a great deal of garden ground round it. The garden of M. Schnitzboor is one of the largest; but the paths are not well laid out: the clumps are bad, and the ground dirty. The view is not worth mentioning: the part round the water is the best. The garden under M. Noar has particularly fine dahlias, and especially very fine annuals; its vegetables are also worthy of remark. One of the most beautiful gardens is that on the road to Rosenhöhe, under the direction of M. Guyer. The part round the castle, and that on the hill, are very well laid out. The views, paths, and grouping are in good taste. The gardens round Frankfort are worthy of notice. M. Rinz's nursery is only just begun; but he has a good collection of fruit trees, and barren trees and shrubs. There is also a good collection of camellias, rhododendrons, kalmias, ericas, and azaleas. His green-house plants look extremely well. Baron Rothschild's garden is tolerably large, but his trees only are worthy of notice. He has a fine specimen of *Araucària* [Altíng*ia*] excélsa. The churchyard of Frankfort is very striking, and resembles an English garden. The botanic garden has nothing remarkable. The garden at Mayence is pretty large, and has beautiful views; but the choice of shrubs, and the grouping of them, require much improvement. The botanic garden at Bon is one of the best gardens in Prussia. Not far from Cologne lies a new garden, with a nursery near it: it is laid out with much taste. The garden at Dusseldorf is poor in plants, and those few are in bad condition. Some parts are worth notice; but that round the water wants improving, and also the form of the water. The walks are laid out well; and it is evident that the designer was an experienced man. Not far from this lies the garden of Salm Dyck, which is so celebrated for its cactuses, mesembryanthemums, &c. The garden is very bad; but it is not the gardener's fault, as the princess laid it out. Alten has no good gardens; the walk round the town is only remarkable.

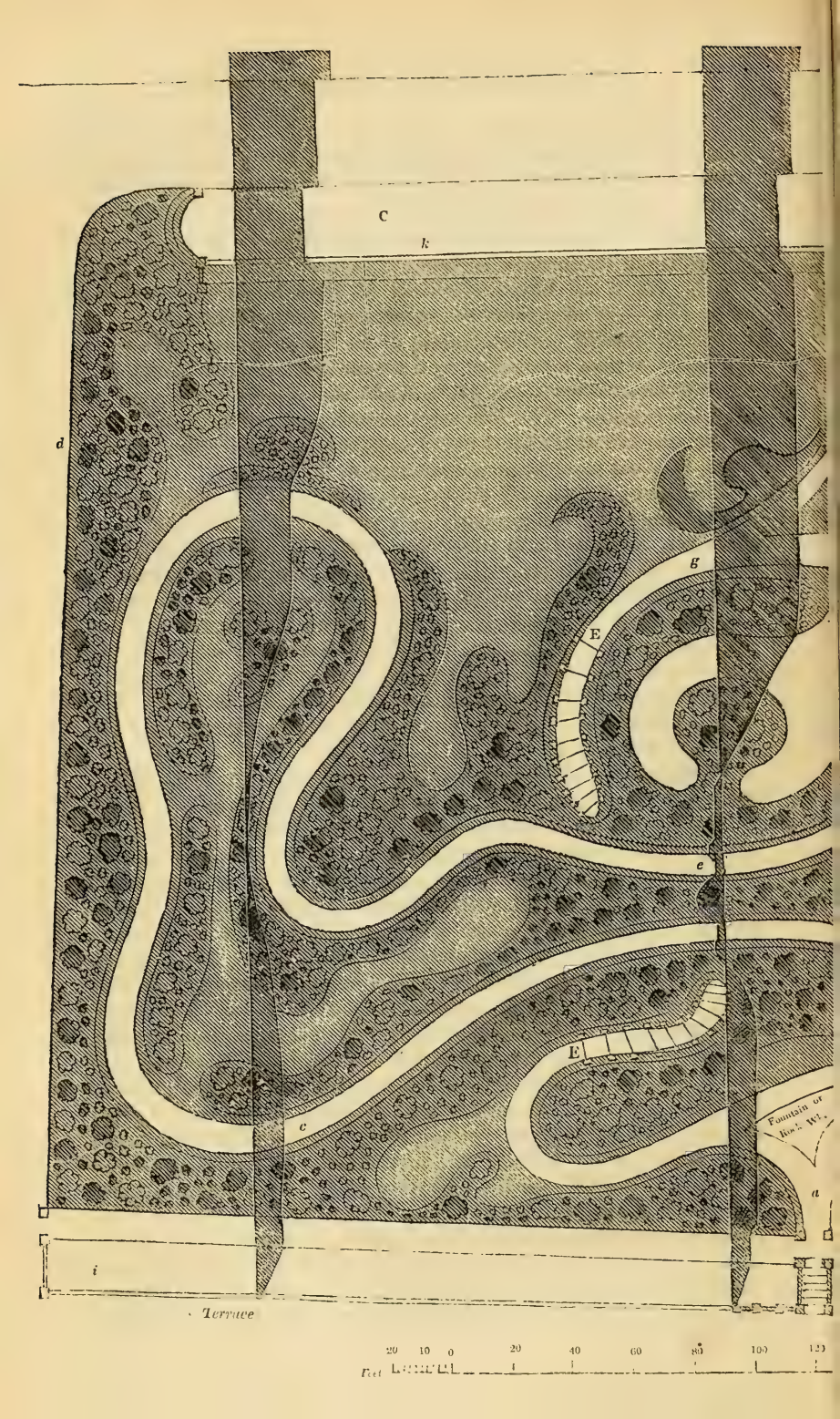
Want of time prevents me from writing further particulars, and this is the reason that I have written in such a hurry. When I get home I shall make a full description of all I have seen, and send it to you.

ART. IV. *Design for a Public Garden, made for an English Corporate Town; with a List of the Trees and Shrubs to be planted in it, and their Prices.* By the CONDUCTOR.

THE plan which we are about to describe may be very fitly considered as an illustration, as far as it goes, of the article Vol. XI., p. 644. In it we have attempted to show how much may be made of a piece of ground not much exceeding three acres, and very unfavourably circumstanced, at the least expense. We were employed to give the design by a committee of management, and our instructions were, simply, to make the most of the ground at the least expense. The following remarks are what we delivered to the committee on the 24th of October last; and the plan has since, in great part, been carried into execution.

The piece of ground to be laid out being of limited extent, and having a distant prospect only on one side, viz. that next the river, the object, in contriving the plan, has been to create interest within the area. This has been attempted by increasing the inequalities in the surface; by producing the greatest length of walk which the space admits of; by varying the views along that walk; by concealing the boundary everywhere except on the river side and at the principal entrance; and, above all, by planting the most extensive collection of trees and shrubs which, it is believed, has been hitherto planted in any public garden, not avowedly botanical.

The plan (*fig.* 1.) which occupies p. 14. and p. 15., is explained at the bottom of those pages. There is one walk, viz. that to the right on entering from the terrace, which makes the complete circuit of the garden; and another, to the left, which goes, by a more direct course, partly through a tunnel, to the proposed esplanade. This tunnel, which is about 60 ft. in length, it is proposed, may be either made winding, and lighted by circular funnels of about 1 ft. in diameter, and at about 10 ft. apart, terminating in iron gratings; or it may be made straight, in which case, it will be sufficiently light without any funnels. The object of making the tunnel in a winding direction is, to prevent persons who may be passing through it from ascertaining its extent at a single glance, and thus perceiving the narrowness of the garden; but this result, even if the tunnel is made straight, may be in a great degree prevented by the winding of the walk, and planted banks at each end of the tunnel; by which means the boundary of the garden will not be seen from whichever end the spectator enters. The great object, in a limited space, is to vary the interior; from every point of view to conceal the bounds; and, by a great length of walk, no part of which is ever seen at one time but the part walked on, to increase the apparent extent in the highest degree. Where these walks approach the boundary, the trees and shrubs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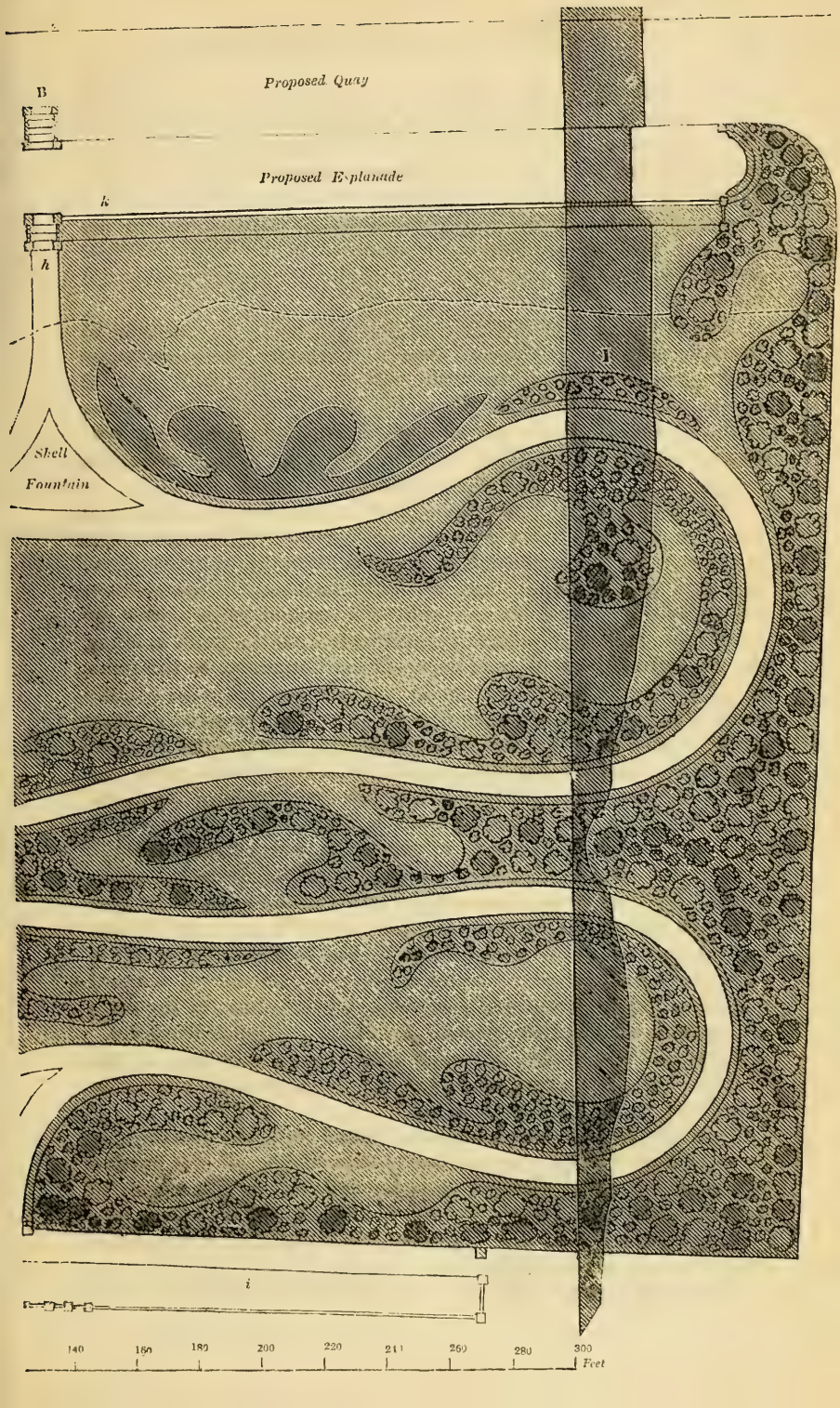
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indicated in the list to be planted in such situations are chiefly evergreens, in order completely to screen the fence; and, for the same important end of disguising the apparent extent, no entrances must be made to the garden in addition to the two indicated. If we imagine four entrances to this garden, at the four angles, or in the centre of the four sides, instead of two in the centre of two opposite sides, the seclusion of the interior will be destroyed, and one main intention of the design completely defeated.

The walks are so arranged, the surface of the ground so formed, and the evergreen trees so disposed, that a spectator walking on any one of the walks will, in very few cases, be able to see the other walks, as the section of the ground will show. If the ground cannot be raised to the height indicated in the sections, nearly the same effect will be produced, in the course of a few years, by the growth of the trees and shrubs.

In the execution of the plan, the first step is to mark out the tunnel walk, and to form a drain in the bottom of it, commencing at the entrance to the garden at *a*, and continuing it at least as far as *g*; the tunnel should then be built, because, till this is done, the ground over, and on each side of it, cannot be prepared for planting. A drain should also be formed from the point *a*, along the bottom of the walk, and through the boundary, to the point *b*. A drain will also require to be formed from the point *c* in the walk, all along its bottom, to *b*; and also from the point *c*, along the bottom of the walk, and through the boundary, to the point *d*: from this point a drain will require to be conducted, along the bottom of the walk, to *e*; from *e*, along the bottom of the walk, to *f*; and also from *g* and *b* to *f*. Other drains, necessary to effect the complete drainage of the walks, will readily occur to the foreman who will be sent to superintend the execution of the work. Nothing conduces more to the comfort of a public garden than having the walks at all times fine and dry; and, where these walks are 10 ft. broad, as they are here in the broadest parts, such a result cannot be accomplished satisfactorily without a drain along the bottom of each walk, with gratings at the sides of the walk, communicating with the drain at regular distances.

None of these drains, however, will require to be formed, till after the planting is completed, except the tunnel drain from *a* to *g*, and the upper drain from *a* to *b*.

These drains being made, and the tunnel built, the ground may be formed agreeably to the sections; after which, all that portion of it intended to be planted, must be trenched to the depth of 4 ft. at least; and, where the soil is bad, it must be taken out, and replaced by good soil. The soil from such portions of the ground as are to be covered with grass, where it is good, may be used for this purpose, and the bad soil substituted for it, as it

will answer equally well, and even better, for the grass. The soil from the bottoms of the walks, when good, can also be used for the part to be planted.

The trees and shrubs which will be required are indicated in the following lists; and they are all such as may be purchased in the London nurseries at moderate prices, and all of the most ornamental kinds, not one being admitted which is a mere timber tree or fruit tree, or which is purely of botanical interest.

The first list (I.) consists of evergreens; and they are distributed over the whole garden in such a manner as to prevent the eyes of the persons on the walks, both in summer and winter, from seeing more than a certain portion of the ground at one time. At the east and west ends of the ground there are rows of evergreens and semi-evergreens of comparatively tall growth, for the purpose of shutting out the houses of the town. All the other trees are of low growth; and, with two or three exceptions, do not ordinarily exceed the height of from 12 ft. to 20 ft.

The next list (II.) is of deciduous or flowering trees, and tall shrubs, with some evergreens, all about the same height as those in List I. These are to be distributed over the ground as indicated in the plan by the numbers preceding the names.

The next list (III.) is of deciduous flowering shrubs, and some evergreens, the distribution of which may be left to the planter, with this single direction, that the species of each genus must be kept adjoining each other.

The succeeding list (IV.) is of climbing, creeping, and trailing plants. These it is proposed to plant along an arcade of trellis-work, which should be commenced at each entrance of the tunnel, and carried on to the length of 50 ft., at each end, over the walk. The trellis-work, where it terminates, should be quite light and open, and, in short, little more than arches of iron wire, crossing the road at about 6 ft. apart. This distance between the arches should gradually diminish, till, at the mouth of the tunnel, the last arch should not be more than 3 ft. from the one preceding it. Each arch should consist of three iron wires; each of about half an inch in diameter, joined together by horizontal pieces, and their lower ends leaded into blocks of stone. Along the summit of the arches, one rod may connect the whole; but there ought to be no connexion along the sides, or at the bottom. The same rod may be continued along close, under the roof of the tunnel for hanging coloured lamps on, upon extraordinary occasions, so as to illuminate both the tunnel and the arcade.

It is very desirable to form an arcade of this sort as an approach to a tunnel; because, to a stranger, and in the summer time more especially, the transition from the glow of a mid-day sun to the gloom of the tunnel would be too sudden. At the same time, the tunnel will be only comparatively dark, as it

will be quite sufficiently lighted for walking in, even if not straight, by the funnels and gratings before mentioned; which may be made only 6 ft. apart, if 10 ft. should be thought too far distant. If, as the trees and shrubs grow up, they should be found to obscure the gratings, the funnels for them can be carried up higher than the shrubs; and any funnels that are thought too conspicuous may be terminated with elegant vases, through which the light is admitted: and whether these funnels are carried up 10 ft. or 50 ft., will make no sensible difference in the quantity of perpendicular light which will pass through them to the tunnel below. The necessity of building funnels, however, may be altogether avoided, by having the tunnel made straight.

The next list (V.) is of select trees and shrubs, to be scattered on the turf; but, as this cannot be done till the ground is properly consolidated, which it will require at least a year to effect, their places are not indicated in the plan, lest it should create confusion.

The last list (VI.) is of plants which are of low growth, and are either ornamental evergreens, deciduous shrubs with showy flowers, or shrubs with highly fragrant flowers. Any blanks which remain in the masses, after all the other trees and shrubs are planted (and there will not be many), may be filled up with the species enumerated in this list, which are so beautiful, that, even if there were a dozen or two of each in the garden, there would not be too many.

Nothing is proposed to be planted on the green bank (*i i*) between the upper and lower terraces, because the large elm trees already there, as well as the steepness of the slope of the bank, will effectually prevent any ordinary shrub from thriving. If it is absolutely required to have something like an evergreen fence, an open wooden railing is recommended, which may be thickly covered with ivy, the soil being first properly prepared, and the plants abundantly supplied with water during the summer season, for the first two or three years.

The kind of fences to be used in enclosing the garden, the projection of the quay into the river, and the details of the proposed esplanade, with the seats at each end, are not here entered into; neither is any design given for a fountain, nor for rockwork, nor any other architectural object in the situations indicated. The entrances to the tunnel may be finished in a rustic style, and rock plants inserted in the crevices.

The walks commence at the gate opening into the lower terrace, and also at the steps descending from the esplanade, with a width of 10 ft.; and, after being continued at that width for a distance of 80 or 100 yards, they are gradually diminished till, directly over the tunnel, the width is only 8 ft. The tunnel walk is only 6 ft. wide under the tunnel; but it gradually widens to

10 ft. as it advances to the other walks. These details the plan and the scale will show. The object in narrowing the walks in this manner is, to aid the perspective on entering and proceeding along the walk from each gate, and thus, in a small degree, to add to the apparent extent of the whole.

It is recommended that all the trees and shrubs shall be procured of small size, as being much less likely to die, in consequence of removal to a bleak situation, and as more likely to grow rapidly in well-prepared soil. Instead of bestowing more expense than usual in purchasing large plants, it is recommended rather to give extra preparation to the soil, and even to add to it manure. The mass of rhododendrons and azaleas will require peat soil, as will a few of the other trees and shrubs; and the beds of roses will require rich mould.

The double and Chinese roses are recommended to be planted in groups by themselves, and also the herbaceous flowering plants; and on no account whatever are either double roses, or herbaceous flowers, to be planted among the shrubs. In the two compartments where fountains or other ornaments may be placed, flowers may be planted for the first year or two; and, after the esplanade is finished, perhaps some more groups of flowers may be formed on the turf near it; and, probably, the sloping border (*k k*) may be entirely devoted to flowers. On each side of the esplanade may be a parapet, with piers at regular distances, surmounted by vases, and in these vases mignonette may be kept all the season, which would diffuse an agreeable odour in every direction.

It is recommended that, in purchasing the trees and shrubs, it be made a condition with the nurserymen from whom they are procured, that they should name one plant of each kind with a zinc label written on with prepared ink, and fastened to the plant with metallic wire. By these means the names of the plants will remain attached to them, and unobliterated, for two or three years; and in the meantime, as likely to give a great botanical interest to the garden, it is recommended that one plant of each kind should be named, with a large conspicuous label, placed sufficiently near the walk for any person to read it without moving off the gravel. These labels may be formed of zinc, or thin board painted white, from 2 in. to 3 in. broad, and from 3 in. to 4 in. long, and fixed to the end of wooden rods. For shrubs close by the turf verge, these rods need not be above a foot in height; but when a tree is to be named which stands back from the walk, and has low shrubs in front of it, the rod should be of such a length as that the label may overtop the shrubs. On each label should be painted the scientific and English names of the plant, its native country, and the year of its introduction into Britain. This naming of the trees will, it is conceived, very greatly add

to the attractions of the garden, more especially as a place of resort for young persons, and consequently increase its value to the town.

In the management of this garden, the ground in which the masses are planted will only require to be kept clear of weeds, and covered with the short grass which is mown from the glades. As the trees and shrubs advance in growth, the duplicates will require to be removed; and, after this, both trees and shrubs must be prevented from touching each other by pruning. While this is attended to, care must be taken that, in all the masses near the boundary fence, both trees and shrubs be allowed to grow as close to each other as they can, without coming into absolute contact. The masses of roses will require to be taken up and properly replanted in fresh soil every three or four years, and the masses of flowers, which may be chiefly hardy showy annuals of low growth, or entirely mignonette, will also require the soil to be occasionally renewed. It must be constantly borne in mind by the managers of this garden, that a border or plantation of trees and shrubs which are never allowed to touch, but which are, at the same time, placed as close together as they possibly can be without touching, produces a much more effectual screen than a thick plantation. In a thin plantation, such as we allude to, there is a compact mass of foliage on every tree and shrub, from the ground upwards; and, if there are only two rows of such trees and shrubs, the plants of the one row alternating with the openings of the other, the screen will be as effectual as if it consisted of a holly hedge. If this mode of keeping up a screen, both in the boundary plantations and in the masses which separate the walks, be neglected, the effect of the garden will very soon be materially injured, and the plantations, so far from having that gardenesque character which they are intended to have, will resemble mere commonplace masses of shrubbery; the boundary will be seen from every point of view; the eye will penetrate the interior in all directions; and the effect of the whole, as a work of art, will be destroyed.

Bayswater, Oct. 26. 1835.

LIST OF TREES AND SHRUBS PROPOSED TO BE PLANTED IN THE PUBLIC GARDEN AT ———.

I. *Evergreen Trees and tall Evergreen Shrubs.*

No. in Plan.		No. of Plants.	Price. s.	d.	No. in Plan.		No. of Plants.	Price. s.	d.
1.	*Quércus Ílex* -	- 64	64	0	5.	*Q. Cérris dentàta*	- 13	†32	6
2.	*Súber* -	- 1	2	6	6.	*vìrens* -	- 2	3	0
3.	*Túrneri* -	- 6	15	0	7.	*Banísteri* -	- 1	1	6
4	*Lucombeàna*	- 19	*38	0	8.	*Táxus baccàta*	- 3	4	6

No. in Plan.		No. of Plants.	Price. s.	Price. d.
9.	*T*áxus bacc. hibérnica	1	2	6
10.	*J*uníperus virginiàna	4	4	0
11.	recúrva - -	1	†2	6
12.	suécica - -	1	1	6
13.	*T*hùja occidentàlis -	2	1	0
14.	orientàlis - -	2	2	0
15.	*C*upréssus *th*yöìdes -	1	†1	0
16.	sempervìrens -	3	2	3
17.	sem. horizontàlis	3	†1	0
18.	lusitánica - -	5	7	6
19.	*P*ìnus pumílio - -	2	†5	0
20.	*P*ináster - -	5	†3	9
21.	*P*ínea - -	2	†1	6
22.	*Cémbra* - -	2	5	0
23.	*C*èdrus Libàni - -	2	7	0
24.	Magnò*lia* grandiflòra	2	10	0
25.	*L*aúrus nóbilis -	4	4	0
26.	Mahòn*ia* *A*quifòlium	2	†21	0
27.	*I*'lex *A*quifòlium, in varieties -	20	50	0
28.	baleárica - -	1	†1	6
29.	recúrva - -	1	2	6
30.	opàca - -	1	1	6
31.	*R*hámnus *A*latérnus -	3	3	0
32.	*U*'lex europæ'a, double	2	†1	6
33.	*S*pártium *j*únceum -	1	0	6
34.	*G*enísta virgàta -	1	1	6
35.	Photínia serrulàta -	2	5	0
36.	*B*upleùrum fruticòsum	3	4	6
37.	Escallòn*ia* rùbra -	2	†3	0
38.	*Aúcuba* japónica -	6	9	0
39.	*A*'rbutus *U*'nedo -	6	4	6
40.	hýbrida - -	2	7	0
41.	*E*rìca sp. - -	12	18	0
42.	*R*hododéndron sp. -	20	60	0
43.	*P*hillýrea sp. - -	6	6	0
44.	*L*igústrum vulg. sempervìrens -	2	0	6
45.	lùcidum - -	2	5	0
46.	*B*úxus baleárica -	2	3	0
47.	sempervìrens -	20	10	0
48.	*S*mìlax áspera -	1	*2	0
49.	*R*úscus aculeàtus -	1	0	6
50.	racemòsus -	1	0	6
51.	*Yúcca* gloriòsa -	2	†15	0
	Total number, 272.		£22	19*s.*

II. *Deciduous Trees, or tall Shrubs, including some Evergreens.*

52.	Magnò*lia* glaúca -	1	3	6
53.	Thompson*iàna* -	1	†7	6
54.	acuminàta -	1	2	6
55.	cordàta - -	1	5	0
56.	auriculàta -	1	7	6
57.	conspícua -	1	7	6
58.	Soulange*àna* -	1	10	6
59.	obovàta (purpùrea)	1	2	6
60.	grácilis - -	1	2	6
61.	Liriodéndron Tulipífera	1	1	0
62.	Malachodéndron ovàtum - - -	1	3	6
63.	Stuárt*ia* virgínica -	1	3	6
64.	*A*'cer *O*'pulus - -	1	†1	0
64*a*.	rùbrum - -	6	1	0
65.	monspessulànum	1	1	0
66.	*Æ*'sculus rubicúnda	1	2	6
67.	Pàv*ia* díscolor -	1	2	6
68.	rùbra - -	1	†1	6
69.	flàva - -	1	1	6
70.	hùmilis - -	1	†1	6
71.	Kölreutèr*ia* paniculàta	1	1	6
72.	Xanthóxylum *f*raxíneum - - -	1	1	0
73.	*P*tèlea trifoliàta -	1	†1	0
74.	Staphylèa trifoliàta -	1	1	0
75.	pinnàta - -	1	1	0
76.	*E*uónymus europæ'us	1	1	0
77.	latifólius - -	1	1	6
78.	*P*rìnos decíduus -	1	†1	6
79.	*P*aliùrus aculeàtus -	1	2	6
80.	*R*hámnus cathárticus	1	0	9
81.	alpìnus - -	1	*2	0
82.	Frángula - -	1	0	9
83.	latifòlius - -	1	1	0
84.	Aristotèl*ia* *Mácqui* -	1	†1	0
85.	*R*hús typhìna - -	1	1	0
86.	*Sophòra* japónica -	1	1	6
87.	Virgíl*ia* lùtea - -	1	2	6
88.	*C*ýtisus *L*abúrnum -	2	0	6
89.	*L. quercifòlium*	1	1	6
90.	alpìnus - -	2	*1	0
91.	Robín*ia* Pseùd-*A*càcia umbraculífera	1	1	6
92.	híspida - -	2	1	6
93.	viscòsa - -	2	1	6
94.	*Caragàna* arboréscens	1	1	6
95.	Halimodéndron argénteum - -	1	2	6
96.	*C*olùtea arboréscens -	1	1	0
97.	Gledítsch*ia* sinénsis -	1	†2	6
98.	hórrida - -	1	2	6
99.	Gymnócladus canadénsis - - -	1	2	6
100.	*C*ércis *S*iliquástrum -	1	1	6
101.	*A*mýgdalus commùnis macrocárpa -	1	1	6
101*a*.	*P*érsica flòre plèno	4	8	0

No. in Plan.		No. of Plants.	Price. s.	Price. d.
102.	*Armenìaca* vulgàris	1	2	0
103.	*Cérasus* àvium and double flowering	2	3	0
104.	nìgra	1	*2	0
105.	semperflòrens	1	2	6
106.	serrulàta, double-flowering	2	4	0
107.	*Mahàleb*	1	1	6
108.	*P*àdus	1	0	9
109.	caroliniàna	1	1	6
110.	lusitánica	2	†2	0
111.	Laurocérasus	2	0	6
112.	cerasífera	1	1	6
113.	*Méspilus* grandiflòra	1	1	6
114.	*Crataegus* coccínea	1	1	6
115.	cocc. corállina	1	†1	6
116.	cocc. máxima	1	*2	0
117.	cocc. indentàta	1	*2	0
118.	glandulòsa	1	4	6
119.	macracántha	1	*2	0
120.	subvillòsa	1	*2	0
121.	*p*yrifòlia	1	1	6
122.	punctàta flàva	1	*2	1
123.	punc. rùbra	1	1	6
124.	Crús-gálli	1	1	6
125.	C.-gál. *a*rbutifòlia	1	†1	6
126.	C. *p*yracanthæfòlia	1	1	6
127.	C. *s*alicifòlia	1	1	6
128.	C. ovalifòlia	1	†1	6
129.	C. *p*runifòlia	1	†1	6
130.	nìgra	1	1	6
131.	purpùrea	1	†1	6
132.	Douglàs*ii*	1	*2	0
133.	altàica	1	*2	0
134.	flàva	1	1	6
135.	lobàta	1	†1	6
136.	trilobàta	1	*2	0
137.	*a*piifòlia màjor	1	†1	6
138.	cordàta	1	1	6
139.	mexicàna	1	1	6
140.	*Azaròlus*	1	1	6
141.	Aròlia	1	1	6
142.	tanacetifòlia	1	1	6
143.	tan. glàbra	1	*1	0
144.	odoratíssima	1	1	6
145.	orientàlis	1	1	6
146.	heterophýlla	1	1	6
147.	spathulàta	1	1	6
148.	*o*xyacanthòides	1	†1	6
149.	*O*xyacántha regìnæ	1	†1	6
150.	*O*xy. sibírica	1	†1	6
151.	*O*xy. præcox	1	1	6
152.	*O*xy. *r*òsea	1	1	6
153.	*O*xy. *r*òsea supérba	1	1	6
154.	*C. O*xyacántha fl. plèno	1	1	6
155.	*O*xy. Cels*iàna*	1	*2	0
156.	*O*xy. melanocárpa	1	*2	0
157.	*O*xy. rígida	1	*2	0
158.	lacinìàta	1	1	6
159.	Cotoneáster frígida	1	1	6
160.	affìnis	1	1	6
161.	Nummulària	1	1	6
162.	*Amelánchier* ovàlis	1	1	6
163.	Botryàpium	1	1	6
164.	*P*yrus bollwylleriàna	1	†1	6
165.	*s*alicifòlia	1	1	6
166.	nivàlis	1	1	6
167.	spectábilis	1	1	6
168.	*p*runifòlia	1	1	6
169.	baccàta	1	*2	0
170.	coronària	1	1	6
171.	angustifòlia	1	1	6
172.	torminàlis	1	1	6
173.	*A*ria	1	1	0
174.	intermèdia	1	1	6
175.	vestìta	1	1	6
176.	aucupària	1	0	6
177.	americàna	1	1	6
178.	doméstica	1	*2	0
179.	spùria	1	†1	6
180.	*C*ydònia sinénsis	1	1	6
181.	*V*ibúrnum *O*pulus	1	1	0
182.	Lantàna	1	1	0
183.	*p*yrifòlium	1	1	0
184.	*S*ambùcus racemòsa	1	†0	9
185.	*C*órnus álba	1	0	9
186.	sanguínea	1	0	9
187.	más	1	0	9
188.	Halès*ia* tetráptera	1	1	0
189.	díptera	1	1	6
190.	*D*iospyros *L*òtus	1	1	6
191.	virginiàna	1	1	6
192.	*O*rnus europæ*a*	1	1	6
193.	*Catálpa syringæ*fòlia	1	1	6
194.	Nýss*a* aquática	1	2	6
195.	*H*ippóphae *r*hamnòides	1	1	0
196.	*E*læágnus angustifòlia	1	1	0
197.	Bòry*a l*igústrina	1	1	6
198.	Maclùr*a* aurantìaca	1	1	6
199.	Broussonèt*ia* papyrífera	1	2	6
200.	*M*òrus tatárica	1	1	6
201.	*C*éltis Tournefórt*ii*	1	*3	0
202.	Plánet*a* Richárd*i*	1	†1	0
203.	*Q*uércus palústris	1	*2	0
204.	*F*àgus americàna purpùrea	1	1	0
205.	*C*astànea pùmila	1	*2	0
206.	*C*órylus *C*olúrna	1	†2	6
207.	*O*strya vulgàris	1	*2	0
208.	*B*étula pùmila	1	†0	6

No. in Plan.		No. of Plants.	Price. s.	d.
209.	*A*lnus cordàta	1	*2	0
210.	*S*àlix pentándra	1	*1	0
211.	*P*látanus cuneàta	1	1	6
212.	Liquidámbar Styracíflua	1	†1	6
213.	imbérbe	1	1	6
214.	*H*amamèlis virgínica	1	1	0
215.	Salisbùr*ia adiantifòlia*	1	1	6
216.	Taxòdium dístichum	1	1	0

Total number, 178. £14 19*s.* 9*d.*

III. *Deciduous Shrubs, including some Evergreens.*

217.	Xanthorhìza *a*piifòlia	1	1	0
218.	Calycánthus flóridus	6	9	0
219.	Chimonánthus fràgrans	6	21	0
220.	fràg. grandiflòrus & fràg. lùteus	6	†45	0
221.	*Bérberis* vulgàris	1	0	9
222.	emarginàta	1	*1	6
223.	canadénsis	1	1	6
224.	sinénsis	1	1	6
225.	aristàta	1	2	6
226.	crética	1	*2	6
227.	*C*ístus, 12 species	12	18	0
228.	Heliánthemum, 12 sorts	12	18	0
229.	*H*ibíscus syrìacus, 12 sorts	12	18	0
230.	*H*ypéricum elàtum	1	1	0
231.	hircìnum	1	1	0
232.	kalm*iànum*	1	1	0
233.	calycìnum	1	0	9
234.	prolíficum	1	*1	6
235.	*C*oriària *m*yrtifòlia	1	†1	0
236.	*P*rìnos lanceolàtus	1	*2	0
237.	*R*hámnus Clùs*ii* and its varieties	6	6	0
238.	*C*eanòthus americànus	1	1	6
239.	*R*hús *C*otinus	1	1	6
240.	glàbra	1	1	0
241.	vérnix	1	1	6
242.	radìcans	1	1	0
243.	Toxicodéndron	1	1	0
244.	aromática	1	*2	0
245.	suavèolens	1	1	0
246.	Piptánthus nepalénsis	1	†1	6
247.	*U*lex nàna	1	*2	0
248.	hibérnica	1	1	6
249.	*S*pártium *j*únceum	1	0	6
249*a*.	*j*unc. flòre plèno	1	†2	6
250.	*G*enísta cándicans	1	1	0
251.	tríquetra	1	1	6
252.	radiàta	1	†1	6
253.	lusitánica	1	1	6
254.	ánglica	1	*2	0
255.	virgàta	1	†1	6
256.	tinctòria	1	1	0
257.	sagittàlis	1	1	0
258.	prostràta	1	*2	0
259.	*C*ytisus nígricans	1	1	6
260.	*C*ytisus sessilifòlius	1	1	6
261.	triflòrus	1	†1	6
262.	purpùreus	1	1	6
263.	supìnus	1	†1	0
264.	uralénsis	1	*2	0
265.	Amórpha fruticòsa	1	1	0
266.	Lewís*ii*	1	†1	0
267.	*Caragàna Altagàna*	1	1	6
268.	*Chamlàgu*	1	1	6
269.	frutéscens	1	1	6
270.	pygmæ*a*	1	1	6
271.	spinòsa	1	1	6
272.	*t*ragacanthòides	1	*5	0
273.	Calóphaca wolgárica	1	2	6
274.	*C*olùtea cruénta	1	1	6
275.	Pocóck*ii*	1	1	6
276.	Coronílla E'merus	1	1	0
277.	*A*mýgdalus nàna	1	1	6
278.	*P*rùnus *Cocomílla*	1	*2	6
279.	*C*érasus pùmila	1	1	6
280.	deprèssa	1	†2	6
281.	prostràta	1	1	6
282.	japónica plèna	1	†1	6
283.	chinénsis	1	*2	6
284.	*C*ratæ*gus* víridis	1	2	6
285.	virgínica	1	†3	6
286.	Cotonea*ster* vulgàris	1	1	0
287.	*Amelánchier* vulgàris	1	1	6
288.	Aròn*ia arbutifòlia*	1	1	6
289.	melanocárpa	1	1	0
290.	floribúnda	1	1	6
291.	Lòwe*a* (*R*òsa) *berberifòlia*	1	*2	6
292.	*R*òsa, 12 sp.	12	18	0
293.	*R*ùbus spectábilis	1	1	6
294.	odoràtus	1	1	0
295.	nutkànus	1	1	6
296.	Potentílla fruticòsa	1	1	6
297.	Kér*ria* japónica	1	1	0
298	*S*piræ*a opulifòlia*	1	1	0
299.	*ul*mifòlia	1	1	0
300.	chamædrifòlia	1	1	0
301.	bélla	4	1	0
302.	trilobàta	1	1	6
303.	*t*halictröides	1	1	0
304.	corymbòsa	1	1	0
305.	lævigàta	1	1	0
306.	*s*alicifòlia	1	1	0

No. in Plan.		No. of Plants.	Price. s.	d.
307.	*Spiræ'a salicifòl.* alba	1	*2	0
308.	tomentòsa -	1	†0	9
309.	*ariæfòlia* - -	2	5	0
310.	*Tamarix* gállica -	1	1	0
311.	germánica -	1	1	0
312.	*Philadélphus* coronàrius - -	1	1	0
313.	floribúndus -	1	*2	6
314.	verrucòsus -	1	*2	6
315.	grandiflòrus -	1	1	0
316.	hirsùtus - -	1	†1	0
317.	grácilis - -	1	1	0
318.	inodòrus - -	1	†0	9
319.	*Ribes*, 20 ornamental sorts - -	20	30	0
320.	Aràlia spinòsa - -	1	2	6
321.	Lonícer*a* alpígena -	1	1	6
322.	cærùlea - -	1	1	0
323.	Xylósteum -	1	1	0
324.	tatárica - -	2	2	0
325.	nìgra - -	1	1	0
326.	Symphòria glomeràta	1	1	0
327.	racemòsa - -	1	1	0
328.	Diervílla *hùmilis* -	1	1	0
329.	*Vibúrnum* dentàtum -	1	1	0
330.	lævigàtum -	1	1	0
331.	nùdum - -	1	1	0
332.	*Tìnus* - -	12	9	0
333.	lùcidum -	12	†12	0
334.	*Córnus* alternifòlia -	1	1	0
335.	paniculàta -	1	1	0
336.	strícta - -	1	1	0
337.	serícea - -	1	1	0
338.	flórida - -	1	1	0
339.	Hydrángea arboréscens - - -	1	1	6
340.	Cephalánthus occidentàlis - -	1	1	0
341.	*Báccharis halimifòlia*	1	1	6
342.	*Artemísia Abrótanum*	1	†0	4
343.	sibírica - -	1	*1	0
344.	*Vaccínium*, 12 sorts -	12	36	0
345.	Oxycóccus, 2 sorts -	2	2	6
346.	*Arctostáphylos* U'va úrsi - - -	1	1	6
347.	Andrómed*a*, 12 sorts	12	24	0
348.	*Clèthra alnifòlia* -	1	1	6
349.	*Clèthra* tomentòsa -	1	1	6
350.	paniculàta -	1	1	6
351.	acuminàta -	1	1	6
352.	Callùna, 6 sorts -	6	*7	6
353.	*Erìca*, 12 sorts -	12	18	0
354.	Menzièsi*a*, 6 sorts -	6	*12	0
355.	Kálmi*a*, 2 sorts -	12	30	0
356.	*Rhodòra* canadénsis -	6	9	0
357.	Azàlea, 20 sorts -	20	60	0
358.	*Lèdum* palústre -	1	2	6
359.	*Itea* virgínica - -	1	1	6
360.	*Styrax* grandifòlium -	1	*5	0
361.	*Bumèlia tènax* -	1	†1	6
362.	Chionánthus virgínica	1	2	6
336.	Fontanèsi*a phillyræöides*	1	1	
364.	*Ligústrum* vulgàre sempervìrens -	1	3	0
365.	*Syrínga* vulgàris álba	2	2	0
366.	vul. purpùrea -	2	2	0
367.	chinénsis - -	2	2	0
368.	pérsica - -	2	2	0
369.	*Jasmìnum* frùticans -	2	1	6
370.	hùmile - -	2	2	0
371.	officinàle - -	2	2	0
372.	*Vinca* mìnor - -	6	3	0
373.	màjor - -	6	3	0
374.	Búddlei*a* globòsa -	1	1	6
375.	*Rosmarìnus* officinàlis	6	2	0
276.	*Vìtex Agnus-cástus* -	1	1	6
377.	*Atriplex Hálimus* -	1	1	6
378.	*Dírca* palústris -	1	3	6
379.	*Dáphne Mezèreum* -	20	10	0
380.	autumnàlis -	20	*30	0
381.	Shephérd*ia* argéntea	1	2	6
382.	*Euphórbia amygdalöides* - - -	1	*1	6
383.	*Charàcias* - -	1	*1	6
384.	Comptòn*ia asplenifòlia*	1	1	6
385.	*Ephedra* distàchya -	1	1	6
386.	*Juníperus Sabìna* -	1	1	0
387.	*Smilax* áspera - -	1	†1	0
387*a*.	Fothergílla *alnifòlia*	1	1	6
387*b*.	Double roses	100	75	0
387*c*.	China roses -	100	50	0

Total number, 537. £40 2*s*. 1*d*.

IV. *Climbers, Creepers, and Trailers.*

388.	*Clématis* Flámmula -	1	1	0
389.	Vitálba - -	1	†0	9
390.	Viórna - -	1	†1	0
391.	flórida - -	2	†3	0
392.	Viticélla - -	1	1	0
393.	calycìna - -	1	2	6
394.	*Atragène* alpìna -	1	†1	6
395.	sibírica - -	1	*2	0
396.	Menispérmum canadénse - - -	1	1	0
397.	Ampelópsis *hederàcea*	1	0	6
398.	bipinnàta - -	1	†2	6

No. in Plan.		No. of Plants.	Price. s.	d.
399.	*V*ìtis laciniòsa - -	1	2	6
400.	*L*abrúsca - -	1	*2	0
401.	*C*elástrus scándens -	1	1	6
402.	Wistàr*ia* Consequà*na*	2	5	0
403.	frutéscens -	2	5	0
404.	*C*aprifòlium japónicum	1	2	6
405.	flexuòsum -	2	1	6
406.	itálicum - -	1	1	0
407.	dioícum - -	1	1	6
408.	gràtum - -	1	†1	6
409.	flàvum - -	1	†2	6
410.	hirsùtum (pubéscens) - -	1	2	6
411.	*C*ap. sempervìrens -	1	1	6
412.	impléxum -	1	1	6
413.	*P*ericlýmenum -	1	0	9
414.	*H*édera *H*èlix palmàta	2	†2	0
415.	canariénsis -	2	†1	6
416.	Periploca græ'ca -	1	1	6
417.	Bignòn*ia* radìcans -	1	1	6
418.	capreolàta -	1	2	6
419.	*L*ýcium bárbarum -	1	1	0
420.	chinénse - -	1	*1	6
421.	*A*ristolòchia sìpho -	1	1	6

Total number, 40. £3 2*s.* 6*d.*

V. *Select Trees and Shrubs, to be scattered, as single Specimens, on the Turf.*

422.	Chimonánthus frà-grans - -	1	3	6
423.	*L*aúrus *Benzòin* -	1	1	6
424.	*Sássafras* -	1	3	6
425.	*Bérberis* ilicifòlia -	1	†10	6
426.	Mahòn*ia* *A*quifòlium	1	*7	6
427.	*H*ibíscus syrìacus purpùreus -	1	1	0
428.	s. purpùreus flòre plèno - -	1	2	6
429.	Pàv*ia* díscolor -	1	2	6
430.	*P*aliùrus aculeàtus -	1	2	6
431.	*C*eanòthus azùreus -	1	2	6
432.	*P*istàcia *L*entíscus -	1	*5	0
433.	*R*hús *C*ótinus - -	1	1	6
434.	*U*'lex europæ'a flòre plèno - - -	1	1	6
435.	*C*ýtisus *L*abúrnum péndulum - -	1	†2	6
436.	Robín*ia* Pseùd-*A*càcia crìspa - - -	1	†2	6
437.	*Caragàna Chamlàgu* -	1	1	6
438.	*t*ragacanthòides	1	*5	0
439.	Halimodéndron argénteum - -	1	2	6
440.	Calóphaca wolgárica	1	2	6
441.	*C*érasus semperflòrens	1	2	6
442.	serrulàta - -	1	2	6
443.	Photínia serrulàta -	1	2	6
444.	Cotoneáster rotundifòlia - -	1	2	6
445.	microphýlla -	1	2	6
446.	*P*ỳrus sinàica - -	1	†2	6
447.	*C*ydònia sinénsis -	1	1	6
448.	*R*òsa, 12 select sorts, climbers - -	12	24	0
449.	*Rìbes* sanguíneum -	1	1	6
450.	Escallòn*ia* rùbra -	1	†1	6
451.	Aràlia spinòsa -	1	2	6
452.	*Aúcuba* japónica -	1	1	6
453	*A*rctostáphylos U'va-úrsi - - -	1	1	6
454.	*A*'rbutus *U*'nedo -	1	1	0
455.	hýbrida - -	1	2	6
456.	*E*rìca austràlis -	1	†1	6
457.	mediterrànea -	1	1	6
458.	*R*hododéndron catawbiénse - -	4	10	0
459.	pónticum - -	4	6	0
460.	Azàlea póntica -	1	1	6
461.	nudiflòra - -	1	2	6
462.	viscòsa - -	1	2	6
463.	Halès*ia* tetráptera -	1	1	0
464.	*D*iospỳros *L*òtus -	1	1	6
465.	*F*ráxinus *O*'rnus (*O*'rnus europæ'a), *l*entiscifòlia, excélsior jaspídea, and excélsior péndula -	4	6	0
466.	Fontanès*ia* *p*hillyræòides - - -	1	1	6
467.	*L*igústrum lùcidum -	1	2	6
468.	Dírca palústris -	1	3	6
469.	*D*áphne *Mezèreum* -	1	1	0
470.	*C*neòrum - -	1	†1	6
471.	collìna - -	1	2	6
472.	*Tárton-raíra* -	1	2	6
473.	N*ýss*a aquática -	1	1	6
474.	*H*ippóphae *r*hamnòides	1	1	0
475.	*B*úxus baleárica -	1	1	6
476.	Bòry*a* *l*igústrina -	1	1	6
477.	Maclùr*a* aurantìaca -	1	1	6
478.	*Q*uércus vìrens -	1	2	6
479.	*S*ùber - -	1	2	6
480.	coccífera - -	1	2	6
481.	*B*allòta - -	1	*5	0
482.	gramúntia -	1	2	6
483.	*Æ*'gilops - -	1	*7	6
484.	Banísteri - -	1	2	6
485.	*E*'sculus - -	1	2	6

No. in Plan.		No. of Plants.	Price. s.	d.
486.	*C*astànea pùmila -	1	*2	0
487.	*C*órylus *A*vellàna rùbra	1	†0	9
488.	*A*lnus oblongàta -	1	*5	0
489.	glutinòsa laciniàta	1	1	6
490.	oxyacanthæfòlia	1	†1	0
491.	*H*amamèlis virgínica	1	1	0
492.	Salisbùr*ia a*diantifòlia	1	2	6
493.	*T*áxus baccàta hibérnica - - - -	1	2	6
494.	Taxòdium dístichum péndulum - -	1	†3	6
495.	*E*phedra distàchya -	1	1	6
496.	*J*uníperus *S*abìna fòl. varieg. - -	1	†1	6
497.	recúrva - -	1	†2	6
498.	*P*ìnus ìnops - -	1	2	6
499.	*T*æ`da - -	1	2	6
500.	*Cémbra* - -	1	2	6
501.	*A*bies Clanbrasil*iàna*	1	3	6
502.	*P*ícea spectábilis -	1	†21	0
503.	Dougl*àsii* -	1	15	0
504.	*R*úscus hypoglóssum	1	1	0
505.	*Yúcca*, 12 sorts -	12	*40	0
	Total number, 115.		£15 11*s.* 3*d.*	

VI. *Supplementary List.*

When all the above are planted, then the blanks which remain should be up with the following species: —

*V*ibúrnum *T*ìnus; large plants, 1*s.* each; small plants, per 25, 20*s.*
*B*úxus sempervìrens arboréscens; large plants, 1*s.* each; small plants, per 25, 20*s.*
*C*érasus serrulàta, 1*s.* 6*d.* each.
I`lex *A*quifòlium; good plants, 2*s.* 6*d.* each; small plants, per 25, 50*s.*
*A*úcuba japónica; good plants, 1*s.* 6*d.* each; small plants, per 25, 20*s.*
Chimonánthus fràgrans, 3*s.* 6*d.* each.
*C*aprifòlium flexuòsum, 1*s.* 6*d.* each.
Rìbes sanguíneum; good plants, 1*s.* 6*d.* each; small plants, per 25, 25*s.*
*S*piræ`a *a*riæfòlia, 2*s.* 6*d.* each.
A`cer rùbrum, 1*s.* each.

Recapitulation.

	No. of Plants.	Price. £	*s.*	*d.*
I. Evergreen trees, &c. - - -	272	22	19	0
II. Deciduous trees, &c. - - -	178	14	19	9
III. Deciduous shrubs - - - -	537	40	2	1
IV. Climbers - - - - -	40	3	2	6
V. Select trees and shrubs - - -	115	15	11	3
VI. Supplementaries, say - - -	100	5	0	0
	1242	101	14	7

The prices in the above list are for plants of the smallest size, and for ready money. The manner in which they were procured was, by first sending the list to one nurseryman, and asking him to fill in the column of prices for all those species of which he had actually plants in his grounds. All those prices to which no mark is prefixed were thus obtained. The list was next sent to another nurseryman, who filled in those preceded by a dagger (†); and the remaining prices, distinguished by a star (*), were filled in by ourselves, from a knowledge of the gardens where they are to be procured at those prices.

ART. V. *Description of Woodbine Cottage, Torquay, the Residence of Mrs. Johnes.* By Mr. JOHN GULLET, Gardener there.

THE extent of the grounds of this much admired and most romantic place is about seven acres, on a declivity towards the

south-south-west; and, twelve years since, it was what we call in Devonshire a furze brake; or it might, perhaps, be more properly called a furze down, with a great part of it a barren rock. In the year 1823, Mrs. Johnes took a fancy to build and plant; and the cottage she has erected is certainly the prettiest thing I have ever seen. From the drawingroom, at the east end, we enter a pretty conservatory, 40 ft. long by 15 ft. wide, full of choice creepers, with canted glasses, reflecting the whole three ways. From this we proceed to the flower-garden, in front of the house, which is 60 yards by 30 yards, with a fountain in front of the drawingroom window, and laid out in beds of different forms. Here are all the species of magnolia, which do well; rhododendrons, which make no great growth, but flower profusely; myrtles, geraniums, camellias, Pittósporum *Tobìra*, *C*lèthra arbòrea, *Yúcca a*loïfòlia, now coming in bloom; and Agàve americàna; all of which do well in the open air, without protection. Salvias, except *S.* spléndens, are also all found quite hardy perennials; and in some seasons they become quite hardy shrubs, not being injured with the frost. The *C*innamòmum *Cámphora*, against the wall, is quite hardy; the *Rìbes* sanguíneum, as a dwarf shrub, standing on the grass plot, fruits to great perfection, producing bunches of beautiful blue fruit, 5 in. long. From the flower-garden we ascend the grounds by winding walks, almost forming a labyrinth: in one of those walks I have a vinery, which answers also as a green-house, formed in a limestone quarry; which, with the natural rock, and other kinds of rock that I have introduced, completes a rock house, in which are plunged my plants. In this house the *P*sídium Cattley*ànum* fruits to perfection without fire heat; the situation being so favourable, that I have had no occasion to light a fire but once for five years, and then only for a few hours, to air the flue. My oranges in this house, I think, are as fine as you ever saw. You may think I boast by saying this; but, should you visit Devonshire at any time, I should be very proud to show them to you. Here I have the cactus tribe in great perfection, suspended from the roof by wire; being of a decided opinion it is much to their advantage, and it also keeps them from those enemies the snail and slug. From this green-house we ascend, by winding walks, to a grass terrace, from which we have the most beautiful picturesque views in nature. At our feet, as it were, we have Torbay, the finest of the kind in the kingdom; on the opposite side is a fine landscape of hill and dale, woods and villages. In the back-ground, fifteen miles distant, is the famous High Tor, and its neighbouring hills of Dartmoor, forming a most beautiful evening scene. At one end of this terrace I have a small garden in the French style, the beds of which are edged with sheep's trotters, which gives it a neat appearance. In this place I have a moss house, paved with sheep's trotters in various

devices, initials, date of year, &c.; and a table in the middle, covered with fir cones, and edged with the same. Here I have displayed my winter evenings' amusements, all kinds of figures, from the elephant down to the little mouse, made of fir cones, the produce of my own growth and labour. Imagine to yourself a Highland shepherd, with lambs in his bosom, and a shepherdess with her pet lamb, with a flock surrounding them, frightened, as it were, with a fox and hounds in full chase. In another part I have imitated a farm-yard, where the maid is milking her cows, and an old woman feeding her geese; the geese, as well as the old woman, appearing quite frightened: for here the fox is run up, and the huntsman is seen winding his horn. In another part is a Devonshire plough, drawn by four oxen, with a man driving, &c.; all made of the same material. Suspended from the roof, by way of lamp, is the emblem of peace, a dove with the olive branch in its mouth, surrounded by a flock of canaries, suspended, also, from the roof. By means of vistas cut through the trees, we see, from the moss house, the entrance to Torbay from the Channel, Berry Head, &c.

From this we turn into another terrace, 300 yards long, with borders of dahlias and other flowers on each side, leading to a grass-plot of three quarters of an acre, with beds for roses, cistuses, helianthemums, stocks, and various other things. Here we are fenced in with a wrought-iron paling, 700 ft. long, allowing a public path on the outside, which is a great accommodation to the inhabitants of Torquay. Here, also, is situated my little cottage, commanding a beautiful view of the bay, and also of the Channel, the envy of all who see it. A few paces from this, on the top of the hill, we have a panoramic view of the country and Channel to a great extent, including many of the Dartmoor hills, reaching, as it were, to the clouds.

ART. VI. *A List of the Places in Great Britain and Ireland from which Return Papers have been received for the* ARBORETUM BRITANNICUM, *up to the 21st of November*, 1835. By the CONDUCTOR.

NOTWITHSTANDING the immense number of Return Papers (that is, of skeleton lists of trees on four folio pages, headed as shown in X. 582.) which we have sent out in all directions, we have as yet received papers back from those places only the names of which are enumerated in the following list. We publish this list in order that, by making known the places from which we have received returns, those proprietors or gardeners from whom we have not received them, but who are friendly to our undertaking, may still have an opportunity of sending. Some, also, who have sent lists themselves, or who have not any trees that they think worthy of notice, may yet discover that a

number of places celebrated for their trees are omitted. We should be greatly obliged to such persons if they would write to the gardener at such places on our behalf; or inform us of the name of the place, and that of its proprietor or gardener, in order that we may send Return Papers thither ourselves.

Our readers will bear in mind, that we wish to know the height, and number of years planted, of all foreign trees whatever that have been more than ten years standing in any one place; and the height, and circumference of the trunk, at a foot from the ground, of all indigenous trees in any way remarkable for their age, height, breadth, or rapidity of growth.

It would be of great use to us to know the height and girt, at a foot from the ground, of the largest oak, ash, elm, sycamore, &c., in the grounds or park of every country seat throughout Great Britain and Ireland; with the kind of soil and subsoil on which the trees stand; their exposure, and their probable age. Surely, it cannot give much trouble to any gardener or forester to send us this information. The height may be taken by a practical man, with sufficient accuracy for our purpose, by the eye; and the circumference of the trunk at a foot from the ground, by passing a string round it, and sending us the length of the string; or if this be too much trouble, the diameter of the trunk may be estimated by the eye, as well as the height of the tree.

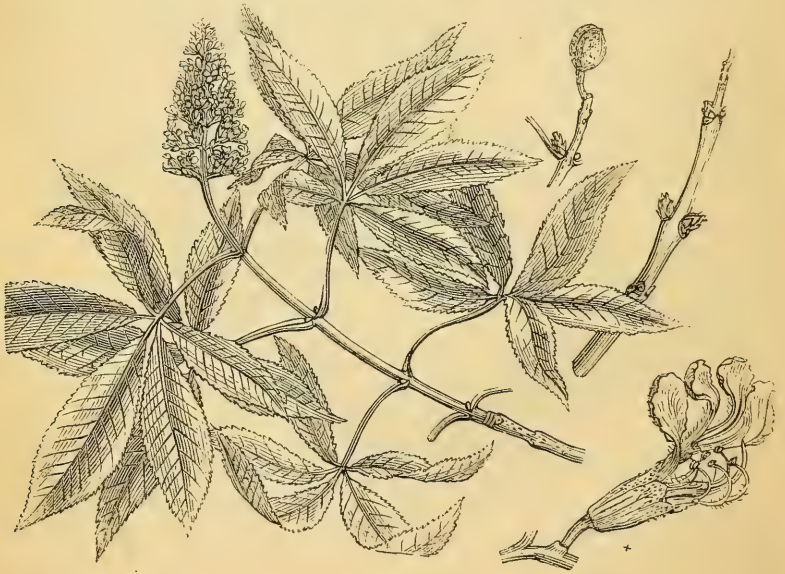
As we find that we shall be able, by publishing double numbers, to finish the *Arboretum* on the 1st of June next, whatever information may be sent to us (and we shall be glad of hints on propagation, culture, uses, the formation of plantations, fences, &c., because our object is to produce a complete *Encyclopædia of Arboriculture*) should be received by the 1st of March. In the *Gard. Mag.* for April a supplementary list to this now given will be published; and, when the *Arboretum*, or rather *Encyclopædia*, is finished, both lists will be incorporated into one, and the name of the proprietor, and (where it is known) that also of the gardener or forester who prepared the list, will be added, and the whole published, in a tabular form, in that work.

We may take this opportunity of mentioning that, through the kindness of a wealthy and distinguished individual, who volunteered to have a number of full-grown trees drawn for us at his own expense, we are enabled to render the work far more complete than we at first contemplated; by giving, in addition to the portraits of trees of ten years' growth, to the scale of a quarter of an inch to a foot, portraits of full-grown trees of one or more species of all the principal genera. These full-grown trees are drawn to a scale of a quarter of an inch to 3 ft.; and, as a specimen of them we give Pàv*ia* flàva. (*fig.* 2.) *Fig.* 3. is a tree of ten years' growth, of the mountain ash (Sórbus aucupària), to a scale of a quarter of an inch to a foot. The botanical specimens at the foot of both trees are to the scale of 2 in. to a foot.

Æ'sculus (*Pà*via) *flàva.*
The yellow-*flowered* (Pavia) Horsechestnut.

2

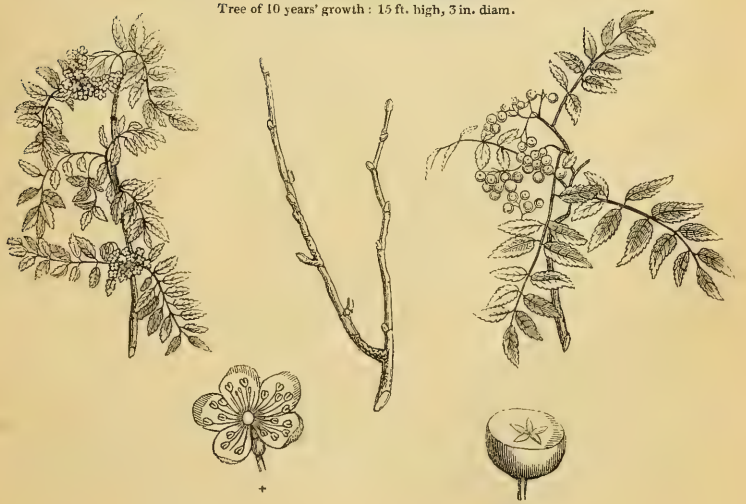
Full-grown tree: 40 ft. high; trunk, 1 ft. 4 in. diameter; diameter of the head, 39 ft.



P*y*rus *aucupària*.
The Fowler's Service, *or the Mountain Ash*, tree.

3

Tree of 10 years' growth : 15 ft. high, 3 in. diam.



*** *In the following List, all those residences marked with a * are supposed to have arboretums; those with a † appear to have extensive collections, and all the others have trees and shrubs, more or less remarkable. From all we have received back the Return Papers we sent, or letters containing the dimensions, age, and other particulars of their trees: and, besides the above, we have received incidental notices of several single trees standing at places, the names of which are not here given.*

ENGLAND.

Bedfordshire. *Flitwick House, *Woburn Abbey, †South-hill, Ampthill.

Berkshire. Ditton Park, † High Clere, *White Knights, †Dropmore (pinetum), Englefield Green, Wallhampton.

Buckinghamshire. †Temple House, Harleyford.

Cambridgeshire. *Cambridge Botanic Garden, Christ College, St. John's College, Gamlingay, Maddingley, Wimpole.

Cheshire. Cholmondeley, Tabley Hall, * Eaton Hall, † Kinmel Park, St. Asaph Deanery, † Dickson's Nursery.

Cornwall. Port Elliot, Carclew, Heligan.

Cumberland. Ponsonby Hall.

Derbyshire. *Chatsworth, Hassop, Kedleston, Bretby Hall, Osmaston Hall, St. Helens, Markeaton.

Devonshire. †Killerton, †Veitch's Nursery, †Luscombe, †Bystock, Haldon House, Saltram Gardens, † Endsleigh Cottage, † Mamhead, Brochill, †Bicton, Heanton Satchville, Grilston, Primley Hill, Woodbine Cottage.

Dorsetshire. Melbury, Sherborne Castle, Lewiston, Abbotsbury Castle, Bryanston House, Castleton, Cuffnels.

Durham. †Southend, Darlington.

Essex. Faulkbourne Hall, Audley End, †Hylands, Witham, Ham House, Upton, Leyton Nursery, Thornden Hall.

Gloucestershire. The Querns, Readcomb Park, Tortworth Park, Doddington.

Hampshire. † Farnham Castle, † Rogers's Nursery, Old Alresford, Testwood, Bishop's Stoke Vicarage, Wilkie's Nursery (Isle of Wight), Strathfieldsay.

Herefordshire. Hope End, Stoke Edith Park, Eastwood, Haffeild, Eastnor Castle, Garnstone, Foxley.

Hertfordshire. Hatfield Park, Aldenham Abbey, Danesbury, *Cheshunt, Mr. Sanders, Mr. Crawler, *Bayfordbury, †Wormleybury.

Huntingdonshire. Tetworth.

Kent. †Cobham Hall, Ramsgate Hermitage Nursery, Waldershaw, Hayes Common, Lewisham Nursery.

Lancashire. * Manchester Botanic Garden, †Latham House.

Leicestershire. Elvaston Castle, Whatton House, Doddington Park.

Lincolnshire. Nacton.

Middlesex. † Kenwood, Mount Grove, † Mr. Bromley (Stamford Hill), †Mile End Nursery, † Haringay, Brown's Nursery (Hampstead), Loddiges's (Hackney), Malcolm's Nursery, Lee's Nursery, † Fulham Palace, * Syon, †Enfield House, *Purser's Cross, †Whitton Place, *Kew, †Upton House, Muswell Hill, Chelsea Botanic Garden, Ridgway House, York House, Botanic Garden (Twickenham), Richmond Hill, Brompton Park Nursery, Vere's Villa (Brompton), Knight's Nursery, Fulham Nursery, Chiswick Villa, Brentford Nursery, Kingsland Nursery.

Monmouthshire. †Tredegar, Gillies, Llanvihangel, Coed Ithil.
Norfolk. Merton Hall, †Norwich Nursery.
Northamptonshire. Wakefield Lodge.
Northumberland. Hartburn Vicarage, Bywell Hall, Cresswell, Belsay Castle.
Nottinghamshire. Thoresley Park, Worksop Manor, Eastwood, Strelly Hall, Shipley Hall, Nuttal.
Oxfordshire. *Oxford Botanic Garden, Dr. Woodcock's Garden (Christ Church), St. John's Garden.
Rutlandshire. Belvoir Castle.
Shropshire. Hardwicke Grange, Willey Park, Smethwick, Wallcot Park, Kinlet.
Somersetshire. Leigh Court, Ham Green, King's Weston, Hinton House, †Nettlecombe, Elm Cottage (Taunton), Hestercombe.
Staffordshire. * Trentham, † Alton Towers, Blithfield, Teddesley Park, Wrottesley House, †King's Bromley, Rolleston Hall, Heath House, *Somerford Hall, Handsworth Nursery, Weston, †Arley Hall.
Suffolk. Euston House, *Bury Botanic Garden, Finborough Hall, Livermere, * Ampton Hall, St. Edmund's Hill, Hardwicke House, Shrubland Park, †Barton Hall, Wolveston, Stretton Rectory, Bergh Apton, Ditchingham, Bungay.
Surrey. †Bagshot Park, †Claremont, Oakham Park, †Walton on Thames, Burwood Park, Ashley Park, Barn Elms, Ashtead Park, Esher, Sandown Place, Milborne, West End (Esher), Deepdene, Nutfield, *Milford House, Milford Nursery, †St. Ann's Hill, Copse Hill (Wimbledon), *Surrey Zoological Gardens, *Buchanan's Nursery (Camberwell), Mere Cottage, *Goldworth Nursery, Epsom Nursery.
Sussex. Cowdray, Kidbrooke, †Westdean, Slaugham Park, Woolbedding, Easelbourne, Arundel Castle, Chichester Nursery, New Cross Nursery, Dubois' Villa (Mitcham), Howey's Nursery, Woburn, Busbridge.
Warwickshire. †Coombe Abbey, Whitley Abbey, Berkswell, Newnham Paddocks, Aston Hall.
Westmoreland.
Wiltshire. †Longleat, Corsham House, †Bowood, †Wardour Castle, Longford Castle, Paulton's Park, †Fonthill Abbey.
Worcestershire. *Croome, †Hagley, Hadzor House.
Yorkshire. *Hull Botanic Garden, Kilnwick, Boynton, Percy, Sledmere, Ripley Castle, Hackress, *Grimston Park, Cannon Hall, Hornby Castle, Kiplin, Langton Lodge, Castle Howard, Knedlington, Backhouse's Nursery (York).
Jersey. Mr. Saunders's Nursery, Bagatelle. *Guernsey.*

WALES.

North Wales.

Anglesey. *Caernarvonshire.* *Denbighshire.* †Llanbede Hall.
Flintshire. *Merionethshire.* *Montgomeryshire.* Powis Castle.

South Wales.

Brecknockshire. *Cardiganshire.* *Caermarthenshire.*
Glamorganshire. Penllergare, The Willows, Skelty Hall, Margam, † Dowlais House, Swansea, Briton Ferry.
Pembrokeshire. †Golden Grove. *Radnorshire.* Maeslaugh Castle.

SCOTLAND.

Aberdeenshire. †Thainston, †Huntly Lodge, Moneymusk.
Argyllshire. †Hafton, †Mount Steuart, Roseneath Castle, Dunoon Castle, Toward Castle.
Ayrshire. Rozelle, Kilkerran, Doonhole, Blair, Cassilis, Kilkenzie, Dalquharran.

Banffshire. †Gordon Castle, Huntly Lodge, Cullen House.
Berwickshire. †The Hirsil. *Caithness-shire.*
Clackmannanshire. Callander House. *Dumbartonshire.*
Dumfriesshire. Eccles, Drumlanrig Castle (an arboretum is forming here, but we have not received any detailed account of it), Cairn Salloch, Jardine Hall, Closeburn, Springkell.
Edinburghshire. *Edinburgh Experimental Garden, *Lawson's Nursery (Edinburgh), †Dalhousie Castle, Newbattle Abbey, Woodhouselee, Crammond House, Hatton, Dreghorn, The Whim, Gogar House, Moredun, Barnton, Edinburgh Botanic Garden, Melville Castle, Dalkeith.
Elginshire.
Fifeshire. Dunbrisal Castle, Raith, Wemyss Castle, Dysart House, Largo House.
Forfarshire. †Kinnardy, *Airlie Castle, Courtachy Castle, Invergowrie.
Haddingtonshire. Yester House, †Tynningham, Gosford House, †Biell, Pinkie.
Inverness-shire. Inverary Castle.
Kincardineshire. *Kinross-shire.*
Kirkcudbrightshire. †St. Mary's Isle, Cassincarie, Calley, Cairnsmuir, Delvin, †Bargally, Kenmure Castle.
Lanarkshire. *Glasgow Botanic Garden.
Linlithgowshire. *Hopetoun House, Dalmeny Park, New Saughton.
Nairnshire. *Orkney and Shetland Isles.* *Peeblesshire.*
Perthshire. *Kinfauns Castle, †Dickson's and Turnbull's Nursery (Perth), Taymouth, Annat Garden, Invermay, Moncrieff House, Rossie Priory, Belmont Castle, Errol House, Gray House, Duncruib, Methven Castle, Castle Menzies, Pitfour, Dupplin Castle, The Ballo, Ferigack, Myginch Castle.
Renfrewshire. Scotstoun, Erskine House, North Barr, Bishoptown, Bothwell Castle.
Ross and Cromarty. Coul, †Brahan Castle. *Roxburghshire.*
Selkirkshire. Hasseldeanburn Nursery.
Stirlingshire. Woodhead, Buchanan, Drummond and Co.'s Nursery (Stirling).
Sutherlandshire. †Dunrobin Castle, Rhives, Balnadach, Tongue.
Wigtonshire.

IRELAND.

CONNAUGHT.—*Leitrim.* *Galway.* †Coole.
Sligo. Makree Castle. *Roscommon.* *Mayo.*
MUNSTER.—*Clare.* *Kerry.* Rough Island, &c., at Killarney.
Cork. †Castle Freke, Glengariff,
Waterford. *Tipperary.* *Limerick.*
LEINSTER.—*Dublin.* †Glasnevin Botanic Garden, Trinity College Botanic Garden, Mount Anville Hill, †Cypress Grove, Howth Castle, *Terenure, †Cullenswood Nursery.
Louth. Oriel Temple, Dundalk.
Meath. Kilruddery House, Newtown Mount Kennedy.
Wicklow. Shelton Abbey, Dunganston Nursery, Shankhill Nursery, Ballyarthur.
Wexford. New Town Barry. *Longford.* † Pakenham Hall.
Westmeath. *King's County.* * Charville Forest.
Queen's County. *Kildare.* † Castletown.
Kilkenny. Woodstock, Robertson's Nursery. *Carlow.*
ULSTER.—*Down.* Moira, Hillsborough, Tollymore Park, Mount Stewart, Ballyleedy, Bangor, Castle Ward, Spring Vale.
Antrim. Belvoir Park, Antrim Castle, Cranmore, Echlinville, Summerhill, Moyland.
Londonderry. Mount Hewick, Grey Abbey, Scarvagh.
Donegal. *Fermanagh.* † Florence Court, Castle Coole.
Cavan. *Monaghan.* *Armagh.* *Tyrone.* Barons Court.

ART. VII. *New Mode of growing Mushrooms.* By W.

NOT having seen in your Magazine so easy a method to grow mushrooms, for catchup and other purposes, as I have practised for several years, at little or no expense, I take the liberty to send you the following sketch of my plan. The only expense is at the commencement, as it may then be necessary to get a few bricks of the best mushroom spawn: afterwards, enough may be saved every year from the dung, &c.

My plan is this. About the middle of July, when preparing the ground for early broccoli or Savoy, I have some of the best fresh horse dung, that is short, and has not much straw in it, dug in the furrow, under the soil where the row of broccoli or Savoy plants are to be planted. The furrow is filled pretty full of the dung, and trodden rather firm, and a few pieces of the spawn are put in it; the mould is then dug over it, and the digging is continued, until where the next row of plants is intended; which furrow is filled with dung and spawn as the former; and so on, as far as the ground is to be planted. After the ground is dug, the plants are planted, and nothing further is required. I do not use any more dung in this way than would be required for the same quantity of ground if spread regularly over it in the usual way; and the plants grow more vigorously by having the dung under them. I consider that the broccoli or Savoy plants are of great service to the working of the spawn, by shading it from the hot sun and heavy rains.

About the middle of September, the mushrooms come up in great quantities, large and fine. I have this morning (Sept. 21.) gathered nearly half a bushel of large mushrooms from about two poles of ground, planted as above; and have had two or three gatherings before, and expect to have a good many more before the season is over.

September 21. 1835.

ART. VIII. *On the Mode of raising Mushrooms from the Mushroom Stone.* By Mr. JAMES ALEXANDER, Gardener at Maeslaugh Castle.

I HAVE no doubt but you, and many of your correspondents, are acquainted with the mushroom stone; but, as I have not seen it mentioned in your Magazine, I send you the following account of one that was under my care for upwards of two years. It was sent to Mr. Thorburn of Murth, from Calabra, in Sicily, with directions to give it a little water when it appeared dry, which was generally three or four times a week in dry weather: and, in the course of a fortnight after I received it, a couple of mushrooms made their appearance, which grew to be very large;

I think, about 9 in. in diameter. They were porous beneath, in place of gill, as in the common mushroom; consequently, they appeared rather to be a species of *Bolètus* than a species of *Agáricus*. However, they were of excellent flavour, and the ship captain who brought the stone home told me that it produced three mushrooms at sea, which, he said, were very fine. In three or four weeks after the two above-mentioned were gathered, three or four more came up, and so on, for the first year. The second year it was not quite so productive; and, in 1833, my successor informed me that the mushroom stone was nearly exhausted. I think eight or ten such stones would supply an ordinary family with mushrooms for two or three years.

Maeslaugh Castle Gardens, June 16. 1835.

ART. IX. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

AN asterisk prefixed to the name of an order, a genus, species, or variety, is prefixed to mark it as one not registered in the *Hortus Britannicus* or the *Gardener's Magazine;* a dagger, to denote it as already registered in one, at least, of these works, but with details more or less different from those given with the dagger; a double dagger, to denote a genus, species, or variety, either not yet introduced into Britain, or that has been introduced, but is since extinct in it.

The late Mr. Drummond. — (Vol. X. p. 583.; Vol. XI. p. 608.) His Christian name is Thomas, not James, as given in p. 608., in the notice of the fact of his death.

Baron Ludwig. — Dr. Hooker, in the *Botanical Magazine*, the number for December, 1835, in his account of Veltheim*ia* glaúca var. flóribus rubescénti-purpùreis, t. 3456., has noted that "We are indebted, at the Glasgow Botanic Garden, for our bulbs [of it] to Baron Ludwig, a nobleman resident at the Cape of Good Hope, where he generously devotes his time and his fortune to the promotion of botany and horticulture, particularly with the

view of rendering service to the colony, by the introduction of useful plants. To Europe he has, with the greatest liberality, communicated many rare South African plants, and has enriched our gardens with several new or little known species." The number of the *Botanical Magazine* for December, 1835, completes vol. 62. of that work. Dr. Hooker has inscribed the volume to Baron Ludwig.

A Key to Structural, Physiological, and Systematic Botany, for the Use of Classes. By John Lindley, Ph. D. F.R.S. L.S. and G.S., Professor of Botany in the University of London, and in the Royal Institution of Great Britain. — This work, recently published, is a more matured edition of both the author's *Outline of the First Principles of Botany*, and of his *Nixus Plantarum*, both included in this one, the *Key*. The *Outline*, published in 1830, has been previously commended in this Magazine; and it may be stated of that part of the *Key* which embraces the same subjects as that work, namely, the structure and physiology of plants, that information so succinct and comprehensive on them is not to be obtained in any other work extant. The *Nixus Plantarum* is written in Latin; it was published in 1833; its subject and office are noticed in Vol. IX. p. 608, 609.: that part of the *Key* which embraces the same subject is written in English, with the exception of the denominative botanic terms. The author's object, in both the *Nixus* and the kindred part of the *Key*, is, to consociate congruously the natural orders into groups, intermediate in the rank of comprehensiveness between the orders themselves and those few groups of much higher rank, as, dicotyledòneæ or exógenæ dichlamýdeæ thalamiflòræ, *Hort, Brit.*, p. 492. 495.; dicotyledòneæ dichlamýdeæ calyciflòræ, *Hort. Brit.*, p. 492. 508.; dicotyledòneæ dichlamýdeæ corolliflòræ, *Hort. Brit.*, p. 492. 523.; dicotyledòneæ monochlamýdeæ, *Hort. Brit.*, p. 492. 530.; monocotyledòneæ, *Hort. Brit.*, 492. 535.; in each of which rather many orders were included, and these less congruously associated among themselves than was desirable. His proposed mode of effecting this object is, by consociating orders by characters of common agreement into groups, named alliances; and alliances into groups, named groups.

In application to the species of plants which may be noted on in the floricultural and botanical notices anticipated to be given in the Twelfth Volume of this Magazine, it is purposed to cite, additionally to the name of the natural orders to which they may belong, the names of the alliances, groups, and higher groups, to which the cited orders may belong. The fulfilling of this purpose will have, at least, the effect of placing these botanic terms in the way of the cognisance of readers of the notices, and, in some cases, may have the better effect of contributing to elucidate the end of the invention and first application of them. Relative to

previous notices, the orders cited in application to the species noted on have been placed in a course of succession after that in which they are placed in Lindley's *Introduction to the Natural System of Botany;* and the numbers prefixed to them are those he has used in that work to denote their successional place in his series of all the orders.

The author, in his system presented in his *Key*, has employed some devices in nomenclature which he has thus explained: — "To prevent confusion in the use of the names of the numerous divisions in the natural system, it is to be observed, that the names of the suborders terminate in *eæ;* of the orders in *aceæ;* of the alliances, in *ales;* and of the groups, in *osæ*. The higher divisions have merely plural terminations. The ear of the classical critic may be offended at many of these terminations; but the distinction which they establish is too important not to outweigh all verbal niceties of construction." The author has other notes on this part of his work, in his preface, thus:—"I have . . . ventured to reform the language of botanists in some respects, by carrying out their own principles to their full extent; thus securing a more uniform kind of nomenclature, and expressing the value" of the classes, orders, &c., in all cases, by the manner of the termination of their names. The scheme of arrangement which Dr. Lindley has proposed in his *Key* is a production that no one can investigate without high profit. — *J. D.*

*** The degree of rank of the groups down to the orders: — 1st, the class; 2d, the subclass; 3d, the group; 4th, the alliance.

Class Exógenæ or Dicotyledòneæ, subclass Complètæ (plántæ) polypétalæ (the contents of this group are about identical with those of the groups Dichlamýdeæ thalamiflòræ and Dichlamýdeæ calyciflòræ in *Hort. Brit.*), group Albuminòsæ, alliance Ranàles, order *Ranunculàceæ*.

1599. *DELPHI'NIUM* †14134 cheilánthum "large-lipped" *D. Don.* [co Sw. fl. gar. 2. s. 309
*2 múltiplex *D. Don* multiplied-*sepaled* ♃ △ spl 3 to 5 jn Dp azure blue ... ... D
See Penny, in *Gard. Mag.*, Vol. IX. p. 489.

"The type of this species is decidedly the finest of the perennial species: it is also rare . . . Flowers," of the variety, "blue. In rich loamy soil, it will attain the height of 4 ft. or 5 ft." (*Penny*, as above; see, too, in the place there cited.) "A double variety of one of the finest species of the genus. It is a most lovely plant, the flowers being equal in size to those of the double variety of grandiflòrum, and of a still richer colour, a deep azure blue; stems 3 ft. high. A mixture of peat and loam will be found to suit it best. Our drawing was taken from the collection of Messieurs Allen and Rogers, at Battersea." (*D. Don*, in the *Brit. Flower-Garden*, Nov.)

Cl. Exógenæ, subcl. Complètæ polypétalæ, group Albuminòsæ, alliance Grossàles, order Grossulàceæ.

719. *RIBES* *glutinòsum [? *Bentham*] and **m*alvàceum [*Smith*]

are the names of two species of *Ribes* that are described in the *Hort. Trans.*, second series, vol. i. part 6., in a continuation of a "Report on some of the more remarkable hardy ornamental plants raised in the Horticultural Society's Garden, from seeds

received from Mr. David Douglas, in the years 1831, 1832, 1833. By George Bentham, Esq., F.L.S., Secretary." The report was read on June 17. 1834. Not any of the live plants of either of the two species of *Rìbes* had, up to that date, produced flowers. Both are allied to sanguíneum. Glutinòsum in foliage only differs from that species in being destitute of down and slightly viscous. It promises, from the dried specimens transmitted by Mr. Douglas, to exceed sanguíneum in beauty: the bunches of flowers are twice the length of the bunches of sanguíneum, and contain at least from 30 to 40 flowers, which are borne on long slender pedicels; the colour of the flowers is red: its degree of intensity cannot be judged of from the dried state of the specimens. Glutinòsum "is quite hardy, and grows vigorously in common garden soil." *M*alvàceum differs from sanguíneum in these points:— its leaves are very rough and hispid on the upper side, and clothed underneath with a whitish cottony down. The bunches of flowers are shorter and closer, and each flower is nearly sessile on the common stalk. It is deemed to be as hardy as sanguíneum, and as easily propagated. (*Hort. Trans.*)

Cl. Exóg., subcl. Compl. polypét., group Albumin., alliance Grossàles, order Escallon*iàceæ.*

†687. ESCALLO`N*IA* [Conception and Valparaiso in Chile 1831 C p.l Sw. fl. gar. 2. s. 310
†28855 pulverulénta *Pers.* dusted (*deemed accidentally*) ❄ ⌐ or 8 jl W Common about

A very handsome shrub, upright, branched, evergreen. Leaves on short foot-stalks, elliptic-oblong, obtuse, flat and even, 2 in. to 4 in. long, 1 in. to 1½ in. broad, light green, regularly crenulate, pubescent, varnished and glutinous on both sides, especially in the younger leaves. Flowers small, petals white, anthers yellow. "Some of the flowers in our specimens, we remarked, were ten-cleft and decandrous." The flowers are disposed into racemes that are spike-formed, 3 in. or 4 in. long, and terminal; each raceme consists of many flowers. Flowering specimens were communicated from "the Birmingham Botanic Garden, by Mr. Cameron, the zealous curator of that establishment." (*Brit. Flow.-Garden*, Nov.)

Cl. Exóg., subcl. Compl. polypét., group Albumin., alliance *Bèrberàles*, order *Berberàceæ.*

390. *E*PIME`DIUM [mag. 3448
† diphýllum *Lodd.* Bot. cab. twin-leafed ♃ △ pr ⅔ my W Japan 1830? D lt l Bot.

Noticed in VIII. 721. The flowers are pendent and do not include any pouch-shaped petals, nectaries of Linnæus, such as are in the flowers of *E.* alpìnum. (*Bot. Mag.*, Nov.)

Cl. Exóg., subcl. Compl. polypét., group Epigynòsæ, alliance *C*ucurbitàles, order *C*actàceæ.

†1472. CE`REUS (*Cereus* in Latin, "Literally, a torch or taper; a name translated by the English Torch-thistle; and given to these plants in consequence of the upright kinds having something the appearance of the tapers used in the ceremonies of the Roman Catholic religion." — *Lindley*, in *Bot. Reg.*, t. 1807.) [1690 C s l ru Bot. reg. 1807
†12559 triangulàris *Haw.* triangular-*stemmed* ⌐ or 7- s W Y Mexico and W. Indies

"It flowers so rarely, that" its flower "has never," before in the figure cited "been represented from a European specimen." (*Lindley.*) In Loudon's *H. B.*, *Bot. Mag.*, t. 1884., is cited for a figure: correctly? It flowered, in September, 1834, at Sir G.

Staunton's, Leigh Park, near Havant, under the good management of Mr. Robert S. Wilson, the gardener. The plant had been in the collection upwards of fifteen years without blossoming. It produced shoots, upwards of 7 ft. long, between March and September, in 1834. Two flowers were perfected: the one which opened first, opened at about six o'clock in the afternoon of September 22., and faded at about eleven o'clock in the morning of September 23. The flower of C. triangulàris is stated to exceed in size that of any other species, even C. grandiflòrus. The sepals are green, the petals "of the most dazzling whiteness;" the anthers, yellow, are represented densely disposed into a broad ring; the style is shown from within this ring, prominent above it, very stout, and ended in many stigmas that are disposed in a cone rather than spread; both the part of the style and the rays are yellow. (*Bot. Reg.*, Nov.)

Cl. Exŏg., subcl. Compl. polyp., group Calycòsæ, alliance Guttàles, order *Hypericàceæ*, division Anómalæ.

‡OCHRA'NTHE *Lindl.* PALEBLOOM *Lindl.* (*Ochros*, pale, *anthos*, flower. (*Lindley.*) The calyx and corolla are whitish.) 5. 3. sp. 1. [reg. 1819

‡argùta *Lindl.* finely-*toothed-leafed* ❀ ⌴ or ... mr Wsh China 1823 C?]? Bot.

"It flowered in the garden of the [London] Horticultural Society, so long since as March, 1826; but shortly after died, and has never again made its appearance." A shrub. Attitude, by the specimen figured, upright. Leaves disposed in pairs, the pairs crossing each other: the disk obovate lanceolate, 4 in., less or more, long, about 2 in. broad in the broadest part, the margin serrate, the petiole short, a pair of stipules at its base, and interior in position to the petioles. Flowers in a terminal thyrse, its branches in opposite pairs. Flowers subglobose, larger than a pea, sepals 5, petals 5, both whitish, becoming yellow. (*Bot. Reg.*, Dec.)

Cl. Exŏg., subcl. Compl. polypét., group Syncarpòsæ, alliance Silenàles, order *Silenàceæ. (This order is identical with order Caryophyĭleæ, tribe Silènеæ, *Hort. Brit.*, p. 502.)

1388. SILE'NE.

†11619. règia *Sims* royal ♃ △ or 4½ my.au S North America 1811 C p.l Sw. fl. gar. 2. s. 313

"The stems are upright, rising to the height of 4 or 5 ft." The inflorescence is paniculate, the flowers are numerous, the limb of the corolla is large and of a bright scarlet. The plant thrives "best in a soil composed of peat and loam, and is chiefly propagated by cuttings, as it is found rarely, if ever, to perfect its seeds in this country." The figure is from a specimen "from the choice collection of David Falconar, Esq., of Carlowrie." (*Brit. Flower-Garden*, Dec.)

*1415*a*. VISCA'RIA *Roehler.* ROCK LYCHNIS ("*Viscus*, bird-lime; because the stems of the plants are covered with clammy gluten." — *G. Don*, in his *Gen. Syst. of Gard. and Bot.*, i. 414. Of V. neglécta *G. Don*, he has stated that the stem is not clammy.) 10. 4. 5 sp. 1 var.

[... 1807 D co Maund's bot. gard. t. 523

†neglécta *G. Don* neglected *to be botanically distinguished as a species* ♃ △ or ¾ my.jl W *Synonyme:* Lýchnis Viscària albiflòra *Hort.* (*G. Don*, in his *Syst. of Gard. and Bot.*, i. 415.)

It may be that this is not rare in gardens: it is eligible for all the hardy flower-gardens that are yet without it. Its shoots and leaves are disposed into a tuft; and this is verdant throughout the year. The flowers are disposed in the mode of a crowded pa-

nicle about the upper part of short stems; the corollas are white, and not small; and, as the flowers are not few, the kind is, when in flower, ornamental. Mr. G. Don has deemed it elegant. Plants of it may be obtained by planting portions of plants previously extant.

1385. SAPONA'RIA.
*11371*a* cerastiöides *Fis.* Mouse-ear-chickweed-like ♃ △? cu ¼ Pk Russia? 1833
These details may not be correct.

Stems prostrate. Leaf glaucous to a degree of whiteness. Plants of a species thus named have been cultivated in the Chelsea Botanic Garden, and in the Cambridge Botanic Garden.

Cl. Exóg., subcl. Compl. polypét., group Gynobaseòsæ, alliance *Geraniàles*, order *Oxalidàceæ*.

1414. *O'XALIS.*
†11984 Piöttæ Col. Piotta's ☿ △| or ½ jl.au salmon-coloured C. G. H 1816 O s.p Bot. reg. 1817
Seems nearly allied to compréssa. (*Lindley.*)

"A truly beautiful little half-hardy or frame perennial, flowering most copiously during the months of July and August. A little tuft does not, indeed, produce much appearance; but a pot filled with its dense green leaves, and covered with the large salmon-coloured flowers, is a lovely object .... We believe that the plant is at present in the possession of no one in this country except Mrs. Marryat, Wimbledon, Surrey, and those of her friends to whom she has given it." (*Rot. Reg.*, Dec.)

O'XALIS † Darwall*iàna*, described in Vol. XI. p. 526, 527., corrective and additional information on.

The authority is Westcott: see under *Láthyrus* Armitage*ànus*, below, p. 42. *O'xalis* Darwall*iàna* has its leaflets nearly thrice as broad as those of *O.* tenuifòlia *Jacq.*, to which it is allied, and should be placed next.

Cl. Exóg., subcl. Compl. polypét., group Apocarpòsæ, alliance *Rosàles*, order *Rosàceæ*, suborder Pòmeæ.

1506. *CRATÆ'GUS.* [Bot. reg. 1810
?12898*a* * Douglàs*ii* Lindl. Douglas's ♃ or ♄? my W North-west America 1830? S G co

Synonymy: *C.* punctàta β brevispìna *Douglas*, in Hook. *Fl. Bor. Am.*, 1. 201. "We believe this [Douglàs*ii*] to be essentially different from all the published species of this genus; but ... we are by no means certain.... It is possible that what is called C. macracantha in the gardens may not be specifically distinct; but, as its fruit is red, it requires further examination." (*Lindley.*)

A small tree. Branches ascending; spines, rigid, straightish, now short, now very long; leaves, some obovate, some oval, gashedly serrate, acute, at the base wedge-shaped, glabrous, in the autumn remarkably leathery, and they then acquire a purplish cast and are shining: they fall off at about the same time as those of punctàta and *pyrifòlia*. Flowers produced in May: they are of a middling size. Fruit small, dark purple. The figure is from a plant in the London Horticultural Society's arboretum. (*Bot. Reg.*, Nov.)

Cl. Exóg., subcl. Compl. polypét., group Apocarpòsæ, alliance Rosàles, order Leguminàceæ.

1274. POINCIA'NA. [grounds about Mendoza in South America 1829 C r.m Sw. fl. gar. 2. s. 311
* Gilliès*ii* Hook. Gillies's ? ♃ ? ♿ ⎽| spl 10 jl Y Abundant on banks of rivers and irrigated

"An erect, slender, branched tree, rising to the height of 8 ft.

or 10 ft." May not a plant of such stature be rather deemed a shrub? Leaves alternate, bipinnate, 7 in. or 8 in. long, spreading; pinnæ about nine pairs; leaflets in each pinna, from 12 to 16 pairs; oblong elliptical, 4 or 5 lines long. Flowers in a terminal corymbose raceme; corolla yellow, 2 in. across, of 5 petals. Filaments bright red, slender, about 3 in. long; anthers dark red. Style of about the same colour, length, and thickness as the stamens. "We have seldom had to record so interesting a production as the present, and one so eminently deserving the attention of the cultivator." The figure is from a plant at Mr. Knight's, King's Road, Chelsea, which "has stood for several years, placed near the wall of a stove, which it now considerably overtops, and even exceeds the height that" the species usually attains in its native country. From the tree being deciduous, and ripening its shoots early in the autumn, we may infer that it will endure our winters in situations less favourable than the one at Mr. Knight's." (*Brit. Flow.-Garden*, Nov.)

2136. *LA'THYRUS.*

†19287*a* Armitage*ànus* Westcott (Frederick Westcott, Esq., one of the Honorary Secretaries of the Birmingham Botanical and Horticultural Society.) Armitage's ♃ or ♄ jn.au Purple-blue Brazil, Buenos Ayres 1829 S and C lt.s.l Maund's bot. gard. 526

These particulars are, some corrective, some additional, to those in XI. 525. 689.: of the following, all are additional, except the fact of its being a native of Brazil. Raised by C. H. Hope, Esq., from seeds collected in Brazil. Mr. Hope communicated it to the Birmingham Society. It appears, also, to be indigenous about Buenos Ayres; W. Borrer, Esq., having recognised it as identical with one which he raised, a few years ago, from seeds collected there. (*Mr. Maund*, in his work, the *Botanic Garden*, t. 526.) Mr. Cameron has communicated that the kind which has been denominated Armitage*ànus* was introduced into the collection of the Birmingham Botanical and Horticultural Society, in 1833; and that he believes that Mr. Borrer raised it from Buenos Ayres seeds, in about 1828 or 1829, but lost it before it flowered; and that Mr. Borrer considered it to be near nervòsus by the foliage.

1984. *LUPI'NUS.* [low, afterwards dull red Texas in Mexico 1835 S lt.s.l Sw. fl. gar. 2. s. 314

* bimaculàtus *Hook.* twin-spotted-*standarded* ♃, perhaps ♃ △ or ... s B, the spot pale yel-

Discovered by Drummond. "Very pretty. Stems procumbent, about a foot long; leaves of five leaflets, that are glabrous and pale green above, and 1½ in. long; racemes of flowers terminal, solitary, 2 in. or 3 in. long, many-flowered; corolla blue, except that the standard is "marked in the centre with a large pale-yellow spot, which afterwards changes to a dull red." Hardy. Should be planted in light sandy loam. The figure is from a plant which flowered in the collection of Dr. Neill, at Canonmills, near Edinburgh. (*Brit. Flower-Garden*, Dec.)

2071. PSORA'LEA †18634 glandulòsa.

A specimen received, on August 18. 1835, from Bury St. Ed-

munds, as "of a most beautiful shrub, free-bloomer, and quite hardy," has been submitted to Mr. D. Don, who has identified it as of the species Psoràlea glandulòsa. Mr. Alexander Scott, Pince's nursery, Exeter, has since communicated, orally, that he had seen, in some garden that he had visited in the course of a professional tour, a plant of Psoràlea glandulòsa, with a stem as thick as his wrist, and with branches 12 ft. or more in spread. In whose garden was it? Was the plant growing against a wall? Had its branches been trained? The specimen from Bury St. Edmunds is about 6 in. long; and consists of a portion of branch more than 3 in. long, some leaves, and five stalked racemes of numerous small flowers, whose corollas, when the specimen was received, when it was somewhat withered, though not dried, were in colour blue and whitish. It is easy to conceive that a plant of this species, with numerous branches, thus terminated, and very many of the flowers open together, must be beautiful indeed. The dried specimen has a remarkable odour, perhaps comparable to that of boiled parsneps: this may be ascribed to matter contained in the very numerous minute glands that are situate upon the surface of the herbage. The dried leaves of this species are used as tea by the natives of Mexico.

Cl. Exóg., subcl. Incomplètæ (plántæ), group Tubiferòsæ, alliance Proteà*les*, order Proteà*ceæ*.

303. ISOPO'GON.
‡spathulàtus *R. Br.* spathulate-*leafed* [Sound 1830 C s.p Bot. mag. 3450
*2 lineàris *R. Br.* linear-*spathulate-leafed* ♣ ⌊⌋ or 2 and above sp Pa P King George's

It is a plant of strong growth, flowering with freedom in the spring of the year, and deserving a place in every choice collection. The disposition it manifests to push forth its heads of pale purple blossoms at the extreme points of the lateral branchlets, which the plant throws out rather abundantly, and by which it is readily propagated, render spathulàtus var. lineàris well worth the cultivator's care. The branches are fully clad with leaves, these are wedge-shaped, obovate, or linear-spathulate, with an acute point, scarcely 1 in. long, a quarter, more or less, broad. Introduced to the nurseries near London from seeds collected by Mr. William Baxter. (*Bot. Mag.*, Nov.)

Cl. Exóg., subcl. Incompl., group Curvembryòsæ, alliance *P*olygonàles, order *P*olygonàceæ.

1212. COCCO'LOBA. ("From *kokkos*, fruit (in this case, seed), and *lobos*, a lobe; in allusion to the lobed seeds." — *Lindley*, in *Bot. Reg.*, t. 1816.)
*10302*a* vìrens *Lindl.* green-*racemed-and-leafed* ♣ ▭ cu ... au Yellow-green "We [Dr. Lindley] are unacquainted with its native country, but presume it to be the West Indies" 1825? C r.m Bot. reg. 1816

Vìrens *Lindl.* has been distinguished and elucidated from it in a living state, in Sir A. Hume's collection of plants at Wormleybury, in which it flowered in August, 1833. It differs from obtusifòlia *Jac.* in the form of its leaves, from microstàchya *W.* in their size and proportion to the racemes. (*Bot. Reg.*, Dec.)

Cl. Exóg., subcl. Complètæ (plántæ) monopétalæ, group Polycarpòsæ, alliance *E*ricàles, order *E*ricàceæ.

1339. *R*HODODE'NDRON 11006 màximum
*var. hỹbridum *Hook.* hybrid ♣ or ... ... W P ? hybrid ? 1830 L p.l Bot. mag. 3454

"It has every appearance of a hybrid." (*Hooker.*) Dr. Hooker has stated that he has little hesitation in deeming it identical with the "Rhododendron hybridum; bigener *Lindl. Bot. Reg.* t. 195." and this, it may be inferred from Dr. Hooker's account, "is the offspring of the common white glaucous-leaved Azalea, which had been fertilised with the pollen of Rhododendron maximum." *R.* máximum hýbridum *Hook.* has been cultivated, for some time, in the Glasgow Botanic Garden; where it was received under the name of *R*hododéndron frágrans. Dr. Hooker has given this name as a synonyme with the authority "Hortulan." to it. *R*hododéndron máximum hýbridum *Hook.* "is amply worthy of a place in every flower-garden and shrubbery:" its flowers are fragrant. (*Bot. Mag.*, Dec.)

*pulchérrimum *Lindl.* "*the lovely*" *or* most beautiful ♠ or ... mr Pa Ro Hybrid, "obtained by Mr. Waterer of Knaphill between R. arboreum and caucasicum." 1832? L p.l Bot. reg. [1820, fig. 2. [reg. 1820, fig. 1
Noblea*num* Hort. Noble's ♠ or ... mr. Dp and brilliant rose colour hybrid 1832? p.l Bot.

Pulchérrimum is "a most beautiful" variety. "It is of rather delicate appearance; but we are informed that it is quite hardy, and an abundant flowerer." Noble*ánum* "is very much like the other in all respects, except that its flowers are of a deep and brilliant rose colour. Both are among the handsomest hardy shrubs in cultivation." (*Bot. Reg.*, Dec.)

Cl. Exóg., subcl. Compl. monopét., group Polycarpòsæ, alliance *E*ricàles, order *V*acciniàceæ.

1194. *V*ACCI'NIUM. (It belongs to Decándria Monogýnia *Hook.*)
*10107*a* canadénse *Hook.* Canadian ♠ or l my W R Canada 1825? L p Bot. mag. 3446

It may be readily known from corymbòsum by its dwarf size, leafy flowering branches, and campanulate corolla; from pennsylvánicum, by its large quite entire leaves, and wider mouth to the corolla; from both, by its leaves being very hairy. Stem much branched, leaves often 1 in. long, lanceolate, acute at both ends. Racemes of from four to six flowers. Corolla short and campanulate, white, tinged with red. Berries, blue-black, agreeable to the taste. (*Bot. Mag.*, Nov.)

†10120 myrtillöides *Mx.* Myrtillus-like ♠ or l, "2" in H. B. ap.my Pk N. America: high alpine woods of the Rocky Mountains, about lat. 52°; in Canada and Hudson's Bay; on the north-west coast; on the west side of the Rocky Mountains; so that its place of growth extends from the Atlantic to the Pacific. 1776 L p Bot. mag. 3447

A shrub with spreading branches; in the Glasgow Botanic Garden about 1 ft. high. Leaves oval, more or less acute at both ends. Flowers solitary, pendent. The corolla remarkable for its flagon-shaped appearance, pale yellowish green, or dingy white, tinged with red. Anthers with two rather short awns. The fruit large, globose, blackish purple, highly esteemed by the natives. (*Bot. Mag.*, Nov.)

Cl. Exóg., subcl. Compl. monopét., group Polycarpòsæ, alliance Primulàles, order Primulàceæ.

451. PRI'MULA 3791 sibírica Bot. mag. 3167.
[Altai Mountains, about the middle of the range 1832 O p.l Bot. mag. 3445
*2 integérrima *Hook.* entire-*leafed* ♃ △ or l mr ap Reddish lilac Marshes among the

The picture exhibits a plant with several leaves, and three umbels of flowers upon three peduncles; one umbel is of three

flowers, one of four, one of four or five; the flowers upon pedicels of from more than half an inch to more than an inch long; the limb of the corolla is not so broad as a sixpenny piece. The peduncles are described to be from 8 in. to 1 ft. long. The colour of the corolla is described to be reddish lilac, paler behind, the throat yellow, the tube yellowish. This variety, as well as the crenated-leafed one, was received at the Botanic Garden, Edinburgh, from Mr. Goldie of Ayr. (*Bot. Mag.*, Nov.)

Cl. Exóg., subcl. Compl. monopét., group Aggregòsæ, alliance *Asteràles*, order **Asteràceæ* (A part of the order formerly named Compósitæ.)

*2337*a* GALATE'LLA *Cass.* (The etymon is not given in the *Bot. Reg.*, t. 1818.) 19. 2. sp. 3.—4.
Synonyme: certain of the species of the Linnæan genus *Aster*.

†21290 punctàta *Nees* dotted-*leafed* ♃ △ or 2½ jl.s V Y [elsewhere in the east of Europe: it also occurs in Siberia." 1815 D co Bot. reg. 1818
Synonymes: *Aster* punctàtus *Waldst.* and *Kit.*, Galatélla intermèdia *Cass.*, *Aster* desertòrum *Fis.* "Salt marshes in Hungary, Podolia, and ined.

"All the species of this genus [Galatélla] are well adapted for borders of shrubberies, and for places where shade-loving plants alone will grow." (*Bot. Reg.*, Dec.)

Dr. Lindley, in his account of G. punctàta, has mentioned two other species, named * *hyssopifòlia* and * àcris; but has stated that he greatly doubts whether punctàta "is really a distinct species from G. hyssopifolia and acris, or they from each other;" and that "so very difficult is it to distinguish them with absolute certainty, when one has a long series of specimens under examination." It can scarcely be doubted that Galatélla *hyssopifòlia* is another name for No. 21241. in *H. B.*, and Galatélla àcris for No. 21291.

2340. CINERA'RIA. [gard. t. 524
*macrophýlla long-leafed ♃ △ or 8 jl.au Y Altai Mountains 1831 S lt Maund's bot.

"It is one of the noblest herbaceous subjects we have long met with; and, notwithstanding its flowers, individually, are small, the mass of them displayed, during nearly a month, on a stem 8 ft. high, emanating from a base of glaucous leaves, each 2 ft. long, produces a most striking effect." (*B. Maund*, in his work, the *Botanic Garden*, Nov.)

This species is noticed in IX. 112., from Mr. Cameron, as cultivated in the Birmingham Botanic Garden, in 1831. Mr. Maund has now made known that it was raised there from foreign seeds, and that it flowered there in 1835 for the first time. "At present, it possesses no appearance of offsets, for increase at the root. Should this still continue, it will be unimportant, on account of the facility of its increase by seeds. It appears to be completely hardy; and flourishes in light soil. (*B. Maund*, in his work, the *Botanic Garden*, Nov.)

†2323. *HELICHRY'SUM.* [1835? S co Bot. reg. 1814
*20992*a* bícolor *Lindley* *gold-and-tawny*-coloured-*bracted* [?] ○ or 3? au Y Van Diemen's Land

The botanical name for the species of plant that is called the yellow everlasting flower, or xeranthemum, is *Helichrỳsum* bracteàtum. Dr. Lindley has stated of bícolor, that "it resembles

bracteàtum, but is much handsomer:" he has not stated in what. The following particulars on it are derived from the description and figure: — Stem, 2 ft. high, bearing a branched head; but whether additionally to the height of 2 ft., or as part of it, is not stated: stem, glabrous; branchlets, hairy; leaves, linear-lanceolate, at the base obtuse, and, in some instances, almost heart-shaped; upper leaves, awl-shaped; all the leaves ciliate on the edge, at least at the base; and roughish on the upper face (surface, in contradistinction to the lower face, subface), it may be supposed with hairs; heads of flowers (flowers in the language of those not versed in botanic language) borne singly on the tips of branchlets. The application of the epithet bícolor is not explained. "Introduced by Mr. Low of the Clapton Nursery." (*Bot. Reg.*, Dec.)

2361. *BE'LLIS.*
*integrifòlia *Mx.* entire-leafed ○ pr ½ jn.jl W Purplish Y Shady hills and banks of rivers in Tenessee. (*Michaux.*) Arkansa Prairies. (*Nuttall.*) Abundant in some parts of Kentucky. (*Dr. Short.*) Rio Brazos and San Felipe de Austin in Texas. (*Drummond.*) 1834? S lt Bot. mag. 3455.

The daisy of America. Michaux was the first to record a notice of this species. Subsequently certain other botanists had not met with it; "and a general opinion prevailed, that no species of our favourite daisy was to be found in the New World." (*Hooker.*) The localities that are cited above, additional to that by Michaux, are sufficient to show that this opinion has ceased to be well-founded. Mr. Drummond "sent numerous specimens and seeds." From the latter, Mr. Murray [curator of the Glasgow Botanic Garden] has raised plants, which blossomed in a cool frame, and in the open air, during . . . June and July." The more obvious of the features of *Béllis* integrifòlia are these: — Stems rarely simple and unbranched, generally branched; and, frequently, many arise from the same root, and are spreading and ascending; branches filiform; leaves oblong or spathulate, entire; peduncles terminal upon the stem or branches, elongated, naked, each bearing a single head of flowers, that, before the flowers expand, has a pendulous position. Corollas of the ray fourteen to twenty, white, with a purple tinge, especially on the outside; the outline of the ray exceeds in extent the breadth of a sixpenny piece. (*Bot. Mag.*, Dec.)

2418. CALLIO'PSIS. [co Sw. fl. gar. 2. s. 315
*22016*a* Drummóndii D. Don Drummond's ○ or 2 s Y with a reddish-brown spot ... 1835 S

"We have named the species after its indefatigable discoverer, the late Mr. Thomas Drummond, whose zeal and talents so eminently fitted him for a successful collector." (*D. Don.*) "Not less ornamental than the more common Calliópsis bícolor [Coreópsis tinctòria *Nut.*], which it much resembles in habit, but from which it differs," in points deemed characteristic of the condition of a species. "It is, like that species, a hardy annual of easy culture, perfecting its seeds freely in the open border." The figure

is "from plants which blossomed in Dr. Neill's collection," Canonmills, near Edinburgh. (*Brit. Flower-Garden*, Dec.)

Cl. Exŏg., subcl. Compl. monopĕt., group Labiòsæ, alliance Labiàles, order Labiàceæ.

3451. GARDOQUI*A*.
†28881 Gilliès*ii* Grah. Gillies's ♀ △| pr ⅔ jn to s Li Y Chile 1828 C p.s Bot. reg. 1812

A neat little half-shrubby herbaceous plant, with divaricate branches and oblong linear leaves, scarcely half an inch in length, and, by the picture, numerous flowers. It is far less showy than Hoóker*i*, but is hardier; it flowers from June to September in the open border, but requires a little protection in winter. Cuttings in peat and sand root freely. The figure is from a plant in the garden of the London Horticultural Society. (*Bot. Reg.*, Nov.)

Cl. Exŏg., subcl. Compl. monopét., group Dicarpòsæ, alliance *E*chiàles, order Hydrophyllàceæ.

477. PHACE'LIA. [veston Bay, Texas 1835 S co Bot. mag. 3452
*3934*a* congésta *Hook.* grouped-*racemed* ○ or 1½? jn in the green-house Bright purplish blue Gal-
"Its nearest affinity is with bipinnatífida of Mich. Fl. Bor. Am., vol. i. p. 134. t. 16., a native of the Alleghanies."

It seems that most of the particulars which Dr. Hooker has described of congésta are derived from plants of it cultivated in the green-house in the Glasgow Botanic Garden. Some of the particulars are these: — Annual; stem branched in the cultivated specimens, simple and upright in the native ones. Leaves pinnate; by the picture, less and more than 3 in. long; by the description, slightly downy, the leaflets alternate, some stalked, some sessile, some pinnatifid, some lobed, some cut, the terminal ones almost bipinnatifid. Flowers disposed in racemes; of which racemes three to five terminate each of the several peduncles; and are rather densely disposed upon them in a corymbose manner: the situation of the peduncles is on the side and extremity of the stem. Corolla, of a bright purplish-blue colour, broadly bell-shaped, with a spreading limb. Its pretty blossoms were in perfection, in the green-house, in June. It is beautiful; "and, being an annual... there is no doubt but it will soon become a great ornament to our flower-borders." Phacèlia congésta was first received in Britain "among the many interesting" species of "plants collected by Mr. Drummond in Texas, and sent home in his last despatches from that interesting country." (*Bot. Mag.*, Dec.)

3292. EU'TOCA.
* viscida *Benth.* clammy-*haired* ○ or 2 jl B Ro California 1834? S co Bot. reg. 1808

Annual; perfectly hardy; stem branched, 2 ft. high. Leaves 2 in. broad, a little longer, gradually smaller towards the tips of the stem and branches, the upper leaves coarsely toothed. Flowers in racemes, many in a raceme; this revolute, while the flowers are unexpanded, becoming gradually straight as the flowers expand, in succession, from the base of the raceme to its tip. Corolla, in its limb, of a pleasing blue; in its tube, rosy. The surface of the whole herbage is covered with hairs that are tipped with little black heads, filled with a viscid secretion, and that

stick to the fingers like those of henbane. "The blue of the flowers is remarkably deep and brilliant, so that the plant has a handsome appearance; but its leaves are rather coarse and weedy. We know, however, of no plant better adapted for bouquets; for it will go on growing and flowering, in water, for two or three weeks after being gathered." Mr. Douglas discovered this species. The figure has been prepared from the species in a living state in the London Horticultural Society's Garden. It will grow in any common soil. (*Bot. Reg.*, Nov.)

Cl. Endógenæ, group Hypogynòsæ, alliance *Liliàles*, order *Liliàceæ*.

1024. VELTHEI'MI*A* 8489 glaúca [C. G. H 1834? O r.m Bot. mag. 3456
*var. flóribus rubéscenti-purpùreis *Hook.* red-purple-*perianthed* ♅ ◺ or 1 ... Reddish

The perianths are "of a very different colour" from those of glaúca itself; they are "of a reddish colour, marked with paler spots; each segment with a little white spot at the point; the limb purple." The kind is illustrated from the Glasgow Botanic Garden, where bulbs of it had been received from Baron Ludwig at the Cape of Good Hope. (*Bot. Mag.*, Dec.)

Cl. Endógenæ, group Hypogynòsæ, alliance *Liliàles*, order *Liliàceæ*, suborder *Asphodèleæ*.

* 1058*a*. DAUBE'NY*A* Lindl. ("We name this new and curious genus after Dr. Charles Daubeny, Professor of Botany at Oxford, whose interesting researches in vegetable chemistry have materially conduced to improve our knowledge of the physiology of plants."—*Lindley.*) 6. 1. sp. 1
*aúrea *Lindl.* golden-*coloured-flowered* ☿ ◺ or ½ jn Y C. G. H 1832? O s.l Bot. reg. 1813
Synonyme: Massòn*ia* lùtea *Hort.*

In the bosom of two oblong fleshy furrowed prostrate leaves, by the figure, 3 in. or more long, and 2 in., more or less, broad, is situate a sessile umbel of numerous densely aggregated yellow flowers: the outline of the umbel is about orbicular, and more capacious than that of a crown piece. A good share of this extent is occupied by the lower lips, three-parted, of the perianths, the segments of which lower lips are obovate rounded, very much larger than those of the inner lips, and are spread rayedly. It "is very pretty as well as singular, so long as its blossoms remain expanded, which is for about three weeks. From Massòn*ia*, with which it remarkably agrees in habit, it differs essentially in its tubular, not campanulate, very irregular, perianth, and in the absence of the honey-pores which form so remarkable a part of the character of Massòn*ia*. It was obtained from the Cape of Good Hope by Messrs. Young of Epsom, under the name of Massòn*ia* lùtea. No trace of it is to be found in books; so that it has, probably, been recently discovered in the interior of the Cape Colony." (*Bot. Reg.*, Nov.)

Cl. Endóg., group Gynandròsæ, order *Orchidàceæ*.

2537. MAXILLA'RIA. [O p.r.w Bot. reg. 1811
*cristàta *Lindl.* crested-*labellumed* ♐ ◺ or ½ jl W P Trinidad, near the Mud Lake 1834?

Pseudo-bulb ovate, furrowed, bearing one leaf: this is oblong-lanceolate and plaited. Scape pendulous, bearing two flowers. Sepals 1¾ in. long; petals equal to them. The sepals are in colour white and crimson; the petals are so too, but not in the same mode. "The striping, banding, and painting of the de-

licate white flowers, with rich crimson, produce a very rich and striking effect .... The lip is a most curious organ." It is purposed to quote here on it only for explaining the specific name, that it is deeply divided into three parts, and that the central of these is crested in front by a deep white fringe of necklace-shaped hairs. The figure has been derived from a plant in flower, in July, 1835, at Mr. Knight's nursery, King's Road, Chelsea. (*Bot. Reg.*, Nov.)

2554. EPIDE'NDRUM.
†22744. conópseum *Bartr.* gnat-like-*flowered* £ ⍁ ?⍁ cu Pale yellowish-green Southern territories of the United States of N. America 1775 D p.r.w Bot. mag. 3457

The only epiphytal orchideous specie of plants found in the United States of North America. (*Bot. Mag.* Dec.)

2543. MACRADE'NIA *R. Br.* Long-gland *Lindl.* (*Makros*, long, *adēn*, gland; in allusion to the long caudicula of the pollen masses. — *Lindley*, in *Bot. Reg.*, t. 1815.) 20. 1. sp. 2.
*triándra *Lindl.* three-*anthered* £? ⍁ cu ⅓ my P W G Surinam ... Brought by Mr. Lance D p.r.w Bot. reg. 1815

Not showy in its flowers. Its leaves are narrower than those of lutéscens; its raceme is pendulous or prostrate; that of lutéscens is erect; in triándra there are three lamellæ in the middle of the lip; the clinandrium is regularly and strongly serrate; and there are three anthers; two of them abortive, which are always present. In the possession of the London Horticultural Society. "A strong damp stove-heat is required to keep it in health." (*Bot. Reg.*, Dec.)

2568. EULO'PHIA. [Bot. reg. 1821
*lùrida *Lindl.* lurid-*flowered* £ ⍁ or 1½? all sea P Y W Sierra Leone 1833? O p.r.w

The scape is branched; the flowers are disposed in racemes along the branches, except about the base of them: the flowers, when expanded, are not so broad as a sixpenny-piece, but the whole inflorescence of them must render the species a pleasing one when in flower. It is very easily cultivated in an atmosphere hot, damp, and uniform. It then flowers profusely at intervals through the year. Great quantities of plants of it are occasionally brought from Sierra Leone. The figure is from the species in a living state in Messrs. Loddiges's collection, Hackney. (*Bot. Reg.*, Dec.)

2564. *VA'NDA.* [the Burmese Empire 1828? C? p.r.w. Bot. reg. 1809
*tères *Lindl.* taper-*leafed* £ ⍁ el ... ... Dp P, W C Y Sylhet, and near Medown in

It has produced flowers in the Duke of Northumberland's collection at Syon. "Nothing can exceed the flowers of this plant, in delicacy of texture or softness of colour; the deep purple of the petals softens away to the margin, and seems to melt, as it were, into the purer white of the sepals; while the rich crimson and yellow of the lip render the brilliancy of the other parts still more conspicuous." Flowers produced from two to three in a spike. Dr. Lindley has two preserved flowers, that were produced during Dr. Wallich's importation of the species from India to England, both in one spike, and are all that were in the spike, that individually measure 4½ in. from the tip of one petal to the tip of the other. (*Bot. Reg.*, Nov.)

MISCELLANEOUS INTELLIGENCE.

ART. I. *Covent Garden Market.*

	From £	s.	d.	To £	s.	d.
The Cabbage Tribe.						
Cabbages, per dozen:						
White	0	1	6	0	2	0
Red	0	1	0	0	3	0
Plants, or Coleworts	0	5	0	0	7	0
Savoys, per dozen	0	2	6	0	3	0
Brussels Sprouts, per sieve	0	2	0	0	2	6
German Greens, or Kale, per dozen	0	1	0	0	1	6
Cauliflowers, per dozen	0	3	0	0	6	0
Broccoli, per bunch:						
White	0	2	0	0	3	0
Green	0	1	6	0	2	0
Purple	0	1	6	0	2	0
Tubers and Roots.						
Potatoes, per ton	3	10	0	4	10	0
Potatoes, per cwt.	0	4	0	0	4	10
Potatoes, per bushel	0	2	0	0	2	6
Kidney, per bushel	0	2	3	0	2	6
Scotch, per bushel	0	1	9	0	2	3
Jerusalem Artichokes, per half sieve	0	1	3	0	1	6
Turnips, White, per bunch	0	0	4	0	0	6
Carrots, per bunch	0	0	5	0	0	8
Parsneps, per dozen	0	1	0	0	1	6
Red Beet, per dozen	0	1	0	0	1	6
Skirret, per bunch	0	1	6	0	2	0
Scorzonera, per bundle	0	1	3	0	1	6
Salsify, per bunch	0	1	3	0	1	6
Horseradish, per bundle	0	1	0	0	4	0
Radishes:						
Red, per dozen hands (24 to 30 each)	0	0	8	0	1	0
White Turnip, per bunch	0	0	2	0	0	3
The Spinach Tribe.						
Spinach, per sieve	0	2	6	0	3	0
Spinach, per half sieve	0	1	6	0	1	9
Sorrel	0	1	6	0	2	0
The Onion Tribe.						
Onions, old, per bushel	0	0	6	0	4	0
Green (Ciboules) per bunch	0	0	3	0	0	4
Leeks, per dozen bunches	0	1	0	0	1	6
Garlic, per pound	0	0	6	0	0	8
Shallots, per pound	0	0	6	0	0	8
Asparaginous Plants, Salads, &c.						
Asparagus, per hundred	0	10	0	0	12	0
Sea-kale, per punnet	0	1	6	0	2	0
Lettuce, per score:						
Cos	0	1	6	0	2	0
Cabbage	0	0	6	0	0	9
Endive, per score	0	1	9	0	2	6
Celery, per bundle (12 to 15)	0	0	6	0	1	6
Small Salads, per punnet	0	0	2	0	0	3
Watercress, per doz. small bun.	0	0	4	0	0	6
Burnet, per bunch	0	0	2	0	0	3
Pot and Sweet Herbs.						
Parsley, per half sieve	0	2	0	0	3	0
Tarragon, dry, per doz. bunch.	0	2	0	0	0	0
Fennel, per dozen bunches	0	4	0	0	0	0
Thyme, per dozen bunches	0	2	0	0	3	0
Sage, per dozen bunches	0	2	0	0	0	0
Mint, dried, per dozen bunches	0	1	0	0	0	0
Peppermint, dried, per dozen bunches	0	1	0	0	0	0
Marjoram, per dozen bunches	0	1	0	0	0	0
Savory, per dozen bunches	0	1	0	0	0	0
Basil, per dozen bunches	0	1	6	0	2	0
Rosemary, dried, per doz. bun.	0	3	0	0	5	0
Lavender, per dozen bunches	0	2	0	0	3	0
Edible Fungi and Fuci.						
Mushrooms, per pottle	0	1	0	0	1	6
Morels, dried, per pound	0	12	0	0	14	0
Truffles, per pound:						
English	0	3	6	0	5	0
Foreign	0	12	0	0	14	0
Fruits.						
Apples, Dessert, per bushel:						
Nonpareils	0	10	0	0	12	0
Ribston Pippins	0	6	0	0	10	0
Golden Pippins	0	6	0	0	18	0
Baking	0	2	3	0	6	0
American, per barrel	0	15	0	1	0	0
Pears, Dessert, per half sieve:						
Chaumontel	0	2	0	0	5	0
Chapman's Seedling	0	4	0	0	8	0
Glout Morceau	0	5	0	0	10	0
Baking	0	2	0	0	3	0
Medlars, per half sieve	0	3	6	0	5	0
Almonds, per peck	0	7	0	0	0	0
Cranberries, per gallon	0	3	0	0	4	0
Chestnuts, French, per peck	0	3	0	0	5	0
Filberts, English, per 100 lbs.	1	15	0	2	0	0
Pine-apples, per pound	0	5	0	0	8	0
Grapes, per pound:						
Hot-house	0	3	6	0	5	0
Spanish	0	1	2	0	1	4
Portugal	0	1	0	0	1	6
Oranges, per dozen	0	0	9	0	2	0
Oranges, per hundred	0	3	6	0	14	0
Bitter, per dozen	0	1	6	0	2	6
Lemons, per dozen	0	1	0	0	2	0
Lemons, per hundred	0	6	0	0	12	0
Sweet Almonds, per pound	0	3	0	0	4	0
Brazil Nuts, per bushel	0	16	0	0	0	0
Spanish Nuts, per bushel	0	14	0	0	16	0
Barcelona, per bushel	1	0	0	0	0	0

During the latter end of November and the early part of December, the weather was extremely mild, and favourable to the growth of vegetables; in consequence our supplies became more general, and the prices somewhat more moderate. A few days of severe frost intervened, which created a considerable change; but, during the last week, the weather has again become open and fine, and most of the articles usually furnished at this season have been more plentiful. Sea-kale and asparagus have been brought to market during the last week, but are not as yet in much demand: prices moderate. Broccolies, of various sorts, are now in fair supply; but, as the effect of the dry and hot weather during the preceding summer must have in a great measure prevented the cultivators from planting out so extensively as usual, the quantity as yet brought to market is rather limited. Savoys and coleworts are also less plentiful than usual, and realise good prices. Turnips are more abundant, being brought from farther off; the prices being such as to pay the growers for their extra labour. Carrots

are short in supply, owing to the same causes. Potatoes have been, until the last week, plentiful: the prices have fallen materially; but, as the supply of the market depends altogether on the coasting trade, being almost exclusively, this season, confined to the growth of the distant counties, should any interruption from frost take place, a considerable difference in their value would be the consequence; although it is generally understood that the crop is not so large as usual. Onions are not as yet in much demand: the crop is supposed to be much smaller than that of the last and preceding years; consequently, should the winter prove severe, a considerable advance in price might be expected. Of fruit we have an excellent supply, with the certainty of any farther quantities that may be required, should the prices warrant it being sent from the distant counties: at present the market is principally furnished from the home districts. Of apples the crop is very large. Of pears of the more hardy and common sorts, such as Chaumontels, swan's eggs, &c., the crop has been good: they are as yet plentiful. The supply of oranges has not been so large as usual up to this period; but the prices have been very moderate. The crop of grapes has been so good, that, as yet, there has been but little demand for the foreign varieties. Nuts and chestnuts are rather short in supply, but not in extensive demand. — *G. C. December* 19. 1835.

Art. II. *The London Horticultural Society and Garden.*

Nov. 3. 1835. — *Read.* A Note upon *Mímulus* * cardinàlis, a newly introduced species of hardy herbaceous plant; by Dr. Lindley.

Exhibited. Citrons, and pears of the kinds Uvedale's St. Germain and Chaumontel, from C. Dixon, Esq., F.H.S. Apples of the kinds Wadhurst pippin, wintef pearmain, and unnamed, from J. H. Slater, Esq., F.H.S. A pomegranate off a plant in the open air, from J. L. Goldsmid, Esq. Pomegranates produced on a plant or plants in the open air, from Miss Player, Ryde House, Isle of Wight. Oncídium ciliàtum, from Messrs. Rollisson. Bulbs, from J. Rogers, Esq., F.H.S. Calceolarias and seedling heartseases, from Mr. Glenny. Rhodochìton volùbile (synonyme Lophospérmum atrosanguíneum), from Mrs. Lawrence, F.H.S. Catasètum tridentàtum, from W. Harrison, Esq., F.H.S.

From the Garden of the Society. — *Cýclamen* sp., from Mr. Bentham. Pears of the kinds pomme poire, Seckle, poire Neill, beurré Diel, Bezi de la Motte, Colmar Neill, Doyenné gris, sucré and vert, and figue de Naples: the specimens of all these kinds, except the beurré Diel, were from standard trees. Apples of the kinds Court of Wick, king of the pippins, Warwickshire pippin, Foxley, Sam Young; Orack Elma, Persian, only a kitchen apple; pomme de Neige, royal russet, Dumelow's seedling, gloria mundi, Pennington seedling, Caroline, golden russet nonpareil, black American, golden reinette. Except where grown in particular situations, little favourable can be said of fruits this season. Even the new sorts of pears, that usually grow large and juicy on standards, are small, dry, and contain a bitter, in consequence of the trees having nearly lost their leaves in the dry weather. Mr. Thompson deemed the specimens of poire Neill exhibited of but a third of the full size of this kind.

Dec. 1. — *Read.* A communication on the cultivation of Bignò*nia* venústa; by Mr. G. Phillips. An account of several varieties of grapes grown at Kiplin; by Mr. J. B. Whiting.

Presents. Of the works, these are two: — Arbres Fruitiers, tome i.; leur Culture en Belgique, et leur Propagation par la Graine: presented by the author, J. B. van Mons, M.D. De la Botanique, de ses Avantages, et des Moyens faciles de l'étudier avec succès; par M. B. Gaillon: presented by A. Cruckshanks, Esq.

Exhibited. Bignò*nia* venústa, from Mr. G. Phillips, gardener to the Misses

Trevor, Tingrith, near Woburn. Rhodochìton volùbile, grown in the open air, from Mrs. Lawrence. A miscellaneous collection of flowers, from the Hon. W. T. H. F. Strangways. Epiphýllum truncàtum, from Mr. Dennis, King's Road, Chelsea. Chrysanthemum, from E. Johnston, Esq. Two sorts of seedling apple, from J. Cobbold, Esq., the Cliff, Ipswich. A drawing and specimens of the Bedfordshire foundling apple, and specimens of flower-defenders, from Mr. T. Levitt of Wandsworth.

Also, from the Garden of the Society. — Specimens of sorts of pears, and of dessert apples. Of these it is stated by Mr. Thompson that the pears are all of good sorts, and all from trees against walls, except those of the bergamotte cadet; and that the beurré d'Aremberg is not so good from a wall as from a standard; and, at the same time, the trees are not so hardy as those of the glout morceau, and that, on this account, the latter has the preference. The apples are dessert sorts, kitchen apples being of no size worth exhibiting this season.

Art. III. *Queries and Answers.*

The Manner of making a Peach taste of Wormwood is, to set a wormwood plant, root by root, near a peach tree. A large green plum grafted on the stem of the long black fig has been tried here, and answers very well. (*Letter of John Ford to Mr. Ellis, dated Rome, July* 8. 1775. *Smith's Correspondence of Linnæus*, vol. ii. p. 64.) Are such absurdities as the above still believed in the neighhourhood of the Holy City? How strange it appears to us now, that any one should write such stuff to Mr. Ellis, who must have been known to be a scientific man. Can any of your readers inform me whether such tricks as that of pretending to graft a plum upon a fig are still played in Italy? — *A. B. London, Feb.* 1835.

Freeing Fire Stones of Flues from Smoke Stains. — Can you or any of your correspondents suggest the means of getting fire stains out of a sandstone flue? The outside of the stove is covered with large clouds, as it were, of smoke stains. Do you think that any chemical preparation could be made that would wash them out; any infusion, for instance, of alkali? — *D. R. Alton Towers, July* 14. 1835.

Grafting Forest Trees in Parks and Plantations. — Why should not gentlemen head down oaks, elms, horsechestnuts, and other forest trees, and graft them with the finer American kinds, in the same way as large apple trees are headed down and regrafted in cider countries?— *T. S. Hereford.*

The Red Spider on the Ribes *sanguíneum.* — Having several plants of this beautiful shrub, all much infested with the red spider, though in different parts of my garden, and though it appears on no other plant in my possession, I should be glad to learn, through the medium of your Magazine, whether the plant is particularly liable to the attacks of that destructive insect. — *T. W.*

Currants and Gooseberries for Wine. — What is the most suitable variety of red currant for growing to produce wine? The largest variety is generally chosen by gardeners; but, considering that the largest grapes are never chosen for planting vineyards, in wine countries; may not some of the smaller varieties of red currants be preferable; on the same principle that small and harsh-flavoured grapes are preferred for making the strongest wines? Will not the same doctrine apply to gooseberries? Has wine ever been made from unripe currants, or unripe grapes, as it is from unripe gooseberries? — *Id.*

Melons. — Might not the smaller kinds of melons be grown against hot-walls in many parts of the country? If grown on a peach wall, furnished with a coping, and a bunting or net curtain, the latter might be let down in cold evenings. — *Rusticus in Urbe.*

THE

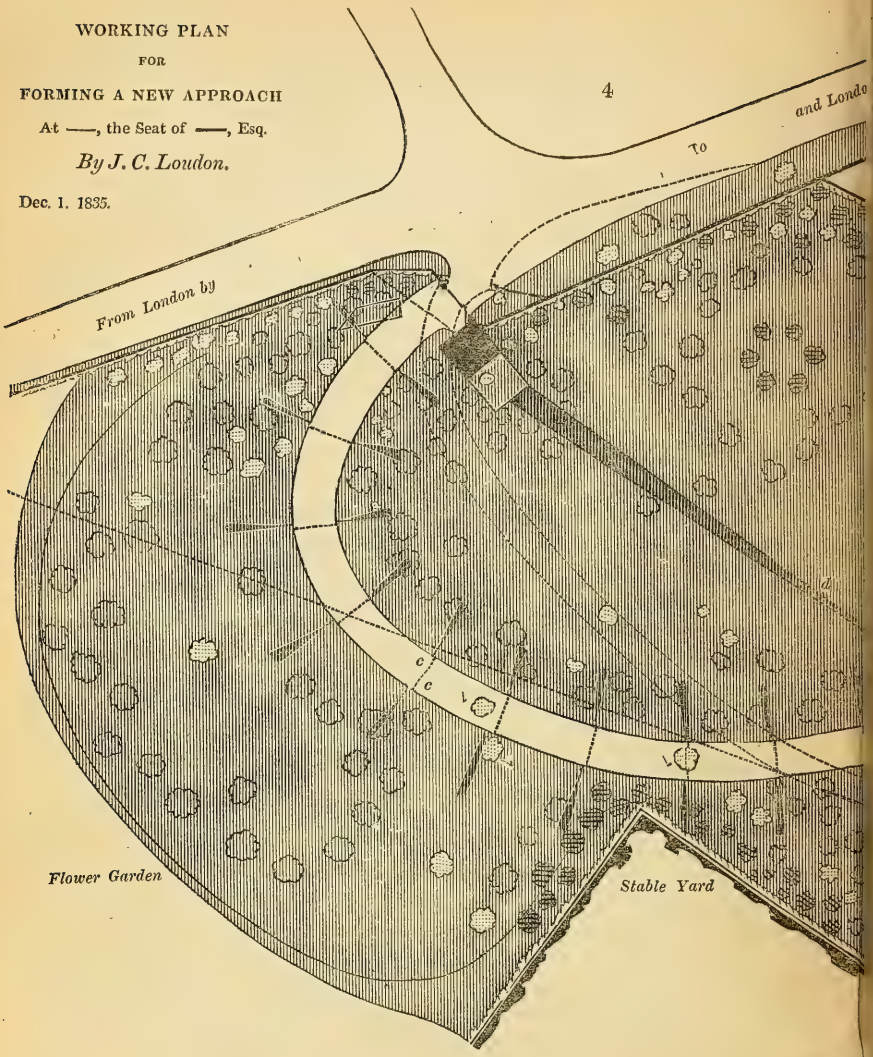
GARDENER'S MAGAZINE,

FEBRUARY, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Remarks on improving the Approach Road to a small Villa which is now* (*Nov.* 1835) *undergoing Alteration.* By the CONDUCTOR.

THE following remarks referring to the plan (*fig.* 4.), written on the occasion of our being consulted professionally, we think it may be useful to publish (of course without naming either party or place), as a specimen of the manner in which we would recommend young gardeners to prepare and arrange their reasons when proposing alterations to their employers; as the very endeavour to do this will be of the greatest service to them. These remarks may also serve as a hint to the employers of landscape-gardeners and architects, to require a reason for every thing which these artists may suggest. Nothing is more common among professional men, whether architects, landscape-painters, or landscape-gardeners, when they object to any thing or recommend any thing, to say that it is in bad or in good taste, without explaining why it is so; but dicta of this kind are worth nothing in point of reason or instruction, and they ought never to be accepted by either employers or the public. There is just as much room for reasoning in matters of taste, as there is in matters of common sense; and that taste for which a reason cannot be assigned by the person possessing it, and such a reason, too, as can be understood by those who can understand reasoning on any other subject, cannot be depended on as either just or correct. We would also strongly recommend the reasons for alterations, improvements, or new creations, both in architecture and landscape-gardening, to be given by the artist in writing. This has always been our practice (however imperfect our earlier remarks or treatises may have been), from the time that we first made a plan for laying out a small garden in Leith Walk, in 1803, to this present November, 1835, when we gave in a copy of what is printed below.



a, Point between which and the house the road and the ground on each side of it are nearly level.
b, Point from which the house is first seen.
c c, Sections across the road, to show how the ground is to be raised on each side of it.
d, Section showing the rise of the ground from the house to the entrance lodge.
e, Section across the ground in front of the house, showing that it is perfectlylevel, or nearly so.

4

References.

Horizontal sections of trunks of large trees already existing.

Smaller trees and shrubs already existing in belts, which are to be thinned out, and those only left which are thus shown.

Trees and shrubs to be planted of the kinds mentioned below.

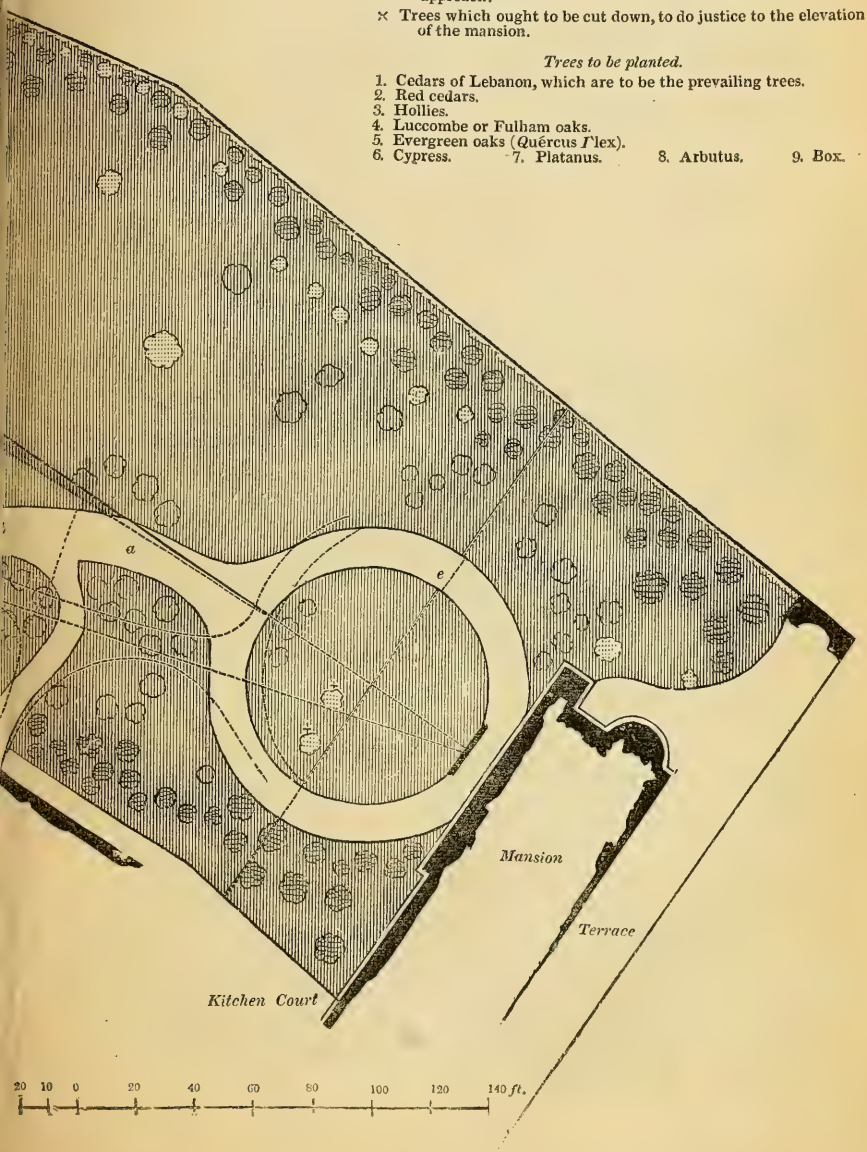
Ivy, laurels, or other evergreens, now existing, or to be planted against the wall.

Trees which must be cut down, in order to admit of forming the approach.

× Trees which ought to be cut down, to do justice to the elevation of the mansion.

Trees to be planted.

1. Cedars of Lebanon, which are to be the prevailing trees.
2. Red cedars.
3. Hollies.
4. Luccombe or Fulham oaks.
5. Evergreen oaks (*Quércus Ilex*).
6. Cypress. 7. Platanus. 8. Arbutus. 9. Box.



In the accompanying plan for forming a new approach road, it will be observed that it is proposed to retain the entrance in the same place where it is at present, but that it is intended to alter the position of the gate and lodge. The reason for retaining the entrance in its present situation is, because there is no other point in the boundary line along the public road which is so well adapted for entering from; and the reason for altering the position of the gate and lodge is, in order to accommodate them to the new direction of the approach road within the gates.

The superiority of the present position for an entrance consists in its being marked out by a space outside the boundary wall, on which are three large trees of the same kind as those within; and in the direction of that wall forming a recess, apparently, and doubtless really, made on purpose to give dignity and consequence to the entrance gate. To form an entrance anywhere else, and more especially on the south of the present gate, would appear, to a stranger passing along the public road, altogether forced, and as though some untoward circumstance had obliged the entrance to be made in an unsuitable situation. South of the present entrance, it would besides be very inconvenient for a carriage, either to turn in, or go out, on account of the narrowness of the public road in that direction. It will be observed, that, in altering the position of the gate, another large tree is thrown outside the boundary wall, in addition to the three already there. This we consider a fortunate circumstance rather than otherwise; because, in a small place, the appearance of trees and of a space belonging to that place without the walls, conveys the idea of there being no want of room within, of the lands of the proprietor not being limited to the space enclosed within the walls, and of his possessing that liberal spirit, and abundance of wealth, which render two or three poles of land, and two or three large trees, of no consequence to him. Finally, it gives a favourable idea of his patriotism, in not enclosing these trees and the ground on which they stand, but leaving them to ornament the public road. There is nothing gives a more contracted idea of the owner of a small place, than to see every inch of ground belonging to it carefully walled in, a piece of waste ground, or common, perhaps, encroached on, and the public road pared as closely as the law will permit.

The direction which is given to the approach road is made, first, in order not to proceed abruptly in a direct line from the gate to the house, in the commonplace manner which would be adopted in making a road through a field, from a gate in its boundary to a shed or barn in its interior; and, secondly, in order to afford an opportunity of lengthening the road, and thus giving it a more graceful line of direction. An additional reason for lengthening the line of road arises from the unfortunate circum-

stance of the house being placed in a lower position than the entrance gate, and, of course, the approach road descending to it. There is always something derogatory from dignity, in the impression conveyed to the mind by having to descend to a house; and the more abrupt the descent is, the stronger will be the impression.

By lengthening the road over the declivity, the degree of slope is diminished, and the actual descent rendered less obvious. The same object, of concealing the undignified position of the house, is aided by the bends in the line of direction of the road; because by these bends, and by the trees to be planted, the eye will be prevented from seeing the house till exactly on a level with it.

In the execution of the approach road, one uniform slope must be formed from the entrance gate to the point *a*, near the front of the house. As the difference of level between these two points is 6 ft., and the length of road 360 ft., the slope will be at the rate of $\frac{6}{10}$ of an inch to a yard, or 1 ft. in 60 ft.

The house will scarcely be seen till the spectator is directly in front of it; and the reasons for this are, that he may not see it from a higher level than that on which it stands; and that, as, from the confined situation in which it is placed, there is no possibility of procuring an angular view of the house from any point on the approach side, the want of this angular or perspective view may not be felt. Even on the supposition that the surface of the ground, from the entrance lodge to the portico of the mansion, were a perfect level, we do not conceive that, in a place of this limited extent, and where the house, as an object, has nothing to recommend it but its front elevation, it would be desirable to show a view of it sooner. As we propose it to be seen, the objections of a descending approach to it, of there being no angular view, and of the space to the right and left of the entrance front being extremely confined, will be in a great measure done away with.

The names of the trees which it is proposed to plant are indicated by the list on the plan; their positions are such as to conceal the house from the approach road till it is seen from the point *b*; and to conceal the boundary, and increase the apparent extent of the surface, not only from the approach road, but from every other point of view.

It is particularly to be observed, that no thick plantations, clumps, or belts of trees, or shrubs on dug surfaces, are proposed to be planted, for the following reasons: — First, because closely planted clumps or belts always convey the idea of there being something to conceal; or, in the case of belts, of there being a boundary fence behind them; besides which, they are heavy and lumpish features in themselves. The object of concealment can be equally well effected by scattered trees and shrubs, placed so

as to form groups; which will at once convey the ideas of extent and freedom by the glimpses of open space, and glades of turf which will be seen through them, and which, by the varied positions in which the spectator will see them as he moves along, will produce continued variety. From the open airy appearance of trees and shrubs so disposed, the idea of there being something behind them to conceal never occurs to the mind of the spectator. Secondly, the trees and shrubs already existing being for the most part old and full grown, a new plantation of trees and shrubs planted in dug ground, would not harmonise with them, either with reference to picturesque effect, or to the individual beauty of the plants. Clumps of young trees and shrubs, if placed so near the old trees as to be affected by their shade, by the drip from their branches, or by the extent of their roots, cannot thrive; and, if placed at such a distance from the old trees as not to be affected by them in any way, they do not group or combine with them so as to form a whole. The only mode, therefore, of introducing young trees among old trees is, to introduce them singly, or in small groups of two, three, or four, together, as indicated in the plan.

The plants ought to be procured, if possible, not less than 10 ft. or 12 ft. high; and they ought to be planted in a circle of prepared soil, at least 12 ft. in diameter, and 6 ft. deep, the surface of which should be covered with turf close up to the stems of the plants, so that they may not appear to have been recently planted: they will, in this case, grow rapidly; and plants of the sorts recommended to be planted in ——— Park, will make shoots of from 18 in. to 2 ft. every year after the first year.

As the soil should be prepared to the depth of 6 ft., due allowance must be made for its sinking, which it will continue to do for five or six years after the trees are planted. The soil, therefore, for every single tree or group must be formed into a small hill, which will by no means have a bad effect on the landscape; provided the sides of the hill are not convex, but concave, so as to be gradually united with the general surface. The hill should be of such a height as that the tree, when the soil is finally settled, may still appear to rise from a prominence, rather than from a level; since nothing can be more contrary either to what is found in natural scenery, or to what is advantageous for the growth of trees, than to see them rising abruptly out of a flat surface. Another advantage of planting single trees or groups on raised hills is, that their effect, immediately after they are planted, is rendered much greater by the height of the hill. Where the ground is prepared to the depth of 6 ft., the summit of the hill from which the tree proceeds ought to be at least 3 ft. above the level of the general surface; which height, added to that of the hollies, cedars, ilexes, Luccombe oaks, and such other

evergreen trees as are purchasable in the nurseries of 10 ft. or 12 ft. high, will produce an immediate effect.

As the lowering of the ground, in order to reduce the slope of the road, will require the removal of from 1500 to 2000 cubic yards of earth, that earth may be employed in increasing the undulations of the surface, by laying it on the highest parts of these undulations ; and in softening down certain inequalities in them, which are at present too abrupt and unpolished for the scenery of a lawn.

The greatest care, however, must be taken not to heap up this earth round the roots of trees already existing; because this would not only injure the growth of these trees, but would deprive them of that appearance of stability and age, which is produced by the spreading base formed by the trunk at its junction with the roots and the ground. In all cases of planting single trees or shrubs, or small groups of these, the advantage, in point both of effect and culture, of this appearance of the base ought never to be lost sight of; and hence it is that all young trees, whether the soil is prepared or not, ought to be planted somewhat above the general line of surface. Old trees, also, in which this appearance of base is wanting or undecided, should have the earth removed from them to the depth of a few inches all round the root, so as to show its connexion with the trunk. An appearance of truth and nature, and, at the same time, of age, may thus be given with very little trouble.

All the above remarks have reference to the approach road, and the ground on each side of it, between the entrance front of the mansion and the entrance lodge. The improvements required in the pleasure-ground, and on the lower front of the house, which are numerous and important, owing to the discordance of the parts connected with that front, have not here been taken into consideration. — *J. C. L.*

Bayswater, Nov. 30. 1835.

ART. II. *On the Geography of the Trees and Shrubs of the Scandinavian Peninsula.* By Professor SCHOUW of Copenhagen. Communicated by M. JENS PETER PETERSEN, Gardener to the King of Denmark.

THE Scandinavian peninsula extends from 55½° to 71° north latitude, and consequently presents great diversities of climate, particularly in the interior; the climate of which is distinctly separated from that of the coast by the lofty range of mountains which intersects the peninsula. This portion of Europe is, consequently, particularly well calculated to afford a view of the northern boundaries of the principal vegetable productions, both wild and cultivated, and thus to illustrate the peculiarities of climate required by each.

There are no trees to be found on the shores of the Icy Sea: low bushes

of *Bétula nàna*, and of some of the species of willow, are only to be met with. The common birch is found at Hosperdet, in a bay of the Icy Sea; only, however, in the form of a low bush. At Alten the birch becomes a lofty tree, forming woods; and to it are soon added *Pópulus trémula*, *Sórbus aucupària*, and *A'lnus incàna*, which are found at Kirstrand, and at Tana Elv, in lat. 70½. Proceeding southward, the next large tree met with is *Pìnus sylvéstris*, which is found at Alten, in lat. 70°. *Cérasus Pàdus* and *Juníperus commùnis* reach to the same degree of latitude. *A'bies excélsa* is found on the east side of the Scandinavian mountains, in lat. 68–69°; but, on the western side, not before coming to Kunnen, in lat. 67°. On the whole, the coast climate is less favourable to the fir than to the pine; the former is, therefore, more scarce on the western coast of Norway than to the eastward of the Scandinavian mountains, and does not grow wild in Scotland.

The climate of the coast is more propitious to *Córylus Avellàna*, which is found on the west side of Heligoland, in lat. 66°; while, on the eastern side of the great mountain range, it reaches only to lat. 60–61°, and though met with more to the northward, in the Gulf of Bothnia, yet it does not go beyond 63° at Agermanna Elf. The lime tree (*Tília europæ'a*) is first met with at Oeland, on the western coast of Norway, lat. 64°; but, in the Gulf of Bothnia, it reaches as far as Agermanna Elf, lat. 63°.

On the western coast of Norway, in lat. 63°, several important trees make their appearance for the first time; viz. *Quércus Ròbur*, *U'lmus campéstris*, *A'cer platanoìdes*, *Táxus baccàta*, *Fráxinus excélsior*, *A'lnus glutinòsa*. The oak is found in the west of Norway, at Egsund, in Söndermör (lat. 63°): in the east of Norway it reaches only to Skudsmoe, lat. 60°. In the west of Sweden its northern boundary terminates in lat. 59°; but it ascends again in the Gulf of Bothnia to 60½°, at Gefle. *U'lmus campéstris*, which is also found at Söndermör, extends in the Gulf of Bothnia to the same degree of latitude. The boundary of the *A'cer platanoìdes* is on the west coast of Norway, at Roesdalen; in the midland districts of Sweden it descends to 60°, but rises again on the east coast to 63°. The yew (*Táxus baccàta*) extends to the same degree of latitude on the west coast, but in Sweden not farther than 60½°. The ash, on the other hand, extends in Sweden to 62°, only one degree more southward than on the west coast of Norway. *A'lnus glutinòsa* is found east ward of the Scandinavian mountains only as far as 61–62°; but on the east coast it ascends again to the same degree of latitude as on the western coast, 63°. The hawthorn is found at Vedöen, on the coast of Norway, lat. 62½°: in the east of Norway it does not go beyond 61°, and in Sweden not beyond 60°. The northern boundary of the *Prùnus spinòsa* is, on both sides, at 60°.

The northern boundary of the beech (*Fàgus sylvática*), on the other hand, descends considerably towards the east. Laurvig is the most northern point where the beech is found in Norway (lat. 59°). On the west coast of Sweden it goes to 58°: on the east coast, not farther north than Calmar, 56–57°. The hornbeam (*Cárpinus Bétulus*) and the common maple (*A'cer campéstre*) are only met with in the southernmost parts of Sweden. The northern boundary of the former is at 57°, of the latter 56°.

The most common trees in the Scandinavian peninsula are, the birch, Scotch pine, and fir. Of these, the birch is found growing nearest to the summit of the mountains, and is succeeded by the fir. With respect to elevation, therefore, three regions may be assumed: that of the Scotch pine and fir; that of the birch, where the pine disappears and the birch forms woods; and, lastly, the rocky region, where there are no trees to be found, but only herbs and low shrubs, such as the dwarf birch, and the smaller sorts of willow.

The boundary of the woods of birch descends considerably towards the ocean. In Lapland, in lat. 67°, on the east side of the Scandinavian mountains, it is found at 2200 ft. above the level of the sea; but on the west side at 1200 ft. In the south of Norway, in lat. 60°, it is 3600 ft. on the east side;

1900 ft. on the west. The most northern islands, on the west coast of Norway, are destitute of wood. The declension of the tree boundary, from north to south, amounts to 2000 ft.; being 1600 at 70°, and 3600 at 60°. The fir extends, at lat. 70°, to 750 ft.; in the south of Norway, to 3000 ft.

The boundaries of the cultivated plants are always more indeterminate than those of the plants that grow wild; and it must be remembered that these boundaries may sometimes show how far northward the plants are cultivated, and not to what extent the climate allows of their cultivation. These boundaries, therefore, may be often extended by industry and new experiments. The cultivation of corn reaches much farther northward than we might be inclined to suppose. At Malangerfiord (lat. 69°) corn succeeds every year; and even at Lyngen, and at Alten (70°), and on the east side of the mountain range, in the so-called companquy districts (69-70°) corn is still cultivated. At Enontekis (69°, and 1430 ft. above the level of the sea) corn is still to be seen in small quantity, though it cannot be expected to ripen oftener than every third year. Barley is, however, the only species of grain that is found so far to the north. Rye ceases at 67° on the west side, and at 65° on the east. The extreme boundary of wheat is 64° in the west of Norway, and 62° in the east of Sweden; but the general cultivation of it does not reach higher than 60°. With respect to altitude above the sea, the cultivation of corn ceases, in the south of Lapland (67°), at 850 ft.; in the south of Norway (60-61°), on the other hand, at 2100 ft.

In the west of Norway, the most northern apple and plum trees are found at Tuteróen, near Trondhiem (63½°); and the most northern cherry trees at Ertvaagóe (63°). The pear tree extends no farther than 62°. On the east side of the Scandinavian mountains, the most northern apple trees are at Sundsval 62½°, and the northern boundary of the three other fruit trees mentioned is also about 62-63°.

Potatoes, cabbage, turnips, carrots, spinach, and salad succeed at Saltdal (67°); nay, even at Kamerssest (70-71°); though they are but rarely met with north of 64-65°. The cultivation of peas ceases at 64½° on the west side, at 63° on the east; and asparagus, in the open ground, is not met with more northward than 61-62°. Hemp still continues to be cultivated on the west side, at 67°, though sparingly; but, on the east side, till 66°. Flax ceases at 64-65°.

The annexed table of the relative temperature of the Scandinavian peninsula will give an idea of the climates required by the different plants above mentioned: —

Indigenous Trees.

	West side.	East side.		West side.	East side.
Drargbirk, *Bétula nàna*	71°	71°	Eeg, *Quércus Róbur*	63°	60½°
Birk, *Bétula álba*	71	71	Elm, *Ulmus campéstris*	63	63
Esp, *Pópulus trémula*	70½	70½	Ahorn, *Acer platanöides*	63	63
Rön, *Sórbus aucupària*	70½	70½	Tax, *Táxus baccàta*	63	60½
Graal El, *Alnus incàna*	70½	70½	El, *Alnus glutinòsa*	63	63
Fyr, *Pinus sylvéstris*	70	70	Ask, *Fráxinus excélsior*	63	62
Enebær, *Juniperus communis*	70	70	Hvidtorn, *Cratægus Oxyacántha*	62½	60
Hægebær, *Cérasus Pádus*	70	70	Slaeentorn, *Prùnus spinòsa*	60	60
Gran, *Abies excélsa*	67	68-69	Bög, *Fágus sylvática*	59	56
Hassel, *Córylus Avellàna*	66	63	Avnbög, *Cárpinus Bétulus*	57	57
Lind, *Tilia europæa*	64	63	Naur, *Acer campéstre*	56	56

Cultivated Plants.

	West side.	Eas side.		West side.	East side.
Byg, Barley	70°	69°	Karstopler, Potato	70°	70°
Rug, Rye	67	65	Kaal, Cabbage	70	70
Havre, Oats	65	63½	Roer, Turnip	70	70
Hvede, Wheat	64	62	Gulerödder, Carrot	70	70
Abletræe, White Poplar	63½	62½	Arter, Peas	64½	63
Blommetræe, Apple tree	63½	62-63	Asparges, Asparagus	61-62	61-62
Kirsebærtræe, Cherry tree	63	62-63	Hamp, Hemp	67	66
Pæretræe, Pear tree	62	62-63	Hör, Flax	64-65	63-64

	North latitude.	Year.	Winter.	Spring.	Summer.	Autumn.	Difference between Summer & Winter.
		Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.
Mageröe - -	71° 10′	23·2°	23·7°	29·5°	43·5	31·8	19·8°
Enontekis, 1430 Fod.	68 50	22·3	2·6	25·0	54·7	27·1	52·1
Umeä - -	63 50	35·4	13·3	33·2	57·4	37·6	44·1
Trondhiem - -	63 26	39·6	23·4	38·1	59·0	37·8	35·6
Hernósand -	62 38	36·0	17·2	32·4	56·0	38·3	38·8
Ullensvang - -	60 20	43·9	30·2	41·4	60·1	44·1	29·9
Christiania -	59 55	41·6	25·2	39·1	59·4	42·3	34·2
Upsal - -	59 52	41·9	24·8	39·4	60·5	42·7	35·7
Stockholm -	59 20	42·1	25·6	38·3	61·0	43·6	35·4
Lund - -	55 42	45·0	29·7	41·7	62·1	47·0	32·4

Copenhagen, Sept. 1835.

ART. III. *On the Arboricultural Flora of Sweden.* By Dr. AGARDH, late Professor of Botany at Lund, now Bishop of Carlstadt.

THE arboricultural flora of Sweden may be divided into three regions; 1. that of the beech; 2. that of the oak; and 3. that of the birch.

1. *The Region of the Beech* is the most southern, and it terminates obliquely towards the north; its boundary line extending from the east coast at Calmar (56° 45′) through the province of Smoland, and West Gothland, to the river of Gotha, at 57° 45′; and thence proceeding to the south of Norway, near Christiania and Laurwig. The vegetation of this region has the character of that of the north of Germany; but modified by the fertile soil of Scania, and the mountainous surface of Smoland. The climate resembles that of the south of Scotland and the north of England. The peaches, apricots, and grapes (*Vitis* vinífera) ripen every year in Scania, as does also the sweet chestnut (*Castànea* vésca). The low shrubs of this region are, *Erica* [Callùna] vulgàris and *E. Tétralix*, *E*'mpetrum, and, in some places, *Cytisus scopàrius*; *Genista* germánica, pilòsa, and tinctòria; *Thymus Serpýllum*, *Vaccínium* sp., and the small salixes. Of large trees, we find woods of beech, birch, oak, elm (*U*'lmus campéstris), alders (*A*'lnus glutinòsa), and of pines (*Pinus* sylvéstris). Of low trees and shrubs, we possess *A*'cer campéstre, *Hédera Hèlix*, *Dáphne Mezèreum* and Laurèola, *Caprifòlium Periclýmenum*, and *Lonícera* Xylósteum; various roses, rubuses, and salixes; *Sambùcus nìgra*, *Ligústrum* vulgàre, *Cárpinus Bétulus*; *Tilia* boreàlis (intermèdia *Dec.*), *Bérberis* vulgàris, *Pyrus* commùnis and *Màlus*, Cotoneáster vulgàris, *Euónymus* europæ'us; *Sórbus A*'ria, intermèdia, and aucupària; *Táxus* baccàta, *Córylus Avellàna*, *Rhámnus* cathárticus and Frángula, *Prùnus* spinòsa, *Cérasus Pàdus* and àvium, *Cratæ*'gus *Oxyacántha* and [*Ox.*] monógyna; *Pópulus* trémula, nìgra, and álba; *Myrìca Gàle*, and *Córnus* sanguínea.

2. *The Region of the Oak* is to the north of the region of the beech, and it also terminates obliquely, though in a contrary direction, descending from Gefle (90° 40′), and following almost the limits of Weshnanland, and Nerike on the south of Warmeland, to the same point on the west, where the former region is terminated by the river of Gotha. With the exception of the beech, which fails totally, and the elm, which is only found occasionally, the woods partake of the character of those in the lower region; though the shrubs and

undergrowth are essentially different. The woods consist chiefly of pines and firs, the pines (*P*ìnus sylvéstris) being principally in the plains; and the firs (*A*bies excélsa) on the mountains; and of birch and alders. The low trees and shrubs are quite changed; we no longer find *A*cer campéstre, *H*édera, *S*ambùcus, *L*igústrum, *E*uónymus, *C*érasus àvium, *C*aprifòlium *P*ericlýmenum, *S*órbus *A*ria, *P*ópulus álba and nìgra, *E*rìca *T*étralix, or *C*árpinus; and in their stead begin the *H*ippóphaes, *A*lnus incàna, *L*èdum palústre, and *B*étula nàna.

3. *The Region of the Birch* is bounded only by the limits of vegetation itself. As it extends farther and farther towards the north, it gradually drops many of the former species, and others arise in their stead; such as Lonícera cærùlea, and more especially all the plants belonging to the Lapland flora, as many of the salixes, the andromedas, azaleas, diapensia, &c. The *T*ámarix germánica exists in Sweden, only in this region; and we find here three singular varieties, with laciniated leaves, of the birch (*B*étula hýbrida *Moen.*) near Fahlun; of the alder (*A*lnus glutinòsa var. laciniàta) in the north of Warmeland; and of *A*lnus incàna (*B*étula pinnàta, *Landmi in Act. Holm.*), also in the north of Warmeland. As the woods of pines and firs disappear, from being destroyed by fire, the birch takes their place, and thrives so well in the burnt soil as to give quite a different appearance to the country.

Different regions of vegetation may also be formed by boundaries taken longitudinally, or from east to west. These consist of: 1. the two islands of Oeland and Gothland; 2. the eastern maritime district; 3. the western maritime district; 4. the interior region; and 5. the alpine region; all of which have different kinds of vegetation.

1. *The two Islands of Oeland and Gothland* have a chalky soil, and a maritime atmosphere, with what may be called an island climate. They possess many shrubs which are not to be found in any other part of Scandinavia; such as Coronílla E'merus, Heliánthemum Fumàna and oelándicum, and Potentílla fruticòsa; and some trees, such as *U*lmus effùsa and *S*órbus hýbrida.

2. *The Eastern Maritime District* is poorer in vegetation than the western one; and its flora bears a strong resemblance to that of the Russian continent. *T*áxus baccàta and *H*ippóphae *r*hamnòìdes are principally found in this region, as is also *C*órnus sanguínea.

3. *The Western Maritime District* possesses an extremely mild climate, and its flora partakes of the character of that of the British Islands, most of the trees and shrubs of which country we find there; especially the *G*enísta, *L*igústrum vulgàre, *H*ippóphae *r*hamnòìdes, *S*órbus *A*ria, *E*rìca *T*étralix and cinèrea, and *A*cer campéstre. Asparagus belongs to both coasts. The holly and the furze fail totally in Sweden; but both are found in Denmark, and the holly in Norway.

4. *The Interior Region* is the poorest of all, so that we may invert the law of Linnæus, who stated that vegetation has descended from the mountains; as, here, the principal station of the plants seems to have been the valleys, from which they have ascended to the hills and mountains. An interior shrub is, for example, *Bérberis* vulgàris. The most interesting of the shrubs found in the interior is Linnæ*a* boreàlis.

5. *The Alpine Flora* is certainly poor in the number of its species, though it is rich in species which are to be found in no other part of Sweden; it is not, however, essentially different from that of the southern European alps, except in shrubs, some salixes, the diapensia, and *R*hododéndron lappónicum.

Having thus given a short sketch of the regions into which the arboricultural vegetation of Sweden may be divided, I shall next

attempt to convey an idea of the proportions of the natural orders, by roughly estimating the number of plants it contains of each.

Berberídeæ. 1 sp.
Cistíneæ. 3 sp.
Tiliàceæ. 1 sp.
Acerínеæ. 2 sp.
Celastríneæ. *Euónymus*, 1 sp.
Ilicíneæ. *Ilex*, 1 sp.
Rhámneæ. 2 sp. (*Rhámnus*).
Leguminòsæ. *Cytisus*, 1 sp.; *Genísta*, 3 sp.; Coronílla, 1 sp. In all 5.
Rosàceæ. *Rùbus* (ligneous sp.), 5 sp.; Potentílla, 1 sp.; *Ròsa*, 8 sp.; *Pyrus*, 2 sp.; *Sórbus*, 4 sp.; *Cratægus*, 1 sp.; *Méspilus*, 1 sp.; *Prùnus* [and *Cérasus*], 3 sp. In all 25.
Tamariscíneæ. 1 sp.
Grossularièæ. 4 sp. (*Ribes*).
Araliàceæ. 1 sp. (*Hédera*).
Caprifoliàceæ. *Córnus*, 2 sp.; *Vibúrnum*, 1 sp.; *Sambùcus*, 1 sp.; Lonícera, 3 sp.; Linnæa, 1 sp. In all 8.
Loránthеæ. 1 sp. (*Víscum*).
Vaccinièæ. 4 sp. (*Vaccínium*) [and Oxycóccus].
Ericàceæ. *Arbutus*, 2 sp.; *Rhododéndron*, 2 sp.; *Lèdum*, 1 sp.; Andrómeda, 4 sp.; Menziès*ia*, 1 sp.; Callùna, 1 sp.; *Erica*, 2 sp.; *Diapénsia*, 1 sp. In all 14.
Olèinæ. 1 sp. (*Fráxinus*).
Labiàtæ. 1 sp. (*Thymus*).
Thymelæ'æ. 1 sp. (*Dáphne*).
Elæágneæ. 1 sp. (*Hippóphae*).
Ulmàceæ. *Ulmus*, 1 sp.
Salicíneæ. *Sàlix*, 33 sp.; *Pópulus*, 3 sp. In all 36.
Betulíneæ. *Bétula*, 3 sp.; *Alnus*, 2 sp. In all 5.
Cupulíferæ. *Quércus*, 2 sp.; *Córylus*, 1 sp.; *Fàgus*, 1 sp.; *Cárpinus*, 1 sp. In all 5.
Myríceæ. ? *Myrica*, 1 sp.
Coníferæ. *Pinus*, 1 sp.; *Abies*, 1 sp.; *Juníperus*, 1 sp.; and *Táxus*, 1 sp. In all 4.
Empétreæ. 1 sp.

According to this enumeration we find, in the Scandinavian peninsula, 134 indigenous ligneous species.

We now come to the foreign trees and shrubs. The central points from which these plants have spread over the whole country are, Lund, Upsal, Stockholm, and Gottenburg. Some of the introduced trees, such as *Làrix europæa*, *Æsculus Hippocástanum*, some species of *Pópulus*, and *Acer Pseùdo-Plátanus*, thrive here as well, and are almost as common, as the indigenous trees. Of fruit trees, all that are cultivated north of the European alps grow in Scania; such as peaches, apricots, grapes, almonds, chestnuts, walnuts, and mulberries (*Mòrus álba* and *nìgra*), and they appear to suffer very little from the cold: even figs (*Fìcus Cárica*) have lived through some winters. The Japanese shrubs endure the climate of Lund tolerably well, as *Kérria* japónica, and Broussonè*tia*, which last had grown to the

size of a large tree, one third of a foot in diameter, in the botanic garden at Lund, till accidentally (and not, as it seemed, by the severity of the winter) it died off. But very few evergreens endure our winters; not even the *Aúcuba* japónica, or the Portugal, or the common laurel; and the holly with great difficulty. The few exotic evergreens that we do possess are, *Búxus* sempervìrens and var., *Cratæ`gus Pyracántha*, *Vínca* sp., and the Coníferæ. Many of the Swedish noblemen have contributed much to the spread of foreign trees throughout Scandinavia, by planting them on their estates; as, for example, His Excellency Count Trolle Wachtmeister, His Excellency the Count de la Gardie, Baron Gyllenkrook, and several more in Scania; also, the late M. Thouse in West Gotha, His Excellency Count Trolle Bronde in Upland, M. Wares in Warmeland, &c. The *Mòrus álba* thrives well, even as far as Upsal; and, under the protection of our adored Crown Princess Josephine, there is a large plantation of it at Stockholm, for the purpose of breeding and feeding silk-worms; and the silk obtained from them is not only abundant in quantity, but the quality of it is excellent.

At Stockholm there are several patrons of arboriculture, as regards the cultivation of foreign trees. Some of the most distinguished are, the Counsellor de Pontin, M. Siefwerstrale, and M. Rofenblad; the latter, of whom has the richest collection of plants that can be found in any private garden in Scandinavia.

Of the botanic garden at Upsal I have only a superficial knowledge; but, judging from a slight inspection, it appears to contain as rich a collection of foreign trees and shrubs as the climate will endure; and to be worthy of having had such renowned directors as Linnæus, Thunberg, and Wahlenberg.

There are two public plantations of foreign trees at Stockholm; viz. that of the Forest Institute, directed by M. Ström, and that of the Agricultural Academy; both of which possess a great number of foreign trees, of which I am not yet able to give you a catalogue. As to the height of the trees, I can find no difference between those in Scandinavia and those in Germany, or in any other country north of the European alps. The beeches and oaks are as well grown trees with us as they are in Germany. The sweet chestnut tree and the Robín*ia* Pseùd-*Acàcia* are somewhat smaller, as they have hitherto never attained a greater height here than 50 ft.; but others, as the *Æ*sculus, the foreign tilias, *Pópulus*, the foreign pines, *Jùglans*, &c., may be compared with those of Germany. The *Plátanus occidentàlis* attains a height of 30 ft. The *Plátanus orientàlis* does not stand in the free ground in our garden. The tulip tree is perfectly hardy. We have not yet tried the cedar of Lebanon in the open air; but we hope to be able to do this at some future time.

Lund, Sept. 23. 1835.

ART. IV. *A Series of Designs for laying out Suburban Gardens and Grounds, from One Perch to several Acres in extent.* By Mr. T. RUTGER. Design 5. *Frontages to Two detached Houses.* Design 6. *Frontages to Four double Houses.*

IN the design *fig.* 5. the frontages of two detached houses are given, with the principal entrances to both in the centre.

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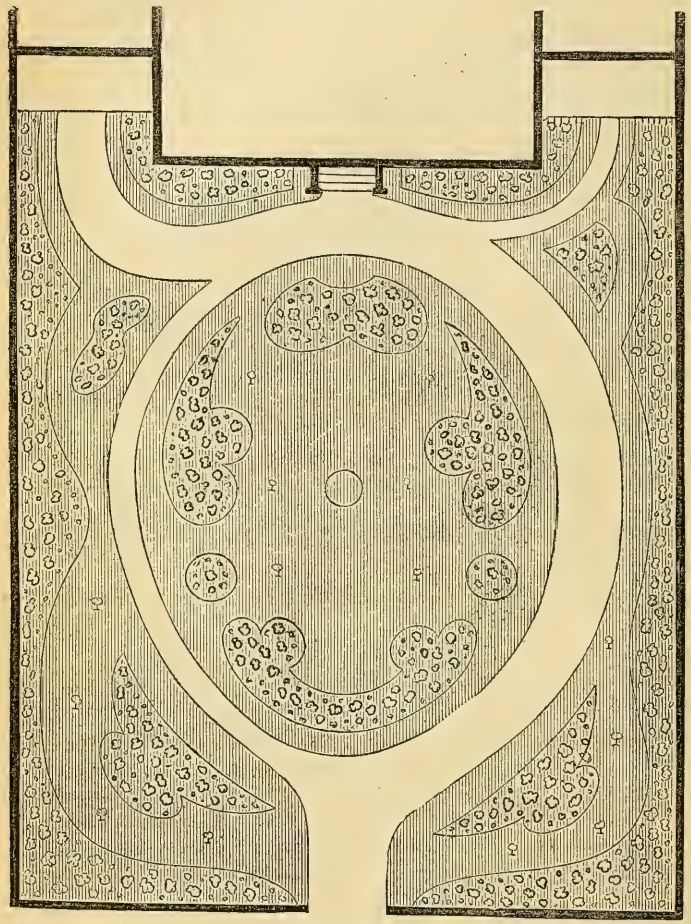

These houses are supposed to be occupied by such as keep a one-horse phaeton or stanhope; a carriage entrance to each is therefore given, and a small stable, gig-house, and yard to each, on the one side; with a yard and buildings on the other side, supposed to be for offices or other conveniences, and to which a

small walk from the carriage-road leads, by which a back entrance is effected. Much may be done in frontages of this description to render them attractive, by the introduction of a fountain in the centre, or a basin for gold and silver fishes, and by a few articles of embellishment placed here and there as fancy may point out.

The design *fig.* 6. consists of frontages to four double

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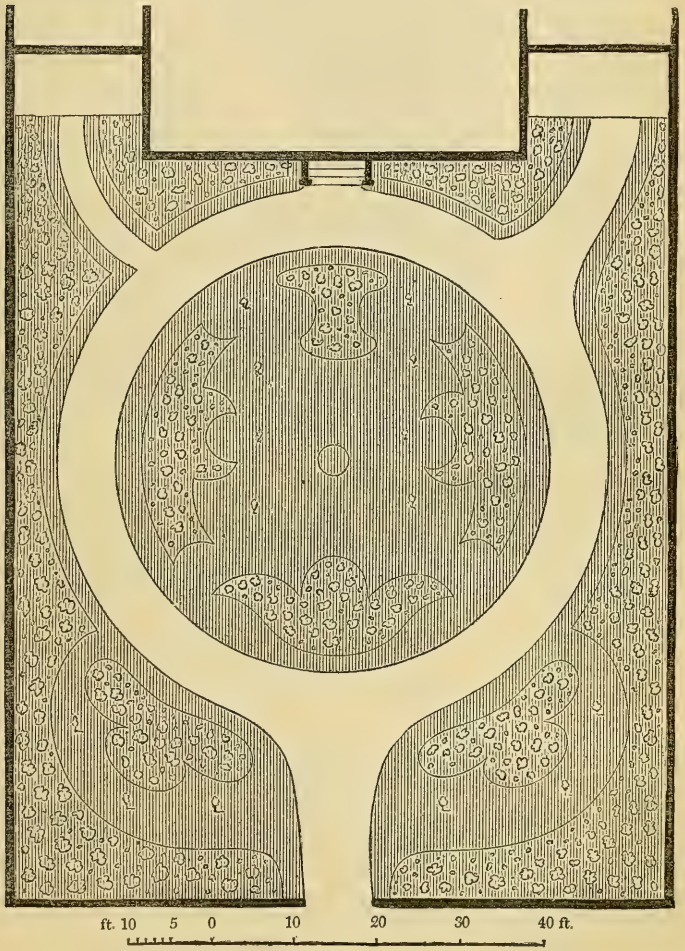

houses, or such as have rooms on each side the entrance. The walks are all intended to be laid down with stone. There are about seven perches of ground to each of these frontages; but, in cases where so much ground cannot be afforded, they may be

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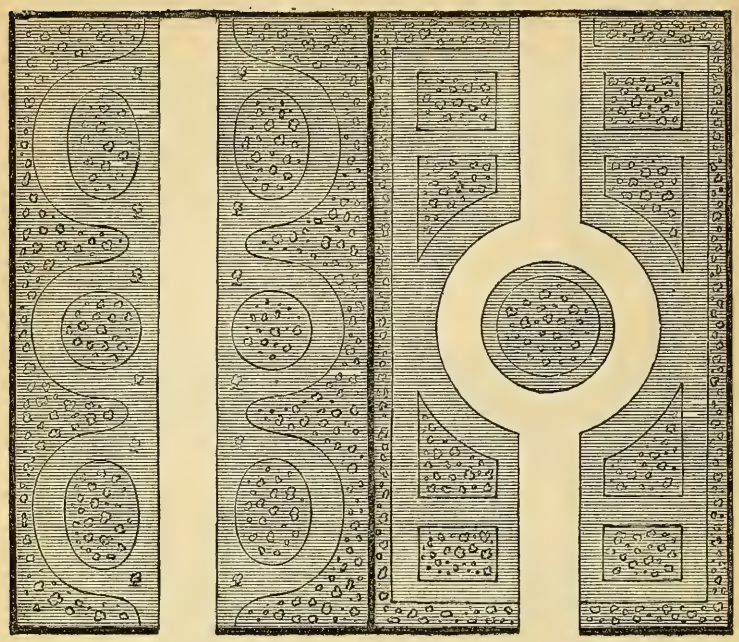

curtailed in their length, which will render a little alteration in the sizes and forms of the clumps necessary. In frontages of this size, a considerable variety of elegant plants and flowers might be introduced, and such a selection made as would give considerable pleasure in their culture to amateurs in a small way.

Portland Place, 1835.

ART. V. *On the best Form of Stages and Shelves for the Display of Green-house Plants.* By Mr. T. RUTGER.

THE green-house and conservatory always afford me a high treat, and particularly when stocked with the more rare and beautiful plants: but it is one thing to have a good collection of plants, and another to have them so disposed as to enable spectators to view each particular plant with advantage. High stages are by no means well adapted for this purpose; and we generally find plant-houses in the nurseries more suitable for displaying green-house plants, than green-houses in gentlemen's gardens. These last are, indeed, generally constructed rather for the sake of convenience, than for making a display and

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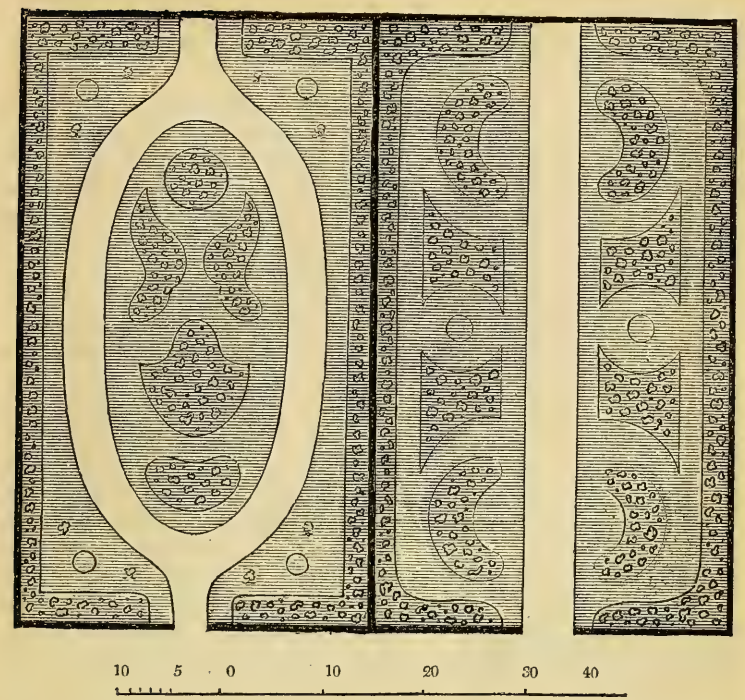
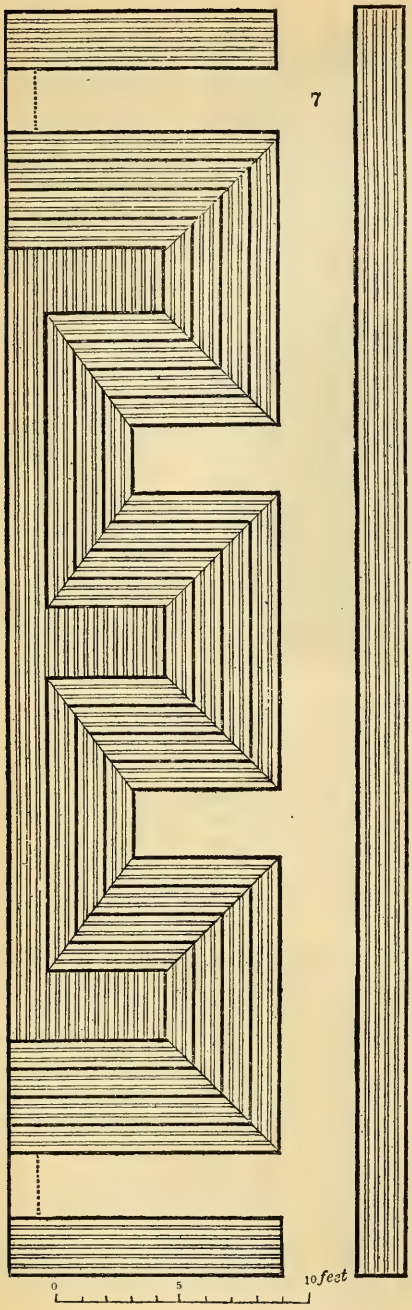


showing the plants they contain off to advantage; and, besides, houses of such a construction as to be suitable for the latter purposes might not be deemed sufficiently ornamental for the shrubbery or flower-garden. High stages are inconvenient for watering and cleaning the plants, as well as for viewing them in such a way as to satisfy those who really delight in noticing their progress.

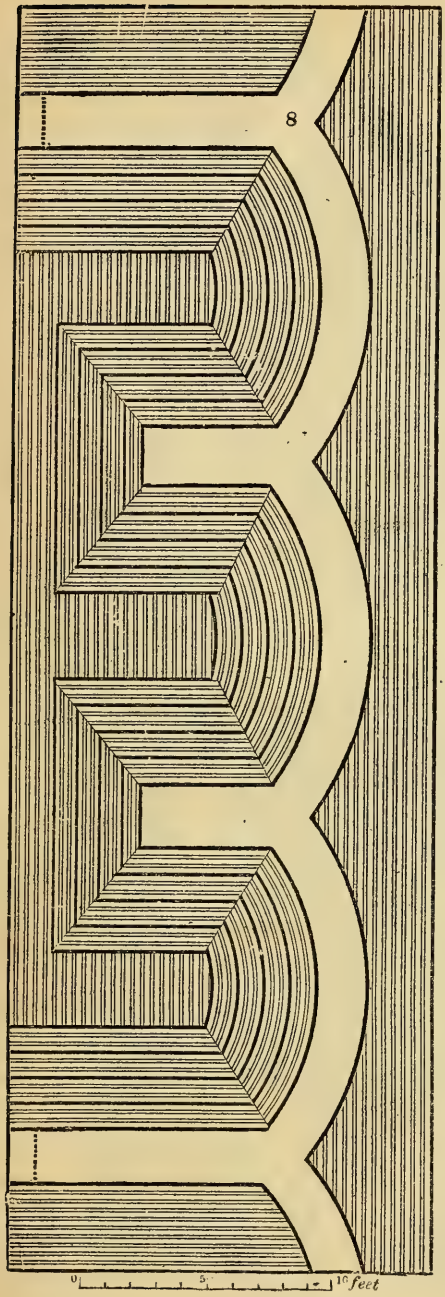
Opinions may vary as to the precise height that the stage ought to be; but, upon the principles I have in view, namely, those of enjoying all the advantages necessary for convenient inspection, and of watering, cleaning, &c., I should recommend it not to exceed 4 ft. 6 in., or, at the most, 4 ft. 9 in., in height. This height would, I think, be found advantageous in watering, as well as for viewing the plants; and by this means a sight would be obtained of the surface of the mould in all the pots, which would prevent a careful person from giving an indiscriminate supply of water, which is too frequently done in cases where the surface of the mould in the pots is above the line of vision. But some may say that this, even with high stages, only requires the person to place one foot upon the



stage between the plants; and I am aware that this is frequently done, but, I fear, too frequently at the expense of mutilating many of the plants; and this will always prove a source of regret to the owner if he values his collection, and particularly should a plant of value be injured.

In order to carry out the principles I have in view, it is obvious that the stage must be constructed differently to those we generally find where collections of plants are kept; and this I some time since carried into effect, by altering a stage which reached from the ground to the back of the house in the usual way, the sketch of which (*fig.* 7.) I now send you. The plants, when placed upon this stage, had rather a pleasing and unique appearance, presenting something like the sections of three pyramids, and at the same time affording all the convenience necessary for viewing, watering, cleaning, &c. For the sake of economy the old materials were worked up for this stage, otherwise I should have given it the form of *fig.* 8., which, I think, is an improvement, both as it respects the platform in the front as well as the stage.

Following up the same principles for a span-roofed green-house, I submit *fig.* 9. for approval; which might answer for a conservatory as well as for a green-



house, by placing beds of composts in the same form as the stages and platforms are represented in the sketch.

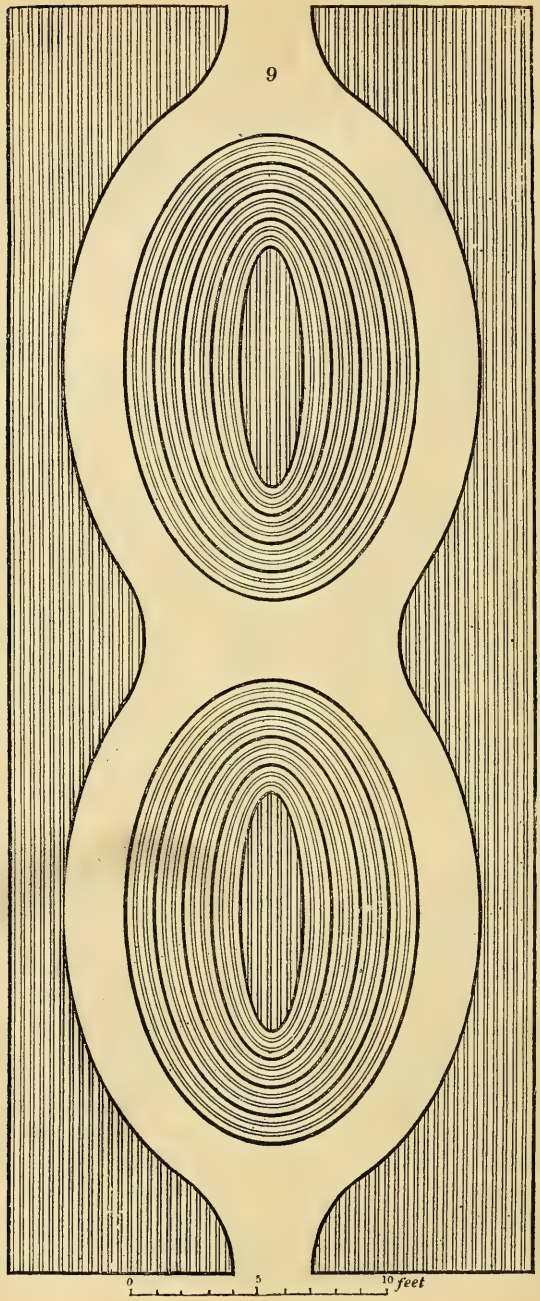
But let it be understood, that, in giving these sketches my principal aim is to draw the attention of your readers to the subject, with the hope of seeing other designs given upon better principles than those now submitted to the public.

A plausible objection may arise on account of there being a small space sacrificed by this mode of constructing the stages; but which, I think, is more than compensated by the convenience it offers to the real admirer of plants.

The dotted lines across the footpaths near the back, in *figs.* 7. and 8., are intended for small borders to plant creepers in, to be trained against the walls over the stages, so as to meet in the centre.

If these boards are painted twice with the anti-corrosion paint, which you have so strongly recommended in the *Encyc. of Arch.*, they will have the colour of stone, and a rough surface like that material; and they will endure much longer than when painted with common paint.

London, June, 1835.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ART. VI. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

EMBRYO DICOTYLEDONOUS: COROLLA POLYPETALOUS, OR NOT ANY.

IX. *Cruciàceæ.*

1838. *VESICA'RIA.* [co Bot. mag. 3464
* grandiflòra *Hook.* large-flowered ○ or 1¼ jl to o Y Texas, Mexico . 1835 or, else, 1834 S

M. Berendier has discovered three species in Texas of Mexico, namely, lasiocárpa *Hook. ms.*, grácilis, and grandiflòra *Hook.* Mr. Drummond, also, found the last two. He sent seeds of, at least, grandiflòra "in the spring of last year, which produced plants in the summer, exhibiting a profusion of blossoms, and a brightness and size in the flower [by the figure, the corolla is farther about than a sixpenny-piece], equalled by few plants of this natural order, and which render the species most highly deserving of cultivation, whether in the flower-border, or on the shelves of a cool green-house. The almost sessile, spreading, and concave petals give it an appearance very unlike that of most cruciform flowers. The blossoms are long-lived; and the same plant will yield a succession of flowers from July to October." (*Bot. Mag.*, Jan.)

XLVI. *Cactàceæ.*

1472. CE'REUS.
*12559*a* Napoleòn*is* Graham Napoleon's ❀ ▭ spl. 6 s W ... 1825? C s l Bot. mag. 3458
Synonymes: Cáctus Napoleòn*is* Hort., Cèreus triangulàris var. màjor *Salm-Dyck.*

Dr. Graham has described this species. As compared with triangulàris, the far greater length of its joints, their different form, and the shape of the edges between the tubercles, have led Dr. Graham to conclude it to be not a variety of that species. Its flower is very like that of grandiflòrus: one was 8 in. long, and, when fully expanded, 6 in. across. The outer segments of the perianth are straw-coloured, lanceolate-linear; the inner, pure white, spathulate-linear. Stamens yellow; stigma yellow, protruded, of many segments. This kind was received at the

Edinburgh Botanic Garden, from Mr. Mackay of Clapton, in about 1825. It had repeatedly formed buds; but no blossoms expanded until September, 1835. The flower opened in the morning, and closed towards the afternoon: it is slightly, and not very agreeably, perfumed. (*Bot. Mag.*, Jan.)

LX. *Proteàceæ.*

303. ISOPO'GON. [S s.p Edin. n. ph. journ. vol. xx. p. 194
* Báxteri R. Br. Baxter's ♚ ⊔ or 2 in. the specimen described mr.ap Ro N. Holl. 1831

Stem erect. Leaves hard, stiff, pubescent; once or twice trifid, cuneate, and once or twice twisted at the base; edges placed vertically; the segments terminated with long pungent mucros; the lower leaves undivided, rounded, and toothed at the apex; the teeth terminating in pungent mucros. Capitula crowded at the termination of the stem and branches. Perianth rose-coloured. "This is a handsome species, of which seeds were sent by Colonel Lindesay, from New Holland, to the Botanic Garden, Edinburgh, in July, 1830; it was raised in 1831, and flowered in the green-house in March and April, 1835. (*Dr. Graham*, in the *Edin. New Phil. Journ.*, Jan.)

LXII. *Aristolochiàceæ.*

2582. *A*RISTOLO'CHIA. [C p.l Bot. reg. 1824
*22845*a* fœ'tens *Lindl.* stinking-*flowered* ♃ □ or 20? jn Va. with P and Y W. Indies 1832?

"It is chiefly remarkable for the large size and singular colour of" the limb of the calyx, which is "beautifully variegated with purple and dirty yellow." The flowers "have a most disagreeable disgusting smell, which will prevent the plant from becoming a favourite. . . . Nearly allied to *A.* grandiflòra." The figure is from the species in a living state, in the collection of Mrs. Marryat, Wimbledon, Surrey, who obtained it from the West Indies. (*Bot. Reg.*, Jan.)

LXV. *Thymelàceæ.*

87. PIMELE'A. [1823 C s.p Bot. reg. 1827
†797 *l*igústrina *Lab.* Privet-*leafed* ♚ ⊔ or 10 mr W Van Diemen's Land to Port Jackson

A striking species in the largeness of its leaves, to those who only know the species with smaller leaves, as glaúca and decussàta. *L*igústrina is pleasing in its foliage and heads of white flowers; the flowers are small; but many are comprised in each head. The figure is from the species, in a living state, in the nursery of Mr. Low, Clapton, in March, 1834. It grows, in its native places, as much as 10 ft. high. (*Bot. Reg.*, Jan.)

In Vol. X. p. 347, 348., is some account of *h*ypericina *Cun.*, another species with large leaves, on which it is there quoted, that "it has much of the habit and strength of growth of P. *l*igústrina *Lab.*

† hispida *R. Br.*, a figure of a full specimen of, is in Bot. mag. 3459.

This species, noticed in Vol. IX. p. 364., from the *Bot. Reg.* t. 1578., and from observation, is figured in the *Bot. Mag.*, Jan., t. 3459., and there thus remarked on. "This is, assuredly, the

handsomest of this very pretty Australian genus, whether we consider the beauty of its blossoms, or the great quantity of them produced by a single plant, of which one now before us, scarcely a foot high, is loaded with upwards of forty heads of flowers." The figure of this species that is in the *Bot. Reg.* had been derived from the species in the collection of Mr. Knight, Chelsea.

197. *DA'PHNE* 10142 odòra [p.lf-m. and s Sw. fl. gar. 2. s. 320
*2 rùbra *D. Don* red-*perianthed* ❀ _| or and fra 2 n, latter end Pk China 1831? C

The figure shows an upright branch well furnished with leaves, and terminated by a group of more than a dozen flowers, whose perianths are described to be of a rich pink colour. The leaves are described to be lanceolate, or cuneately lanceolate. The figure has been derived from the kind in a living state, in the collection of Mr. G. Smith, nurseryman, at Islington. "It appears to be of a hardy constitution, having been exposed for some time to a considerable degree of frost, without, apparently, suffering." Mr. Smith, considers it a most desirable kind "for the green-house or conservatory, as, if growing vigorously, it will continue to blossom during the greater part of the year. The flowers are produced in heads at the extremity of almost every shoot; they are of a dark red in the bud state, becoming paler and glossy after expansion, and they are then highly fragrant." (*Brit. Flow.-Gard.*, Jan.)

LXXVII. *Leguminàceæ.*

WISTA'R*IA* sinénsis *Dec.* (Consequà*na* Loudon), circumstances under which a certain plant of it produces fruit annually.

"Never having observed in your Magazine any notice of the Wistàr*ia* sinénsis having fruited in this country, and having a plant of it here, which fruits annually on the open wall, I send you some pods, together with a few observations upon the circumstances under which it produces its fruit; and, as I fancy its fruiting is rather a rare occurrence in this country, perhaps the observations may not be uninteresting to some of the readers of your Magazine.

"The plant which produces fruit here is, as far as I have been able to ascertain, about eight years old, and is planted on the side of a gravel walk, with its branches trained on a wall with a south aspect. Shortly after I came here, I was induced, by the stunted appearance of the plant, to examine its roots, and I found that all the roots it had had run into the gravel walk, by the side of which it is planted; indeed, it seems to prefer the gravel to the neighbouring mould, as I found, on examination, that at any part where the roots had come in contact with the latter, they had invariably receded from it into the walk again. The plant is, certainly, a diminutive specimen; but it seems to me that its fructiferous habit is entirely to be attributed to the nature of the soil in which it grows; and, I have no doubt, were this species planted in a gravelly, instead of a rich, soil, in which we generally

find it planted, we should soon have an abundance of seed from it; from which many varieties might be obtained of this most interesting of all our hardy climbers. — *A. Sleigh, Gardener to F. Bernasconi, Esq. Harrow Weald, Middlesex, December* 31. 1835."

The pods are of about the size of those of the white Dutch runner: the seeds are considerably larger than those of the laburnum, of about the same figure, and not of so dark a colour. The seeds have been distributed.

CXL. *Caryophyllàceæ.*

*1415*a*. AGROSTE'MMA. gard. 2. s. 317
*12005*a* Bungeàna D. Don Bunge's ♃ △ or 1 jl S ? Asiatic Russia 1834? S C D 1 Sw. fl.
Synonyme: *Lýchnis Bungeàna* Hortulanorum.

"The species comes near to fúlgens [that is, to *Lýchnis fúlgens Fis.*], but is distinguished at once by its longer leaves, attenuated at the base, larger flowers, longer calyx, with subulate bristle-pointed teeth, more frequently [numerously] lobed petals, and longer torus." Those who know of the showy beauty of *Lýchnis fúlgens* in its flowers, and would choose it on account of this, will readily conclude that A. Bungeàna is a species choosable for the gratification of themselves with its beauty.

It "is a hardy perennial, requiring a loamy soil, and it may be increased by cuttings, or by seeds, which it appears to perfect freely." The lamina of the petal is described to be $1\frac{1}{2}$ in. long: this would render the circumference of the flower more than 3 in. in diameter. In the figure, two flowers are represented, each of about 2 in. in diameter. The figure is derived from the species in a living state, in the collection of Dr. Neill, Canonmills, Edinburgh, who had received it from Messrs. Booth of the Flotbeck Nurseries, near Hamburgh. (*Brit. Flow.-Gard.*, Jan.)

EMBRYO DICOTYLEDONOUS: COROLLA MONOPETALOUS.

CLXXI. *Epacridàceæ.*

517. COSME'LIA *R. Br.* [C s.p Bot. reg. 1822
†4324 rùbra *R. Br.* red-*corollaed* ✱ ⌴ or "1½" my Ro R South coast of New Holland 1826

It resembles, in its general aspect, a species of E'pacris; in its foliage, perhaps, E. grandiflòra. Most or all of its flowers are pendulous. Its corolla is tubular, more than half an inch long, inflated in the middle of its length, tapered to each end, most to the tip one. The native locality of rùbra is marshy. The figure is derived from the species in a living state, in the collection of Messrs. Loddiges. (*Bot. Reg.*, Jan.)

CLXXXVI. *Compósitæ.*

2198. TRO'XIMON 19792 † glaúcum *Nut.*
*1. The scape and the leaflets of the involucre, which are spreading, hirsutely tomentose. (*Hooker.*) ♃ △ or 1 jn.au Y Rocky Mountains Raised from seeds gathered by Mr. Drummond during Capt. Sir John Franklin's Expedition. Bot. Mag. 3462. [mag. 1667
*2. The scape and the leaflets of the involucre, which are erect, perfectly glabrous. (*Hooker.*) Bot. Dr. Hooker has cited cuspidàtum *Ph.*, and marginàtum *Nut.*, as synonymes of var. 2., with a doubt to each.

"So different is the appearance of this handsome plant [var. 1.] from that of Troximon glaucum of Dr. Sims, in the *Botanical Magazine* [var. 2.], that, were I not possessed of native specimens, exhibiting intermediate gradations, I should certainly have published it as a new species." (*Dr. Hooker*, in *Bot. Mag.*, Jan.)

LASTHE'NIA *Cassini.*
[† califórnica *Dec.* Californian ○ or 1? "About six weeks, at different periods of the year, according to the season at which its seeds are sown." Y California 1834? S co Bot. reg. 1823.

See in *G. M.*, vol. xi. p. 475, 476. Dr. Lindley has stated that Professor De Candolle, in a manuscript list of the genera of Compósitæ which he has just received from him, has included Lasthènia in his first series Tubuliflòræ, 4th tribe, *S*enecionídeæ, 5th subtribe Helen*ièæ*, 1st division Gaillard*ièæ*, 2d subdivision *Eu*helen*ièæ*. (*Bot. Reg.*, Jan.)

2374. *C*HRYSA'NTHEMUM 21664 sinénse
†var. the sulphur yellow.
* var. Wheeler's sanguíneum.
* var. Wheeler's expanded crimson.

In Vol. X. p. 188. is a notice that "*C*hrysánthemum sinénse Wheeler*iànum*, and six other seedling varieties, from Mr. Isaac Wheeler, Beaumont Buildings, Oxford," were exhibited to the London Horticultural Society on December 3. 1833: this was at a meeting of the Society of that date. In the *Floricultural Cabinet*, the number for Jan. 1836, is a plate of coloured figures of the three kinds of chrysanthemum named above; and a statement on the two varieties designated Wheeler's, that "they are a most valuable addition to this pleasing tribe of autumnal-flowering plants." The sulphur yellow is described in our Vol. IX. p. 223. by the deceased Mr. Haworth: more fully in the *Floricultural Cabinet*.

CCXI. *Scrophulariàceæ.*

45. *VERO'NICA.* [cited as a synonyme.
†438 labiàta *R. Br.* is figured in the Bot. mag., Jan., t. 3461., where *V.* Derwéntia, Andr., rep. t. 531., is

There are appended descriptions of four species recently discovered in New Zealand, by Mr. Richard Cunningham: these are named,—

‡ speciòsa *R. Cun.*, ‡ ligustrifòlia *R. Cun.*, ‡ diosmifòlia *R. Cun.*, and ‡ calycina *R. Br.*

Speciòsa is a shrub 3 ft. to 6 ft. high, with many ascending robust stems. Flowers blue purple, resembling those of Lubín*ia* atropurpùrea. Mr. Allan Cunningham has remarked that "we know of no shrub more to be desired to enrich our collections than this very remarkable and beautiful speedwell; judging, as we do, from the fine specimens we have received, and from the description given of it on its native hills by its discoverer. *L*igustrifòlia is a slender shrub, 2 ft. high; its flowers are whitish. Diosmifòlia is a slender twiggy shrub, 3 ft. to 12 ft. high: its flowers are white. The other species discovered by Mr. R. Cunningham is deemed to appear identical with calycina *R. Br.*, originally found by Mr. Brown in Van Diemen's Land. This

is a herbaceous species, with repent or decumbent stems, in many instances 5 ft. to 6 ft. long. (*Bot. Mag.*, Jan.)

CCXX. *Verbenàceæ.*

1749. VERBE'NA. [gar. 2. s. 318
*29324*a* rugòsa *D. Don* wrinkled-*leafed* ♃ △ or 2 jl Vi Buenos Ayres 1833? D C lt.l Sw. fl.

Stems about 2 ft. high. Leaves on very short footstalks; cordate-lanceolate, serrate, veiny and wrinkled; grass green on both sides; 2 in. long, nearly 1 in. broad. Flowers in short dense spikes, disposed in a corymbose panicle. Corolla violet. "A very showy species, raised at the Birmingham Botanic Garden. It is evidently allied to venòsa, and is principally distinguished by its stalked leaves, cordate at the base, and more hairy corollas, with deeper-notched lobes. A hardy perennial." (*Brit. Flow.-Gard.*, Jan.)

EMBRYO MONOCOTYLEDONOUS.

CCXXXIX. *Iridàceæ.*

1912. CYPE'LLA. [1834 O s.p Ed. n. ph. journ. vol. 20. p. 190
* Drummóndii Graham Drummond's ⁂ ? ☿ 3 or ... jn, in the stove P Y B San Filipe

Stem erect, flexuose, leafy. Leaves sword-shaped, plicate, distichous, sheathing at the base. Spathe 2-flowered. Perianth rotate, 6-partite, purple, yellow, with brown spots in the centre; inner segments rather more than half the length of the outer. Tubers, or else bulbs, of this very pretty species were received at the Botanic Garden, Edinburgh; by Dr. Neill, Canonmills, Edinburgh; and by Mr. Cunningham, nursery, Comely Bank, Edinburgh; from Mr. Drummond, in 1834. The species flowered in the stove, in all these establishments, in July, 1835. (*Dr. Graham*, in *Edin. New. Phil. Journ.*, Jan.)

CCLI. *Liliàceæ.*

1018. FRITILLA'RIA. [Ed. n. ph. journ. vol. 20. p. 192
* cùprea *Graham* copper-*coloured-perianthed* ☿ △ or 1½ jl Cop? Mexico 1834? O ...

Stem 15 in. high, leafy. Leaves somewhat glaucous, ovate, acuminate, stem-clasping; in the axils of the upper two are two ovate bulbs. Flower solitary, terminal, campanulate, nodding; perianth of six elliptical copper-coloured segments. "This very graceful little plant flowered in a close green-house, in the nursery of Mr. Cunningham, at Comely Bank, Edinburgh, in July, 1835. He believes it was imported from Mexico. (*Dr. Graham*, in the *Edin. New. Phil. Journ.*, Jan.)

CCXL. *Orchidàceæ.*

2539. PLEUROTHA'LLIS. [reg. 1825
* pícta *Lindl.* painted-*flowered* ♇ ⍓ pr ½ o.mr W R Demerara 1833? D p.r.w Bot.

Close akin to P. Gròby*i*: see in *Gard. Mag.*, vol. xi. p. 589. "It is a graceful pretty species, and well deserves an attentive examination." The figure is derived from the species in a flowering state, with Messrs. Loddiges. It seems to require the close atmosphere of a bell-glass: its tufts are readily formed under good management. (*Bot. Reg.*, Jan.)

2547. DENDRO'BIUM. [Bot. reg. 1828
* densiflòrum *Wal.* dense-*inflorescenced* ℰ ⍁ or pendulous 1½ my Y Nepal 1830? p.r.w

In the figure is depicted a branch, or part of one, bearing three leaves, and a raceme of 24 flowers: that part of the raceme upon which the flowers are seated is about 6 in. long. The colour of the flowers and bracteas is yellow; the labellum is of a golden yellow, and pubescent. The flowers are rather large. The figure has been prepared from the species in a living state, in the collection of Messrs. Loddiges. "Beautiful as is the specimen represented, it is still inferior to what is produced in India; so that cultivators have still a point to gain in respect to this charming species." (*Bot. Reg.*, Jan.)

? ‡ ? 22706*a* cassythöides *R. Cun.* Cassytha-like ℰ ⌴ cu ... In flower on the eastern side of Sydney Cove in Oct. 1834 Brownish or golden yellow, white Port Jackson ... D p.r.w Bot. reg, 1828, in the text

Leafless, stoloniferous. Racemes tribrachiate. Perianths of a brownish or golden-yellow colour, and the labellum white, and elegantly penciled within, as in D. Pierárd*i*. This species has been discovered growing from the crevices of sandstone rocks, on the eastern side of Sydney Cove, Port Jackson. Dr. Lindley had derived the account published from Mr. Allan Cunningham, who had derived it, and a specimen, from his brother, Mr. Richard Cunningham, who has called it *c*assythöides, from the resemblance that, at first sight, it has to the laurineous "genus cassytha, not only in its leafless character and short racemes of flowers, but in its peculiar chocolate bronze or japanned papulose stems." It is deemed remarkable of this species, that it should have been so long overlooked, in a locality which, it is considered, has, doubtless, been traversed by botanists of many countries of Europe. It seems to be the fact, that this species has not yet been received in a living state in Britain. (*Bot. Reg.*, Jan.)

2576. LI'PARIS. [O p. r.w Ed. n. phi. journ. vol. 20. p. 194
* Walkèr*iæ* Graham *Mrs. Col.* Walker's ☌ ⍁ cu ?½ ... P Y Ceylon 1834, June

Leaves subrotundo-ovate, cucullate, acute. Spike many-flowered, cylindrical. Germen purple. Sepals dark purple. Lips dark purple in the middle, yellow and crenulate at the edges. Received at the Edinburgh Royal Botanic Garden, from Mrs. Col. Walker, Ceylon. It has flowered twice since in the stove. "It ought to stand, in the arrangement of the species, between *L.* purpuráscens and *L.* atropurpùrea, and is distinguished from the former by its spike, and from the latter by its acutely angled, almost winged, stem." (*Dr. Graham*, in the *Edin. New. Phil. Journ.*, Jan.)

REVIEWS.

ART. I. *Transactions of the Horticultural Society of London.* Second Series. Vol. I. Part IV. 4to. London, 1833.

(*Continued from* Vol. X. p. 504.)

35. *A REPORT upon the principal Varieties of the Cherry cultivated in the Garden of the Society.* By Mr. Robert Thompson, Under-Gardener in the Fruit Department.

36. *A Note upon the Brabant Bellefleur Apple.* By John Lindley, Ph. D. F.R.S., Assistant Secretary.

39. *Notes upon some French Stewing Pears.* By John Lindley, Ph. D. F.R.S., Assistant Secretary.

The essence of these three papers may be considered as given in the new edition of the *Encyclopædia of Gardening.*

37. *Journal of Meteorological Observations made in the Garden of the Horticultural Society, at Chiswick, during the Year* 1830. By Mr. William Beattie Booth, A.L.S., till June, 1830; subsequently by Mr. Robert Thompson, Under-Gardener in the Fruit Department.

Another of those elaborate and most valuable papers, from which, at a future time, most useful generalisations may be made respecting the weather.

38. *On the beneficial Effects of the Accumulation of Sap in Annual Plants.* By Thomas Andrew Knight, Esq., F.R.S., President.

This is a most valuable paper, both in a scientific and practical point of view, and we shall therefore make large extracts from it.

" Biennial plants very obviously form, in one season, the sap which they expend in the following season in the production of blossoms and seeds; and the capacity of the reservoirs they form is greater or less, in proportion as external circumstances are more or less favourable. Trees also generate, in a preceding season or seasons, the sap which feeds, in the spring, their unfolding blossoms and young leaves. Annual plants, on the contrary, possess no such reservoirs; and they must generate, in each season, all the sap which they can expend, exclusively of the very small portion derived from the seeds from which they spring. But, by appropriate management, and creation of varieties, annual plants may be made to accumulate, in one period of their lives, the sap which they expend in another, with very great advantages to the cultivator.

" The first produced female blossoms of the melon plant, particularly of the larger and superior varieties, do not often set; and, if they set, the fruit they afford never attains as large a size, or as much excellence, as the same plants, at a more mature age, would have given to it under the same external circumstances. This, I imagine, arises not only from the different quantity, but from the different qualities, of the sap in the young and in the more mature plant; for I have found the sap of very young birch and sycamore trees to be specifically much lighter, and to contain much less saccharine matter, than the sap of trees of greater age, of the same species, and growing in the same soil, and in the same seasons. Under the influence of abundant light, in those climates

in which the melon was placed by nature, the first formed fruit probably acquires a high state of perfection, possibly greater than it can ever be made to acquire in less favourable climates. But this I am much disposed to question, and to believe that, by proper management, the melon may be made to acquire, in the climate of England, a degree of excellence which it is very rarely found to possess in any climate; and that the degeneracy of the finest varieties may be totally prevented.

" Very young plants of the sweet melon of Ispahan (the variety which, till within the present year, I have chiefly cultivated) very rarely show fruit; and, in my melon-house, I never suffer a lateral shoot or blossom of this variety to be produced at a less distance from the root than that of the fourteenth or fifteenth joint above the seed leaves; and, when I am anxious to obtain the fruit and seeds in the highest state of perfection, I do not suffer a blossom to be produced nearer the root than its eighteenth or twentieth joint. Under this mode of management, the expenditure of sap, being confined to the extremity of a single stem, is very small comparatively with the creation of it, and it consequently accumulates, and the fruit is therefore most abundantly nourished; I conceive, more abundantly than it usually is in any natural climate: and its growth is always enormously rapid.

" Every gardener who has been in the habit of raising cucumbers in winter, perfectly well knows the advantages of raising his plants in July or August, and preventing their expending themselves in the production of blossoms or fruit till they have been introduced into the stove. The general opinion of gardeners is, that such plants succeed best only because their stems are more firm and ligneous than those of young plants; but I feel confident that the real cause of their succeeding best is, the existence of accumulated sap within them.

" By delaying the period of sowing the seeds of many species of plants (the turnip and some varieties of the cabbage afford examples), those which would have afforded flowers and seeds within the same season, form reservoirs of accumulated sap in autumn, which becomes, during winter, the food of man and other animals.

" Proportionably late varieties of different species of annual plants generate, in one part of their lives, the sap which they expend in another. I, every season, plant, in the beginning of June, and a little earlier, a large quantity of the very late variety of pea which bears my name; and, by supplying the plants abundantly with water, I prevent (as I have stated in a communication to the Society many years ago), to a very great extent, the injurious effects of mildew; and by these means I regularly obtain a most abundant supply of peas in September and October, and of better quality than I can obtain in the month of June. In this case the sap which is prepared in the summer is obviously expended in the autumn.

" The good effects which I have proved to arise from planting large tubers of the potato plant, obviously spring from the large accumulation of sap in them. Fed by means of this, not only a large breadth of foliage is produced, and exposed to sight more early in the year, but that foliage contains much disposable organisable matter, which once formed a part of the parent tuber. Any person who will pay close attention to the growth of produce of early crops of potatoes which have sprung from large tubers, will readily obtain ample evidence of the truth of this position. The variation in the comparative growth of fruits of different species in similar seasons frequently arises, I have good reason to believe, from the more or less perfect state of the reservoir formed in the preceding year; and every experienced gardener knows that, under any given external circumstances, the blossom of his fruit trees sets best when the preceding season has been warm and bright, and when his trees, in such season, have not expended their sap in supporting heavy crops of fruit."

40. *On the Cultivation of the Vine.* By Mr. John Smith, Gardener to D. Alexander, Esq., St. Matthew's, Ipswich. Communicated by the Ipswich Horticultural Society.

Mr. Smith prefers the long running method of pruning the vine; that is, laying in the young shoots of the last year of nearly their whole length, and, after they have borne a crop, cutting them out, and replacing them by other young shoots of similar lengths. The difficulty is, to get such shoots to break, or burst their buds, equally from the commencement of the shoot to its termination. To effect this, Mr. Smith began by making the following experiment: —

"When the external air was cold, I tried the heat of a hot-house near the glazed surface, and found the thermometer averaged from $1\frac{1}{2}°$ or 2° of heat higher at 10 in. or 12 in. from the glass than at 1 in., or nearly in contact with it. The roof of the house in which the experiment was made is two lights deep, and the trellis is attached to the rafters at an equal distance; consequently, the vines, being fixed thereto, are at a greater distance from the glass at the upper part of the house by the thickness of the lower light, on which the upper one slides, and therefore, in midwinter, are in a warmer air: of course, this assists the disposition of the upper buds in their natural habit of breaking first. To counteract this, I fixed the shoot at about $10\frac{1}{2}$ in. from the glass at its base, bringing its extreme end close to the glass, by a gradual inclination, at about the twenty-sixth bud, and running the remaining part in close contact with the glass to its end. In the beginning of February, the plant began to break its eyes, and, as I purposely kept the house rather dry, a very fine piece of wood, on the same plant, but trained to the trellis, broke only eight buds at its extreme end, while the one above described broke every bud, and nearly of equal strength, except those at the extreme end, which, by lowering a little from the glass, broke also; and this piece of wood, of about half an inch in diameter, with thirty-two buds, showed sixty-five healthy bunches of grapes, or two on every bud, with an additional one on the fifth bud from the base. Having satisfied my mind in bringing an important desideratum to a settlement, I headed it back to its twentieth bud; and though I intended cutting it out entirely in the outset of the experiment, I now chose rather to leave about half a dozen bunches on it, disbudding, of course, the remainder, &c. That to study the variation in the heat of the glazed surface of a hot-house, caused by radiation, is a subject worthy our attention, will be readily admitted; for, although it appears that the uppermost surface is the coldest in midwinter, yet an effect directly contrary to it is produced as the season advances, and a practice contrary to the one above stated is required, which can only be conveniently and effectually obtained by the use of a movable trellis, fixed at its lower part, but capable of elevation at its upper end. This would not only secure, by its use in the dreary months of winter, a good breaking of the vine at an early season, but it would give an advantage above the fixed trellis in other particulars, especially in the prevention of a disease common to grapes at their approaching a state of maturity; for whatever conclusion experience may end in as to the cause of the disease, it is certain that the rays of the sun falling upon condensed vapour produce an air not very fit for a delicate plant, loaded with fruit, to live and to flourish in; but, as Mr. Judd expresses it, one that is calculated to produce an effect equal to scalding, in consequence of which the fruit becomes deformed, and ceases to acquire that state of perfection it otherwise would do. But suppose the rays of the sun to raise the thermometer in a hot-house to 90°; and suppose that, with all the air that can be admitted, it rises still higher, say to 95°, at 10 in. from the glass it would be considerably increased, say 10°; while, at a similar distance, or at

one foot lower, it will be found that it is increased very little; consequently, by the use of the movable trellis, we should have an opportunity of lowering the vine, and thereby placing it in a more temperate atmosphere, of from 5 to 6, 7, or 8 degrees."

41. *Observations on the Quality of the Oak Timber produced in Great Britain.* By William Atkinson, Esq., F.H.S.

This is an important paper. What is called the durmast oak is merely a variety which produces mast or acorns of a dun colour; and such dun-coloured acorns are found on trees both of *Q*uércus pedunculàta and *Q.* sessiliflòra.

" The *Q.* pedunculàta is easily known by the acorns having long stalks, and the leaves having very short footstalks, or, in some specimens, hardly any. In the *Q.* sessiliflòra, the leaves have footstalks from a quarter to one inch in length, and the acorns sit close to the branch, having hardly any stalks.

" With respect to the qualities of our two native oaks, the *Q.* pedunculàta contains a great quantity of the silver grain, which shows, when the wood is planed, what workmen call the flower in the wood. In consequence of this, the wood splits clean and easy, and is best adapted for split paling and laths. It is also a stiffer wood; and, though it may be broken with a less weight than the *Q.* sessiliflòra, yet it requires a much greater weight to bend it, and is therefore best calculated for beams, or to bear the greatest weight without bending.

" The *Q.* sessiliflòra contains so small a portion of the silver grain, or flower, that wood of that kind from old buildings has generally been mistaken for sweet chestnut (*C*astànea vésca). During the last thirty years I have taken every opportunity of procuring specimens of wood from old buildings, and particularly what the carpenters called chestnut; but I have never, in a single instance, seen a piece of chestnut from an old building: what has been taken for that wood, I have always found to be the *Q.* sessiliflòra, mistaken for chestnut from its deficiency of the flower or silver grain.

" The roof of Westminster Hall has been said to be chestnut: while it was under repair, I procured various specimens from different parts of the roof; the whole of them were oak, and chiefly the *Q.* sessiliflòra. Most of the black oak from trees dug out of the ground I have found to be of the same kind. From finding the wood from the oldest buildings about London to be chiefly of the *Q.* sessiliflòra, I should suppose that, some centuries ago, the chief part of the natural woods were of that kind; at present the greater part of the oak grown in the south of England is the *Q.* pedunculàta.

" Specimens of oaks that I have procured from different parts of Yorkshire and the county of Durham have been all *Q.* sessiliflòra, which is very scarce in the south. There are some trees of it at Kenwood, the Earl of Mansfield's, near Highgate, which I believe to be one of the oldest woods near London, and a greater part of the *Q.* sessiliflòra appear to be trees from old stools.

" *Q.* sessiliflòra appears to grow equally well with *Q.* pedunculàta: it is a handsomer tree in the foliage; and, from finding so much of it sound in old buildings, I suspect it may be the most durable. It bends from a weight much sooner than *Q.* pedunculàta, but requires a much greater weight to break it. From its toughness, I consider it best calculated for ship timber. The old Sovereign of the Seas was broken up after forty-seven years' service, much longer than the general durability of ships; and, as the wood the ship was built of was had from the north of England, it is very probable it was the *Q.* sessiliflòra.

" Turkey oak (*Q. C*érris) is a native of the Levant, and, I believe, is found in many parts of Poland, particularly about Warsaw. The introduction of this oak into England has been within the last century; therefore we have

very few trees of large dimensions. The largest I have seen are at the Marquess of Downshire's, East Hampstead, in Berkshire. I had never been able to obtain a specimen of the wood grown in England, till about five years ago, when two trees were cut down at East Hampstead, and the wood was made into doors for the principal rooms of the house. It is much finer in the grain than our British oak, or foreign wainscot. It takes a better polish, and is more beautiful than any other oak I have ever seen. From only a single specimen I had broken, it was not so strong as our native oak, but equal in toughness; but my specimen being rather cross-grained, it was not a correct experiment, and I suspect it is equal in strength to our oak. For all ornamental purposes, where the wood has to be polished, it is superior, and must be a profitable tree to plant, as it grows much quicker than our common oaks, and I have seen it thrive rapidly in poor land.

"Oak timber has, for a great length of time, been imported into this country, from Holland, by the name of Dutch wainscot, which is generally used for floors, doors, and furniture. It is more straight in its growth, tender, and more easy to work than British oak; does not require so much seasoning; and stands better without warping: but it is not equal in strength or durability to British oak.

"Some years ago, I procured acorns from the Black Forest in Germany, where this wood is grown. Three varieties were sent me by a botanist, who collected them in the forest. Some of the trees from the acorns are now about six feet high; but I can only discover two distinct species, which appear to me to be exactly the same as our *Q.* pedunculàta and *Q.* sessiliflòra. The Dutch wainscot being from a natural wood, and the trees growing close, may account for the straightness of the wood, and its being more tender than our oak, which differences may also partly be owing to the soil.

"There is no other oak that appears to thrive in this country, or likely to be worth cultivating for timber, except the white oak (*Q.* álba) of North America. Of this there are not many large trees in England; but the young trees appear to grow well, and I have seen them do best in a peaty sand. The white oak imported from America is heavier than British oak: it appears to be as strong, and is more difficult to work. There are a great variety of oaks in America; but all, except the white oak, appear to be of an inferior quality.

"As ornamental trees, there are many of the American kinds that are beautiful in their foliage; and, from the various and rich tints the leaves take in the autumn, are a great ornament to landscape scenery, and ought to be planted more than they have been, as ornamental trees in parks and pleasure-grounds."

42. *On the Advantages of irrigating Garden Grounds by Means of Tanks or Ponds.* By Thomas Andrew Knight, Esq., F.R.S., President.

"The quantity of water which may be given with advantage to plants of almost every kind, during warm and bright weather, is, I believe, very much greater, than any gardener, who has not seen the result, will be inclined to suppose possible; and it is greater than I myself could have believed upon any other evidence than that of actual experience.

"My garden, in common with many others, is supplied with water by springs, which rise in a more elevated situation; and this circumstance afforded me the means of making a small pond, from which I can cause the water to flow out over every part of my garden whenever I wish. I am thus enabled to irrigate my strawberry beds while in flower, and my alpine strawberry beds, and plants of every other kind, through every part of the summer; and I cause a stream to flow down the rows of celery, and along the rows of broccoli and other plants which are planted out in summer, with very great advantage. But the most extensive and beneficial use which I make of the power to irrigate my garden by the means above mentioned is, in supplying

my late crops of peas abundantly with water, by which the ill effects of mildew are almost wholly prevented; and my table is most abundantly supplied with very excellent peas through the month of October, as I have stated in a former communication.

"When water is delivered in the usual quantity from the watering pan, its effects, for a short time, are almost always beneficial, by wetting the surface of the ground. But if water thus given be not continued regularly, injurious effects frequently follow; for the roots of plants (as I have shown in the *Philosophical Transactions*, in a paper upon the causes which direct the roots) extend themselves most rapidly wherever they find proper moisture and food; and if the surface alone be wetted, the roots extend themselves superficially only, and the plants, consequently, become more subject to injury from drought than they would have been if no water had been given to them; a circumstance which can scarcely have escaped the notice of any observant gardener. When, on the contrary, the soil is irrigated in the manner above recommended, it is wetted to a great depth; and a single watering, once in eight or ten days, is, in almost all cases, fully sufficient.

"It may be objected, that excess of rain is more often injurious, in the climate of England, than drought; but, in wet seasons, plants suffer owing to want of light, and, generally, of warmth; and I feel confident that, if the same quantity of rain which the soil receives in our wettest summer, were to fall only between the hours of nine in the evening and three in the following morning, and the sun were to shine brightly and warmly through the whole of the days, no injurious effects would follow; and every experienced gardener knows with what luxuriance and rapidity plants of every species grow in hot and bright weather, after the ground has been drenched with water by thunderstorms."

ART. II. *Observations on Landscape-Gardening, with an Account of its practical Application in Muskau.* By Prince PUCKLER MUSKAU. Fol., with forty-four views and four ground plans. Stuttgard, 1834, Hallberger.

THOUGH we subscribed for this work, yet, owing to an unforeseen cause, we have not yet received it. In the meantime, in order that our readers may form some idea of its contents, we have translated the following extracts from the *Berlin Gardener's Magazine*. The editor of that work, in his review, says, — "Nothing has appeared for a long time so worthy of the attention of landscape-gardeners as the work before us. We consider it a duty to make long extracts from this work, as, on account of its high price, it is not in the power of every gardener to obtain it; and, as we believe it is now only sold to subscribers, it is not to be met with in every bookseller's shop. We are also convinced that it will be of great use both to gardeners and amateurs, and that it is worthy of being held up to all persons concerned in the laying out of grounds as a model.

"The work is well arranged, and is divided into sections. The introduction contains many important observations, and begins as follows: —

"'The inhabitants of a great part of Germany, it must be confessed, are only beginning to turn their attention even to what is useful; and only a few have directed their endeavours to produce what is merely beautiful without having any prospect of reaping advantages by it; a combination of both these objects is still more rarely met with.

"'This chiefly refers to the art of landscape-gardening; and it is certain that England, in this branch of civilisation, is nearly a hundred years before Germany. That which is done there every day with the utmost facility, remains here at present impracticable. It is time, however, that wealthy German proprietors should try, without slavish imitation, to improve their places according to their respective localities. When I thus extol England, it does

not proceed from Anglomania, but from the certain conviction that England is far superior to any other part of the world, in respect to desirable and (if I may be allowed the expression) gentlemanly enjoyments, particularly in reference to a country life. In England we continually find general comforts united with the satisfaction arising from noble occupations, and a style of living equally far removed from Asiatic revelry as from that sparing Continental economy, which has not its foundation in actual poverty, but in bad customs and neglected household arrangements, and is but too common among us. In this respect, then, we must look up to England as a model.

" ' From this high state of civilisation has landscape-gardening been more extensively encouraged than was ever known at any other period or in any other country; and, notwithstanding its cloudy skies, England has produced the greatest number of the most delightful abodes for the lovers of nature, and for those who prefer what is effected by the united aid of nature and the hand of man; so that such places may be compared to the diamond, not in its rough state, but which has obtained the height of its beauty from the hand of the polisher. I do not mean to assert that nature in its wildest state and simplicity cannot produce the greatest excitement, and call forth the most sublime feelings; yet, in order to preserve nature in this state, the trace of the judicious hand of man is necessary. Even in the painted landscape we seem to wish to behold traces of the hand of man to enliven it; and this is still much more necessary in the real landscape, which would appear doubly agreeable to us, if we acted as they do in England, where, from a manly and generous feeling, their rural improvements extend not only to their palaces and gardens, which excite our admiration by their splendour and beauty, but to the humble dwellings of the smallest farmers, and even cottagers, which are equally well laid out and agreeably situated, and which thus aid in forming harmony of the whole. In England small farm-houses are to be seen, like proud palaces, surrounded by ancient trees, or on luxuriant meadows, ornamented by flowering shrubs; and they manifest the taste and good sense of the owner by the appearance they display. Even the poorest man ornaments his thatched cottage with flowers; and, notwithstanding his poverty, cultivates with care a well-hedged small garden, where there is nothing but the green velvet grass perfumed by roses and jasmine.

" ' Are we not overpowered with shame when we take the same view of our country? We here find a great number of noblemen's seats with a dunghill in front, and the pigs and geese going out and in at the door the greater part of the day; while the only mark of cleanliness the interior can boast is, that the floor is strewed with sand. Independent people, indeed even those who are very rich, I have often seen, in the north of Germany, living in such pseudo-palaces, as such houses may be called, as an English farmer would undoubtedly take for a stable.

" ' Such is a nobleman's seat in the north of Germany. The kitchen-garden is generally near the house; and its greatest ornament is a few plants of sweetwilliam and lavender round the beds of onions and greens. Crooked-grown fruit trees look melancholy round the beds of cabbages and turnips; and a few very old oaks or limes, that have stood many a blast, are clothed with dry and scanty foliage, so that, like naked victims, their bare branches may not be stretched out to heaven imploring vengeance.'

" In the more cultivated parts of Germany this is not the case: the farm-yard and kitchen-garden are always behind the house, while in front there is a lawn with flowers and plantations. The prince afterwards observes: —

" ' It is as much to be lamented when the proprietor lays out his place in what is called, with us, the English style. The straight walks are then so formally made serpentine, that the only difference is, a longer road is made between young birches, poplars, and larches, which, in wet weather, is almost impassable for dirt, and, in dry weather, from the depth of the loose sand. Some foreign trees, badly grown, and therefore not so beautiful as the indigenous ones, mixed with pines, are planted by the sides of the paths; but, in

the course of a few years, the pines grow over the path, and must be pruned; afterwards the under branches drop off, and the stems are left naked; while, below, the badly grown grass and stunted foreign trees neither present a picture of lovely nature, nor one which the art of the landscape-gardener should produce.* Where the subject is more earnestly and more extensively pursued, unsightly stagnant water is turned into running brooks; and a bridge, made of the rough stems of the birch, with suitable arches, is thrown across the gentle stream; a few vistas are cut through the forest to produce beautiful views; and here and there a temple and a ruin are erected, though, also, the former usually too soon becomes what the latter is intended to represent.

" ' This, in some degree, is the highest point of perfection ever reached in such an undertaking; and which, indeed, only causes us to regret that such good land is not cultivated for a more useful purpose.

" ' This innovation is often laughed at with more or less reason; and, when it is attempted, there is seldom any improvement made; and, therefore, I repeat, that when large and expensive gardens are laid out with the greatest care, they only bear testimony that the art of landscape-gardening in Germany has not, at present, advanced one step. There are, indeed, some exceptions, but they are but very few; and I know of none which, like the English gardens, I could hold up as a model.'

" When the grounds are perfectly well laid out and finished, it seldom happens that they are long kept in that state; and, therefore, they do not look well long. The groups of trees and shrubs are soon neglected, and the grass is badly managed, and unseasonably mown; so that, in the course of a few years, the whole thing falls to decay, and no longer resembles a park. In large parks, the greatest attention is paid to the grass for its utility; but how unpardonable it is, that in small ornamental gardens, where the best sorts of grasses are sown, as English ryegrass, species of *Poa* and *Agróstis*, *Phlèum*, &c., the turf is so carelessly managed, and the grass suffered to grow so long, that it is completely spoilt. Why such a grass-plot is not mown every eight days, if the weather permit, and also swept and rolled, as in England, I cannot understand. Probably the reason is, that, in general, the proprietor keeps cows or goats, or the grass is the perquisite of the gardener; so that the small grass-plot is not regularly mown, but only as much is cut every day as is necessary for the cattle. Nothing is so unsightly as a grass-plot, near a house, mown here and there at different times, and therefore looking so ill, that the whole has the appearance of a barren heath, instead of a piece of velvet. I also agree with the author, when he says that the Germans never display either exalted ideas, taste, or decoration, in the laying out and keeping of our pleasure-grounds. Sometimes this is the fault of the proprietor; but more generally it arises from the want of sense and taste in the gardener.

" The first section of Prince Puckler Muskau's book treats of the fundamental idea and plan of pleasure-grounds. It is short and conclusive. The author then continues his subject in the following manner: —

" ' In my opinion, landscape-gardening, when on a great scale, must be directed by a fundamental idea. I must be allowed here to use the word idea as is customary in common conversation, and not according to the new system

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" * It is to be lamented that unsuitable trees are too often planted by the road sides, or in groups; and I was lately astonished to see that Taxòdium distichum had been considered as a shrub, and thickly planted by the side of the road. If there had only been a few of them, it might have been supposed that the gardener had made a mistake; but, unfortunately, they are innumerable. Whoever knows much about these trees, or even has seen them in all their beauty at Wörlitz, will be astonished how a tree which grows to the height of 80 ft. in its native country (America) could be considered as a shrub. I saw, also, several other trees used in like manner, of which I shall say more another time. — *Otto.*"

of philosophy. In landscape-gardening, the word idea is generally used in its most extensive meaning; viz. that from the whole of nature's landscape the idea of a concentrated picture is formed; a picture such as that a poet fancies; that this idea is such as would give existence to a work of art in another sphere, and from which man himself frames a kind of microcosm, a world in miniature. A large undertaking should, consequently, as much as possible be begun, directed, and finished by one experienced hand. The ideas of another, it is true, might be used; but they must be so acted upon that they may combine in forming a whole. I shall, perhaps, be better understood when I say that a fundamental idea refers to the whole; that no important work should ever be done at random, but should proceed from one leading principle, which should be observable in every part of it, whether taken separately or together. This original idea, or plan, may arise from the particular condition of the artist, from the circumstances of his life, or from family legends, as well as from the particular locality in which he lives; but I by no means wish that every part of the plan, as originally conceived, should always be adopted and strictly followed up; in certain circumstances, I should recommend quite the contrary: because, although the whole thing may be arranged, the artist is not obliged to follow the first dictates of his fancy. New ones may spring up; the subject is ever creating something new: for instance, nature in its primitive state, lying before him in various degrees of light (because, as a beautiful comparison, light is his principal material), is observed by him in the circle of his small creation; he studies cause and effect; and then the original general idea directs the manner in which they may be combined, or is entirely given up if a better thought strikes him. The painter, also, occasionally deviates from his first plan, and continually touches up his picture without ever making it perfect; parts are altered to make it look better or more natural; a shadow is strengthened, or more effect is given to a line: how, then, can a landscape-gardener be expected to make a thing perfect at first, who has often such perverse and difficult materials to work upon?

" ' I know nothing so much to be lamented as when a thing has been badly done, and not undone, if afterwards a better idea has arisen: it remains a blemish to the whole; and, though it may occasion regret that the cost of forming it should be quite thrown away, the fear of wasting a trifle should not be suffered to destroy the effect of the whole. Indulgence should be granted to the progress of every art, because frequently, from want of money, the improvement of the old is preferred to a totally new arrangement.'

" At p. 18. the author treats of the mode of executing plans and maps without a knowledge of the neighbourhood and locality; on which subject we perfectly agree with him. He says as follows: —

" ' It may, therefore, easily be seen how useless it must be to send for a draughtsman from a distance to stay a day, a week, or even a month, to make a plan of a road or plantation which is well known already; though nothing is more common than for a landscape-gardener to set about making a plan for laying out grounds, without obtaining the necessary information, without any knowledge of the locality, of the near and distant views, or of the effect of hill and dale, and of high trees and low ones, in the intermediate distance, and also at the greatest distance. Plans thus designed may look exceedingly well on paper; but, when they are executed, they generally produce an effect that is extremely pitiable, flat, unsuitable, unnatural, and unexpected. Whoever wishes to make a proper plan for laying out grounds, cannot be too well acquainted with the locality; and he must also understand the staking out and the execution of it extremely well; because, if he does not, he will find that the materials he has to work with are quite different from those of the painter on canvass. The beauty of a real landscape may in some degree be known by looking at a very good painting; but it is not so with a plan; and I can confidently assert, that (except in a very flat situation, where there are no distant prospects, and which, therefore, is a place that nothing can be made of) a plan which looks exceedingly well on paper can never produce anything

fine in nature when executed; and, on the contrary, that, in order to produce anything worthy of admiration in execution, a union of forms must be made which would appear, on paper, quite inconsistent.'

"The second section treats of the size of parks. Amongst other things, the author says that it is not necessary to make a park very extensive, in order to produce a fine effect. He, however, states (at p. 23.) that, 'when a park can be made very large without committing a sacrifice, it is very desirable to make it so,' and that, 'its imposing magnitude renders permanent the all-subduing charm which novelty creates.'

"With respect to the English parks, which the author holds up as a model of taste and agricultural improvement, we find the following observations: —

"'It appears to me that the beauty of most of the English parks is lessened by attempting to make too much of them, that is, making them appear as large as possible; and that they thus soon become more tiresome and monotonous* than any thing that ever came under my observation in such a beautifully cultivated and open landscape scenery. Many of the English parks are, in fact, nothing but very extensive meadows, sprinkled with picturesque groups of high and low trees. Partly to enliven the landscape, and partly for use, the English generally having in their parks some tame animals, such as sheep and black cattle, or horses.

"'The first sight of such an extensive space is imposing, and almost always presents a splendid picture; but the impression once received is incapable of improvement, and soon becomes monotonous.

"'If you then examine the same more closely, many faults will be found. All the trees are eaten up to a certain height by cattle; and often in such a regular manner as if they had been cut by hedge shears; the forms of the trees have, consequently, very little variety. The groups are never without some kind of fence; indeed, every young newly planted tree has a fence also, which produces a very stiff and formal appearance; and the groups can seldom be used to intercept the view sufficiently, to form out of the principal landscape several smaller ones. Only one road leads, through this extensive desert, to and from the house, which, without the trace of the hand of man, is situated on a lawn in bare and cold majesty, the cows and sheep feeding close to the flight of marble steps, which lead to the entrance door. It is not astonishing, if, in such a monotonous and extensive place, an involuntary shudder should be felt; and it is a place where none but a John Bull would live. The scene would be much improved if a particular place were allotted for the cattle and deer, instead of giving them the range of the whole park. It, however, seems a rooted idea in England, that a landscape cannot be lively without cattle, though if enlivened by man they consider it quite insupportable, and the gardens of a private gentleman in England are generally hermetically sealed to every stranger. They are quite unacquainted with the kindness of our nobility, and give, as an excuse for their illiberality, the excessive rudeness of the common people.'

"The author continues, to the third section, to say a great deal on the size of the English parks, and (at p. 28.) he speaks of their enclosures, and says, —

"'I have often heard it remarked, that there is nothing in landscape-gardening more contrary to nature than the enclosures of parks. †

"'I am of a contrary opinion, and agree with the Englishman, who carefully

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"* I do not mean to include in this censure either their pleasure-grounds or gardens, which are full of variety, but only their parks."

† The proper meaning of the German word for "park" (*Thiergarten*) is an enclosed place or garden for wild beasts. The word "park" is, however, now used in Germany for every extensive place laid out as pleasure-grounds.

encloses his parks: the boundary fences should, however, be ingeniously concealed from within. Slight and almost invisible fences are more suitable to the English style of gardening, than walls or any other kind of fences, which are more avowedly works of art; and, consequently, I prefer them, though at the same time I do not mean to say that I despise art. How often are the most beautiful scenes of rural nature partially concealed by enclosures, and, by that means, how much are their charms increased! A thick forest, an apparently impenetrable rock, enclosed valley, or an island surrounded by water, are objects which each produce in our minds a feeling of secresy, of certainty of perfect possession, and of security against intruders, which makes us to enjoy the spot with double pleasure. A park, to a certain extent, creates similar feelings when provided with a wall or hedge; which, indeed, may be considered necessary to enable us to enjoy perfect freedom and repose; as from such a spot the uncalled-for intruder is excluded, while those within can go out and be at liberty when they please. But this strange representation of freedom, when seen, is very unpleasant. These limits will soon be done away with, and every thing of the kind will be abhorred. In England, as I have already said, not only their parks, but all the subdivisions, groups, and single young trees contained in them, are enclosed, on account of their cattle; and, although these enclosures are so common, and, generally speaking, so offensive, I have yet often found that, by an enclosure here and there, particularly where the character of the neighbourhood is varied, a picturesque effect is produced; and I may even say that it seems to prepare the mind for a new impression, and to point out a peaceful retreat which it longs to obtain.'

"The author proposes the following kind of enclosure for the parks in Germany, where the locality and soil will permit: —

"'There should be a piece of ploughed ground, about a yard broad, round the park (particularly where there is no distant prospect), sown with blackthorn and acacias, which, in the course of a few years, if the soil is tolerably good, will form an impenetrable fence. Next to that a plantation of firs, which should also surround the park, and always be adjusted according to the view, and mixed with only a few of the deciduous trees and shrubs, to form a variety of colours in summer. In low and sheltered spots, in our climate, we must plant junipers, yew, the low-growing firs, and, also, such of the common-sized pines and white firs as can, by means of pruning, be kept as shrubs. Along this plantation, which may be sometimes broad and sometimes narrow, but which, however, should never exceed three yards, there ought to be a path of grass 24 ft. wide, which should be of this breadth to leave room for the spreading branches of the pine and fir tribe. On the inside of the park, the same kind of mixed plantation of ornamental shrubs, in groups, would have a fine effect from the opposite side; the deciduous trees predominating, which would, in a great measure, conceal the monotonous appearance of the pine and fir tribe, which should be only allowed to appear where it might be thought desirable. It is inconceivable how much this mode of arrangement would enliven a park during our long gloomy winters'; and the grass pathway, which would be seldom covered with snow, though every thing around it looked barren, would afford the most delightful promenade. The evergreens in the foreground, which, of course, would remain green all winter, would give life to all around, and afford that appearance of vegetation which is so much wanted in German scenes at that period. With respect to the general appearance, if the park is well laid out and grouped, the effect will be very good, without a variety of colour in the tree; particularly in winter, when they are deprived of their leaves; though yet, by the harmony of the masses in which they are disposed, the grass and pieces of water, the agreeably formed outlines, paths, and banks, an interesting picture is produced. How these border plantations of pines are to be formed, so as to resemble nature, will be easily understood, and copious directions on the subject are given in the section on plantations.'

"The fourth section treats of the form and grouping of large masses of trees. It is particularly well arranged, and rules are given how to lay out and group

in the best manner; and, also, the errors enumerated that are committed in the distribution of them in large pleasure-grounds. At p. 36. the author says, —

"'In almost every landscape, great or small, a judicious grouping is highly necessary. Natural taste, however, is a very great assistance; and, though I shall hereafter give directions for the detail, the following observations may be considered as a general introduction:—Light and shade are every where distributed in a picture; it ought to be so also in grouping in masses. The grass, water, and level ground throw no shadow, but rather take it from other objects, and are themselves used as lights by the landscape-gardener. Trees, forests, and houses, on the contrary (and also rocks, where they can be found), produce his shades. The disagreeable effect should be avoided of what is abrupt and unconnected, amongst so many varied objects, in an interrupted light; and almost all the other side should be darkened by an enormous shade. Let a part of the meadow and water be seen, to its full extent, in a free and open space; but arrange it so that they may be here and there lost in the shade of vegetation; or, like a well-managed light, let them suddenly emerge as if from the dark ground. Buildings should not be entirely seen, but should be treated in the same way as objects on which nature has not been too lavish. Whatever is half exposed, has its beauties increased by something being left for the fancy to guess at. The eye often dwells with more pleasure on a mere chimney in a distance, with its grey cloud of smoke arising from amidst the trees of an ancient forest, than on a naked palace, which is accessible on all sides; where no animating variety presents itself, and where nature nowhere secretly and delightfully insinuates her charms.

"'It is highly necessary that the buildings should be always in character with the landscape that surrounds them. Many of our German architects pay too little attention to this rule. Buildings, in a city, require quite a different style from those in a park: the one produces its effect by itself alone; while the other both gives effect to the other parts of the scenery, and receives from them a picturesqueness which alters its original character, and thus makes it form a part of the whole. The near and distant prospect of such a building should, therefore, be carefully attended to; and its relative, as well as its immediate, effect should be fully considered. In general, park buildings should be rather irregularly built, as they thus become more picturesque, and, consequently, harmonise better with the natural objects around them. A sacred temple, a theatre, or a museum, in which art is displayed, should, undoubtedly, be symmetrical, and in a pure state of art; but the mansion, or country seat, should be constructed for convenience, as well as for exterior effect.

"'The situation selected for a building ought to be particularly attended to; viz. a nobleman's house in the middle of a corn field, as at Washern, near Leipzig, is almost ridiculous; so is, also, an Egyptian pyramid in a beautiful birch forest and romantic scenery, or surrounded by a French parterre. Every thing that is incongruous disturbs the harmony produced by judicious contrasts. The pointed Gothic style of architecture has also a very bad effect amongst tapering pines and Lombardy poplars; but, among ancient undulating oaks, beeches, and spreading firs, it would be exactly in its proper place. Those pines and poplars belong, on the contrary, to an Italian villa, to which they are suitable, on account of the contrast they afford to its horizontal lines.

"'If the beauty of harmony is particularly desired, it should also be shown by the suitableness of the construction to the purposes which the building is intended for. A Gothic house, for instance, without a reason for making it so, but merely because something Gothic was wished for, occasions an unpleasant feeling. It is unnecessary and unsuitable as a dwelling-house; and, as a mere decoration, it has no connexion with any thing around it, there seems no sufficient reason for having it there: when, however, the tower of a Gothic chapel is seen on a distant mountain, rising from amongst the tops of old trees; and when you learn that it has been a family burial-place, or, perhaps, a frequented temple, consecrated to sacred worship; you will feel satisfied, because the situation and scenery are suitable.

"'The most important building in a park is, certainly, the dwelling-house. It should be built, and the grounds laid out, not only according to the wealth of the proprietor, but even in reference to his business. The ponderous castle, with its pinnacles and towers, does not suit the merchant; but is in accordance with the aristocracy, whose families have inherited it for centuries, and whose forefathers, indeed, found it absolutely necessary to inhabit strongly fortified castles, to secure themselves from their foes. The elder Repton carried this idea so far, that he shut out a beautiful view of the city before a merchant's house near Bristol, merely that the proprietor, who had retired from business, might not see the buildings which would call to his remembrance the by-gone days of trouble and care. This is completely English; so is, also, the endeavour of several egotists there, who would conceal all objects, however picturesque they may be, which do not belong to them. I will not attempt to remove this feeling, but shall only state that the view from the house should always be adjusted according to the taste of the possessor; that both a near and a distant prospect are desirable, though both can rarely be obtained from park buildings.'"

(*To be continued.*)

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

The Cóccus bromèliæ. — At a meeting of the Entomological Society, on July 6., Mr. Children called the attention of the members present to the destruction of the pine-apple by the Cóccus bromèliæ, a small apterous insect, which infests it in immense profusion, so as to become a perfect pest. Specimens were exhibited by him from the stoves of Sir John Lubbock, and the heads of the fruit were found to be almost covered with a cottony secretion, in the midst of which the eggs and young of the coccus were deposited. A peculiarity observable in this, and other species of insects infesting hot-houses, was noticed; viz. that their production is not annual, as in the outdoor species, but continuous, thereby occasioning greater obstacles against the application of remedies. The subject was discussed by various members at great length, by whom various remedies were suggested, and it was considered sufficiently important to form the subject of one of the prize essays of the Society. (*Athenæum*, July 18.) The circumstance of the breeding of insects being continued throughout the year, in plant-houses kept in a continued state of growing temperature, will confirm gardeners in their practice of occasionally leaving vineries, peach-houses, and other forcing-houses, an entire winter without being warmed artificially.

Forcing Cherries in England in 1755. — "Wednesday, Jan. 1., at His Majesty's (Geo. II.) dessert after dinner, a large plate of fine ripe duke cherries was served up; to such perfection is the art of promoting vegetation arrived in England." (*Gent. Mag.*, vol. xxiii. for 1755, p. 40.)

Extraordinary Produce of single Grains of Wheat. — Accounts to this effect have lately been published by Mr. Lance as something remarkable; but the practice of exciting wonder in the ignorant in this way is as old as the time of the Romans. A writer in the *Gent. Mag.* for 1754, who dates from Basingstoke in 1754, produced 50 stalks from a single grain, each stalk containing 60 grains. He kept some of the plants as a curiosity, which Mr. Lance also has done. — *A. B. Jan.* 1835.

Sugar was extracted from Beet Root and Skirrets previously to 1754, and the mode of effecting it is described in the *Gent. Mag.* for that year; where it is stated, that, from half a pound of the root of white beets, half an ounce of pure sugar was obtained; from half a pound of red beets, $1\frac{1}{4}$ oz.; and from $\frac{1}{2}$ lb.

of skirrets, ¾ oz. of pure sugar. The first chemist who extracted the sugar was Marcgraff. — *Id.*

Liquors may be cooled in hot weather, and are cooled in hot countries, by immersing the vessels which contain them in deep wells, or placing them in cisterns in a good cellar. Cucumbers, onions, cabbages, turnips, and other vegetables are salted in casks, and the casks sunk in wells, or buried deep in the earth, and thus preserved the whole year, in Poland and Russia. The casks are, of course, water-tight. This last practice may be useful in America ; and the first, with regard to liquors, in every family in Britain, where beer, or even water, is drunk. — *Henry Dilke. Brown's Close, Edinburgh, Feb.* 1835.

Art. II. *Foreign Notices.*

RUSSIA.

Isle of Cronstadt, near St. Petersburg, June, 1835. — Accident, which we cannot always guard against, occasioned my not seeing the 40th Number of your Magazine [Vol. VIII. p. 559.] till this spring, else I should have redeemed my promise to you last summer. I must, however, before I proceed further, embrace this opportunity of returning you my best thanks for the handsome manner in which you are good enough to notice my communications, assuring you that I shall feel the highest satisfaction, if my feeble efforts can, in the slightest degree, aid the comforts of the poor.

By the Wesleys, Captain Tindall, I send you samples of the produce of various kinds of grain used in this country, which might assist the rising generation; for I am convinced, from what I have read, and the little I have seen, that the adult population of England will not use grits, though by the number of different grain employed, and the various ways of cooking them, the labouring population might have occasional changes of diet at a cheap rate. The first point is to encourage the use of broth, which, thickened by any of the grits, would be pleasant and nutritive. The bones of the meat should be boiled a long while, or digested, and the meat added, so as not to have all its nutritive juices extracted. I think Rumford observes that an Englishman throws half his dinner up the chimney : a Scotchman does better, his porridge and kail are good settlers of the appetite. Another most extensive source of food in this part of the world is broth made of dried fish, of which I shall send you samples, if I can get them in time from the fishing stations up the country. In the meanwhile you will get one specimen of what is used in common, called by the Russians snetky, and in Latin, I think, *Sálmo Eperlànus* mìnor. The manner of drying, I am told, is to throw the fish, when caught, into brine, and then dry them in a cool oven, laying them on straw, to prevent them from being burnt. Soup must be made of them, without boiling them to rags, and thickened with one of the kinds of grits, barley, perhaps. I can eat it without repugnance, nay, with satisfaction ; and it forms the broth of my servants, as well as of all the lower ranks of society during the long fasts. What led me to the idea of sending you this sample was, reading that small fish were so plentiful with you, that they are used for manure ; and, surely, it would be more humane to dry a part, and use it to vary the food of the poor, than to plough it down in a field. The baker's oven, when the bread is baked, might be used for the purpose of having the fish dried.

Owing to our long winters, we are forced to pay the most particular attention to our supply of vegetables, and, among the rest, we salt French beans, spinach, and the green of celery and parsley, using the latter two to relish our soups. The process is simple, and, I think, fully explained in Vol. VIII. p. 184. A layer of vegetables and one of salt, put in alternately till the keg is full, and a stone resting on a board, to press it down, form the whole process. Broad beans and peas are dried, and the latter, taken young, are most excellent. You will ever kindly keep in mind that the dishes I recommend are not for luxury,

except the finer grits. Manna and Smolenskaia grits, when boiled in milk, and sweetened with sugar, are most delicious; and be not alarmed, I beg, at the appearance of the dry fish: a little boiling will take out the wrinkles. The most effectual way would be to get any Russian cook, if such is to be found in London, to make the dishes; or, perhaps, a cook might be found among the Jews; but a Russian would be best. The operation is very simple; and, if you have eaten your porridge, as I suspect you have, you will understand me at once, only substituting baking for boiling. The former is, in this country, an easy matter, as every peasant must have an oven in his house to keep him warm, and all the ovens are made in the form of a baker's. This is well; but my hope of rendering what I have said really useful is grounded on a renewal of my former recommendation of sedulously cultivating bees, as their honey will make many an insipid dish palatable, especially for children. Should the care of a few hives be too much for a labourer's family, several families might join, collect all their hives into one place, and get some old man, past the years of working in the fields, to look after them; and, if they cannot afford to pay him, a parish pauper might be employed, whose little comforts might be increased by occasional gifts either of money or of food. The number of hives might be increased to any amount in the course of a very few years; and, besides bettering the situation of the family, the surplus honey and wax would leave a little fund for domestic purposes. Bees, when once introduced, cost nothing; what they yield is clear profit; and, when the swarming season comes, plenty of people will be found to join, under a leader, in the sport of collecting them.

There are many peasants in this country who have 200, and some even as many as 500, hives, whence they draw a handsome revenue. The hives are the rudest imaginable, being simply the trunk of a tree hollowed out. The peasants here do not often destroy the bees; when they take the honey they fix an old sack to a hair sieve, and cover their face, neck, and shoulders with it, the sieve serving as a visor, through which they can see to do their work. They pass a ligature round their coats, at the wrist, to prevent the bees getting up their sleeves, and defend their hands with gloves. They next create some smoke in any vessel they have at hand, with which they drive the bees afield, and, by holding it close to their persons, keep themselves from being incommoded. They then open the hive, cut out what they want; and, on leaving it, the bees return to their former occupations. The visor I used was similar to a fencing mask, made of thin brass wire, with the pendent part of leather, which forms an impenetrable defence to the head and upper part of the body. Mead forms also a very pleasant drink, and would give zest to a Sunday's dinner, if the taste for ardent spirits is not too predominant in the country. Here some of the finest is sold as high as 21*d.* the bottle. Mushrooms form a considerable part of the food of the people here during the fasts; but I do not send a sample of them, as the population of England are too little acquainted with their qualities to collect the proper sorts: here an accident is, at least to me, unknown, though thousands and thousands of pounds of mushrooms are brought to supply the markets of all the towns in the country. I presume there must be a surplus of hazel nuts in England, and that oil might be manufactured there, and, perhaps, be of use. Mustard oil is excellent, and may be used as a substitute for the better oils, where the price of the latter is too high for the labouring men. Poppy oil might, I doubt not, be fabricated, though the opium is extracted; but the idea is theoretical, and experiment must decide. The dried fruit I would recommend your trying at your own table, stewing it till tender, and seasoning the dish with sugar. The pears may require a little soaking, to take out the smoky smell, and to soften them. The fritters in this country are made by mixing the ingredients with warm water, or, much better, with warm milk, and adding a little yeast. When well risen, the material is put into a frying-pan, and baked in a brisk oven (I doubt not, a Dutch oven would serve), much on the principle of a Yorkshire pudding. These fritters must be eaten hot, as soon as made. They may also be pre-

pared in a common frying-pan, only in that case the batter must be thicker, and they are not so fine. Buckwheat is the most valuable of all grain for general use, and would answer for man as well as for pheasants. An oven, for many purposes, may be made of an iron pot or saucepan, with a cover, by placing it on a moderate fire, and putting live coals over the cover. Should you want anything of me, you know my address; in the interim, as I hate appearing in print, know me, I beg, as — *The Labourer's Friend.*

List of Samples received.

Wheat, manufactured into manna grits; price 20 copecks per lb.: used for porridge, with water, or boiled with milk, to the consistence of thick peas-soup: also for making fritters and puddings.

Wheat manufactured into malt; price 20 copecks per lb.: used for beer, or an acidulous liquor called quas.

Rye manufactured into grits; price 20 copecks per lb.: used for porridge with milk.

Rye manufactured into malt; price 15 and 13 copecks per lb.: used for beer and quas.

Barley manufactured into grits; price 10 copecks per lb.: used for porridge, and with milk.

Barley manufactured into flour; price 10 copecks per lb.: used for bread, pies, fritters, and pancakes.

Barley manufactured into malt; price 15 copecks per lb.: used for beer and quas.

Oats manufactured into grits; price 12 copecks per lb.: used for porridge and water-gruel.

Oats manufactured into flour; price 20 copecks per lb.: used for fritters and jelly.

Oats manufactured into roasted flour; price 12 copecks per lb.: to eat raw, mixed with quas, or water; mostly used by labourers in the field.

Buckwheat manufactured into grits; price 12 copecks per lb.: two qualities, used for porridge; to be eaten with butter or milk; and fritters.

Buckwheat manufactured into Smolenskaia; price 23 copecks per lb.: used boiled in milk, and for porridge, fritters, and puddings.

Buckwheat manufactured into flour; price 16 copecks per lb.: used for fritters and pies.

Millet manufactured into flour; price 12 copecks per lb.: used for porridge, puddings, and fritters.

Peas, ripe, unbroken; price 2 copecks per lb.: used for broth or stews.

Peas, young, green, dried; price 2 copecks per lb.: used at the best tables for soups or stews, or to boil.

Peas manufactured into flour; price 15 copecks per lb.: used for fritters, jelly, and puddings.

Potatoes manufactured into flour; price 40 copecks per lb.: used for puddings and jellies, seasoned with fruit.

Nut oil; price 120 copecks per lb.: to fry fish with, and eat with porridge during fasts.

Mustard oil; price 200 copecks per lb.: used to fry fish with, and for salads.

Poppy oil; price 70 copecks per lb.: used to fry fish with, and for salads; also for other purposes, as, in Russia, butter, during the fasts, is forbidden.

Dried apples; price 80 copecks per lb.: used for tarts, to stew, and compots.

Dried pears; price 80 copecks per lb.: used for tarts, to stew, &c.

Dried apricots; price 100 copecks per lb.: used for tarts, to stew, &c.

Dried cherries, wild; price, 80 copecks per lb.: used for soup; most excellent with sugar and spices in tarts.

Dried strawberries, wild; price 80 copecks per lb.: used for tarts and puddings.

Dried raspberries, wild; price 80 copecks per lb.: used for tarts and puddings.

Dried blackberries, wild; price 50 copecks per lb.: used for tarts and puddings.

Dried black currants, wild (*Vaccínium uliginòsum*); price 80 copecks per lb.: used for tarts and puddings.

Fish, a kind of minnow, dried in an oven, on straw; price 25 copecks per lb.: used as a whet before dinner, and in soups and stews.

The prices in the above list are for small quantities, except for the grits [groats] which are bought for house use by the chetwerick, a measure which is a little less than a bushel, as follows; viz.:—Buckwheat, 4 rubles, 50 copecks; barley, 3 rubles, 50 copecks; oats, 4 rubles; millet, 7 rubles. You must call to mind that we have been suffering next to famine last year; but in former years the prices were nearly half less throughout; and it is expected will return to their former level. A copeck is the 11th part of a penny; or, for shortness' sake, 10 copecks are equal to 1$\frac{1}{2}$*d.* 10 lb. Russian make 9 lb. English.

[We subjoin the following extract from another letter of our correspondent respecting these samples. It is interesting in various points of view, and particularly as showing his benevolent turn of mind.]

The promised supply of samples, which will show you the extensive use of grain in this country, rendered unavoidable by our protracted winters, and by the long fasts prescribed by the Greek religion; these fasts being kept with strictness by all classes of people, except by many in the better walks of life, and by some of the common people who have mixed with foreigners, and are resident in large towns. I sent you the two boxes with a heavy heart, as I fear the peasants in England will not be tempted to use any of the grain; and as for the populace of the towns, I am sure they will not. The preparations of buckwheat (a grain, I believe, you only use for birds) are, in my opinion, the best of all; and, as I wrote you, the Smolenskaia and manna grits form dishes which may be used in the first families of the land, if such a meal as supper exists any longer: at any rate, they are most excellent food for children. I know little of my native land; but, surely, the British hills, or hilly parts which are uncultivated, must teem with wild berries: those of Scotland, I am pretty certain, do; and the drying of the fruit would prove a source of profit to the Highland women and children, besides mending the fare, not of the poor alone, but even of the middling classes of society.

The apples I sent you I also believe to be wild, as about six and seven hundred miles to the southward and eastward apple trees abound, sown by the hand of nature, in the woods.

I was much amused by the crusade carrying on against the sparrows. In my garden, if they get out of my way, when I am half a dozen paces from them, I am satisfied. A sieve cover, some sticks with floating feathers tied to them, and some old nets, defend my peas; but, as they are sown by line, my best defence is a couple of laths, placed diagonally against one another, and as much open at top as to admit light, but to exclude the body of a sparrow. I calculate that, if these impudent fellows do me little harm, they must do me a great deal of good, as they must eat to live. In my younger days, I recollect hearing that in a district of Prussia the sparrows were nearly annihilated, designedly, and that in consequence of it a race of worms or caterpillars increased to such a degree, that the inhabitants, as the less evil of the two, bought sparrows in distant parts to renew the breed. On looking over my *vade mecum*, your *Encyclopædia*, I observe that, among the currants, you have not got the green one. I have all the sorts you enumerate, and the green besides; but in my soil it does not bear well. I got the variety from Finland. As gardening is my only pastime, and, indeed, a passion, I shall be truly happy to be useful to you, and more especially in the cause of the labouring poor.

To-day I had fish soup. The stock was small fish and perch, boned, boiled in it. The blackberries make excellent soup. I am trying the dried fruit in many ways, and can produce them at my own table.

[We received all the articles safe in the last week of September, and have tasted the fish, the dried apricots, apples, and blackberries, and found them extremely good, particularly the fish and the apricots. We shall taste all the rest, and report on them. In the meantime we return our much-esteemed correspondent our sincere thanks. — *Cond.*]

Art. III. *Domestic Notices.*

ENGLAND.

Ashwell in Hertfordshire. — On visiting Ashwell, in the county of Herts, some time since, I was struck with the peculiar rise of a spring, or springs, said to be one of the principal sources of the river Cam, and which is situated on the verge of the road as you enter the village from Royston. A kind of irregular cove is formed, which, in the centre alongside of the road, may be about 14 ft. or 16 ft. deep, and nearly perpendicular, but shelving down on each side. The accompanying sketch (*fig.* 10.) is intended to give a representation of it. When the springs are all up, as many as thirty-seven may be counted, all issuing from nooks, as represented in the sketch; and the waters, joining at a small distance, form a kind of small island, in the centre of which stands an ash tree, and from which, it is said, the village of Ashwell (by the conjunction of ash and well) derives its name: nevertheless, the village, no doubt, bore the name long before the existence of the tree which is now growing there.

At Woolmer's, near Hertford, there is a spring worthy of notice, situated in a wilderness, to which a branch of the pleasure-ground leads. There is a sort of romantic wildness about this spot, which renders it a pleasing and cool retreat during the summer months; and it is greatly admired by visiters. The spring is situated at the base of a hill, well clothed with trees and foliage: its diameter may be about 60 ft., and it is in appearance like a pool, or pond; it throws up a large volume of water, which forms a cascade, and, at about 100 yards' distance, joins the river Lea, which skirts the wilderness on the south. It is said that this spring is unfathomable; but, whether so or not, it is certain that it is very deep; and, although such a quantity of water continually issues from it, it is always perfectly calm on the surface. There is a peculiarity in this spring with regard to the colour of its water, which is of a bluish green; but, when taken up and poured into a glass, it is as clear as crystal. Whether this colour is produced by the chalky sides of the pool, its great depth, the refraction of light, or any of these combined, has not been determined. That it is not produced by the foliage around is certain, as, during winter, it has the same appearance. Perhaps some of your correspondents may be able to throw some light upon this phenomenon.

That water is a grand requisite in landscape scenery has been strongly advocated by all writers upon the subject; and, in short, it is generally considered that no place of importance is perfect without it. That the prevailing taste is in accordance with this opinion, is manifest from continual observation; and hence it is that the margins of rivers abound with gentlemen's seats and villas, and that, where nature does not afford facilities for attaining the object desired, artificial means are resorted to. The banks of the river Thames afford a striking proof of the strong propensity that prevails for having water for embellishment, by the numerous seats and villas with which they are adorned; and the number of marine residences which are to be seen along our coasts go to corroborate the truth of these observations, at least so far as that water has a pleasing effect. In fact, there is that something in this element, which seems to give the finishing stroke to all that is truly sublime in scenery; and, while it has frequently inspired the poet's song, it has not been less admired by the lovers of nature. Hence, from the wide expanse of ocean, down to the rivulet,

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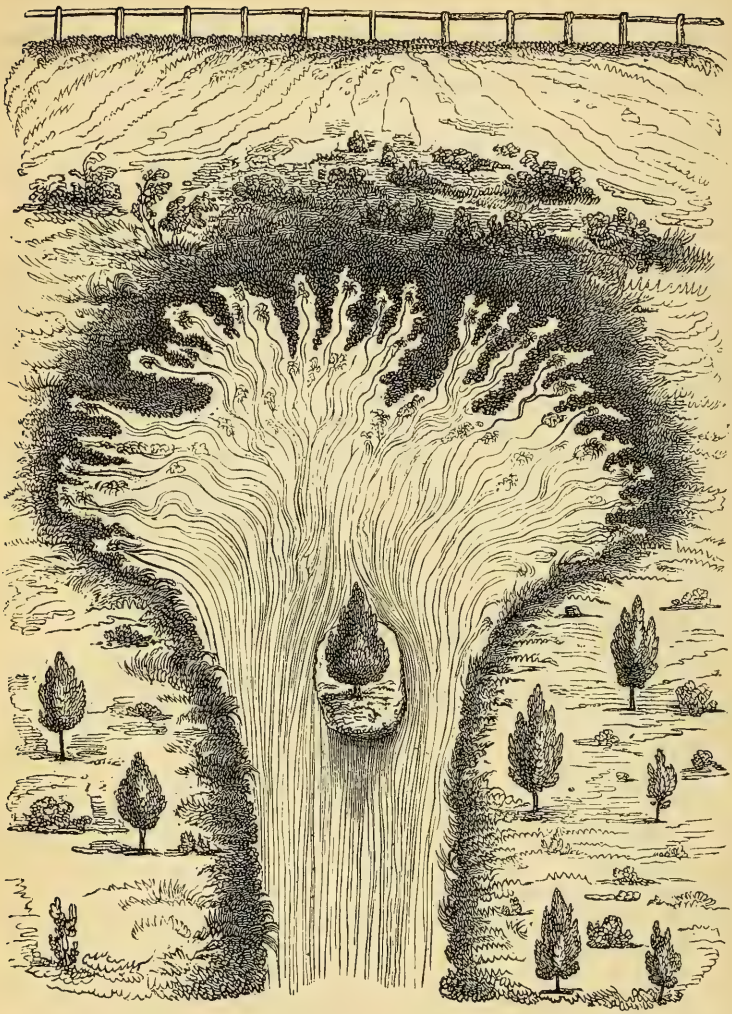


that meanders along the vale, opportunities should never be lost sight of in making use of it, so as to give it all the effect it is capable of producing. There is, however, one exception to this rule as it respects marine residences; where the house should never be artificially brought into view, so as that from any position it may be seen in a line with the sea; as in such situations it would dwindle into insignificance, and produce no effect.

The propensity above alluded to is also apparent in most of those countries where taste and refinement have made considerable progress; and, where nature has been sparing in affording means for gratification equal to the demand, art has been resorted to, and in some instances at an enormous expense of capital and labour, in the construction of aqueducts, *jets-d'eau*, &c. At Versailles there is an instance of this with regard to fountains; which are there of

the most splendid description, and upon the grandest scale of any, perhaps, in the world, and, when in full play, present one of the most striking effects imaginable, surpassing the conceptions of most persons, except those who have witnessed them; though, on account of the enormous expense of keeping them at work, they do not play, at the most, more than two or three days in the course of the year.

It would seem that Britain is rather peculiarly favoured above most of her Continental neighbours, by the distribution of her streams and rivulets in such a way as to give greater facilities for employing them in accordance with the English taste of the present day; and this taste has, perhaps, in some measure grown out of those facilities which are offered for employing them in artificially rendering the scenery in their vicinities such as we see them.—*T. Rutger. Shortgrove*, 1834.

Public Gardens and Literary Institutions.—Mr. Buckingham has brought into parliament a bill for the better preservation of public health and morals, by empowering the majority of rate-payers to establish Literary Institutions and Gardens, or other places of public recreation in the open air. (See *Morn. Chron.*, July 10th and 16th, 1835.) The proposal met with the most favourable reception from the House; and, should the bill pass into a law, it will be one of the noblest victories ever gained by the majority against the few. We trust that gardeners will not be wanting in urging on this measure wherever they have any influence, and in giving their advice and assistance gratis, in laying out the gardens, and planting them with trees, shrubs, and plants, in such a manner that as there shall not be a single duplicate.

This was written in July. In August the bill was withdrawn; but we have no doubt it will be presented again next session.—*Cond.*

The Bristol, Clifton, and West of England Zoological Society.—We are happy to learn that the plan, recently adopted, of establishing a Zoological Garden in the neighbourhood of this city, has been so favourably received, that no doubt remains of its successful accomplishment. The capital stock required has been raised without the necessity of any special solicitation, or even the common preliminary of a general appeal to the public. Had such an appeal been made, it is probable that the nobility and gentry of this and the adjoining counties, to the greater number of whom the plan at the present moment is absolutely unknown, would have been eager to give their patronage to an undertaking that promises, both in utility and ornament, to hold so distinguished a rank among the great features of improvement which are now in the rapid progress of developement among us. When the elements of our commercial prosperity are receiving daily the most powerful stimulants, we hail with pleasure the simultaneous excitements in literature and science, which such institutions as the Zoological Society are now administering to the public mind and taste. We trust that the spirited institutors of this establishment will be encouraged, by the cordial support it has so instantaneously received, to extend their plans of improvement, open their books to a greater number of subscribers, and thus procure resources for completely perfecting it in all its details, and for extending its plan, so as to combine with it other and not less necessary improvements. A Botanical Garden, for instance, might be most advantageously combined with the Zoological, and each would be essentially auxiliary to the other. If these were united in their locality, as well as in their noble objects, we might look forward to a scene in our immediate vicinity of more attraction than can be found in any other direction of the United Kingdom.—*Bristol Mirror.*

We understand that this garden has been laid out by our friend Mr. Forrest, late of Syon House Gardens. We hope the progress of improvement will not stop till not only every town, but every village, will have its garden, its arboretum, its library, and its museum, of some sort. But we should like to see the thing done, not by subscription, as it must necessarily be in the present infant state of this kind of improvement, but, on Mr. Buckingham's plan, at the expense of all, and for the benefit of all. We should like to see every little

town and village considered as a community, and that community providing for themselves, as a whole, all those rational enjoyments and luxuries which are now only exclusively enjoyed by individuals of rank and fortune. The town-house should be the mansion in which the community should give their splendid dinners, *déjeûnés*, and other feasts, when they choose to do so; the public gardens should be their pleasure-ground and park; and so on. In short, there is nothing worth having, now enjoyed by the wealthiest in the land, that might not be enjoyed by the members of a corporation, where all were considered equal in point of rights. We allude to no fanciful scheme of community of goods, or to Mr. Owen's college system; our ideas might be carried into execution by the mere passing of the bill brought into parliament, during the last session, by Mr. Buckingham. — *Cond.*

Building at Northfleet. — A correspondent informs us that 27 acres of ground at Northfleet "are being covered with houses in the London manner, in regular streets, with diminutive gardens; so that the inhabitants will have all the disadvantages of a town, or, rather, of a crowded village, without any of its advantages; viz. cheapness of provisions, privacy or publicity at pleasure, and choice of study or amusement." He has said a great deal more in favour of open, airy, detached dwellings, with gardens which cannot, like those of a town, be overlooked; in all of which we entirely agree with him; lamenting with him, at the same time, that there should be such a general ignorance, in the great mass of society, of what constitutes health and enjoyment in a dwelling, as to induce them to rent such houses so crowded together. We are persuaded that this will not long be the case, and that the rising generation will grow up with very different ideas on this subject from those of their parents. In *Leigh Hunt's London Journal*, a twopenny paper, which it would contribute to the happiness and comfort of every human being to read, there have lately been some admirable articles relating to this subject. It is by diffusing the kind of knowledge contained in these articles among all classes, so as to create a demand for properly constructed houses, that such houses will be produced, and many that are at present occupied deserted. Whenever we see a builder's speculation going on, and sitting-rooms 8 ft. or 9 ft. in height, and bed-rooms not quite so high, being constructed, we say to ourselves: This will be all very well for a year or two; but who will live in such houses twenty years hence, when railroads in all directions shall have rendered it as easy to go twenty miles from London as it is now to go two; and when free trade in corn, and all raw materials, shall have rendered labour so cheap, that as good a house may be built for 100*l.* as now costs 300*l.*? — *Cond.*

Booker's Hoe. (Vol. VIII. p. 558. fig. 115.) We have at length received one of these hoes (a very superior kind of Dutch, or thrust, hoe) from the inventor, and we have sent it to Messrs. Cottam and Hallen, who have promised to manufacture some for sale. — *Cond.*

The Palo de Vaca, or Cow Tree. — After a variety of efforts, made through a considerable number of years, I have at last succeeded in obtaining, through the kindness of Sir Robert Ker Porter, the fruit of that interesting and valuable production of the coast of Venezuela, which has acquired such celebrity from the travels of Humboldt, and which furnishes such an abundant supply of vegetable milk to the thirsty peasants of those burning regions; I mean the *Palo de Vaca*, or cow tree, of which, I am inclined to suspect, there are, if not many different genera, at least some diversity of species. I am led to this conclusion from the discrepancy between the account given of the tree, the fruit of which has been now sent to me, and that of the illustrious traveller just mentioned; as, also, from the accounts formerly received from my valuable correspondent, of the three milk trees, the Popa, the Lerio, and the Laulè, growing in the forests of the Chorò, along the banks of the river, near Citarà, or Quibdo, the capital.

I shall first transcribe the passage relating to the sort now sent, and some other matters, from Sir R. Ker Porter's letter of the 22d of last March, from Caraccas: —

"I will not forget you on the subject of the *Lirio hermoso* (*Pancràtium undulàtum Humb.*), and will write to a friend in the Tay to get some Lirio bulbs. I send you, with this, three seeds, or fruit, of the *Palo de Vaca*, or milk tree: one of them is in its husk, and the others are without it. I hope they will vegetate with you. The average temperature where these splendid, lofty, and umbrageous trees grow, is from 70° to 76° of Fahrenheit, amidst a thick forest of other large trees, at an elevation of 3000 ft. above the level of the sea, in a soil black and rich, and containing a great degree of moisture the whole year through."

As the work in which Humboldt speaks of this remarkable production of a bounteous Providence may not be accessible to all your numerous readers, I shall, for their information, extract from the fourth volume of the English translation of his *Personal Narrative*, p. 212, 213, &c., the observations of this distinguished traveller, which differ in some slight degree from Sir Robert's account, and, at the same time, furnish particulars which he did not feel it necessary to introduce: —

"We returned from Puerto Cabello to the valleys of Aragua, and again stopped at the plantation of Barbula, by which the new road to Valencia is traced. We had heard, several weeks before, of a tree, the juice of which is a nourishing milk. It is called the cow tree; and we were assured that the negroes of the farm, who drink plentifully of this vegetable milk, consider it as a wholesome aliment. All the milky juices of plants being acrid, bitter, and more or less poisonous, this assertion appeared to us more or less extraordinary; but we found, by experience, during our stay at Barbula, that the virtues of the *Palo de Vaca* had not been exaggerated. This fine tree rises like the broad-leaved star apple. Its oblong and pointed leaves, tough and alternate, are marked by lateral ribs, prominent at the lower surface, and parallel. They are some of them 10 in. long. We did not see the flower: the fruit (from the specimen sent to me, about the size and shape of a nectarine) is somewhat fleshy, and contains one, and sometimes two, nuts. When incisions are made in the trunk of the cow tree, it yields abundance of a glutinous milk, tolerably thick, destitute of all acrimony, and of an agreeable and balmy smell. It was offered to us in the shell of the *tuttono*, or calabash tree. We drank considerable quantities of it in the evening before we went to bed, and very early in the morning, without feeling the least injurious effect. The viscosity of this milk alone renders it a little disagreeable. The negroes, and the free people, who work in the plantations, drink it, dipping into it their bread of maize or cassava. The major domo of the farm told us that the negroes grow sensibly fatter during the season when the *Palo de Vaca* furnishes them with most milk. This juice, when exposed to the air, presents at its surface, perhaps in consequence of the absorption of atmospheric oxygen, membranes of a strongly animalised substance, yellowish, stringy, and resembling a cheesy substance. These membranes, separated from the rest of the more aqueous liquid, are elastic almost like caoutchouc; but they undergo, in time, the same phenomena of putrefaction as gelatine. The people call the coagulum that separates by the contact of the air, cheese. This coagulum grows sour in the space of five or six days, as I observed in the small portions which I carried to Nueva Valencia. The milk, contained in a stopped phial, had deposited a little coagulum; and, far from becoming fetid, it exhaled constantly a balsamic odour. The fresh juice, mixed with cold water, was scarcely coagulated at all; but, on the contact of nitric acid, the separation of the viscous membranes took place.

"The extraordinary tree of which we have been speaking appears to be peculiar to the Cordillera of the coast, particularly from Barbula to the Lake of Maracaybo. Some stocks of it exist near the village of San Mateo (where the Victoria wheat is cultivated); and, according to M. Bredemeyer, whose travels have so much enriched the fine hot-houses of Schönbrunn and Vienna, in the valley of Caucagua, three days' journey east of Caraccas. This natu-

ralist found, like us, that the vegetable milk of the *Palo de Vaca* had an agreeable taste and an aromatic smell. At Caucagua, the natives call the tree that furnishes this nourishing juice, the milk tree (*Arbol de Leche*). They profess to recognise, from the thickness and colour of the foliage, the trunks that yield the most juice; as the herdsman distinguishes, from external signs, a good milch cow. No botanist has hitherto known the existence of this plant, of which it is easy to procure the parts of fructification. It appears, according to M. Kunth, to belong to the *Sapòta* family. Long after my return to Europe I found, in the description of the West Indies by Laet, a Dutchman, a passage that seems to have some relation to the cow tree. "There exists trees," says Laet (*Desc. Ind. Occ.*, lib. 18. c. 4. ed. 1633, p. 672.), "in the province of Cumana, the sap of which resembles curdled milk, and affords a salubrious nourishment."

It is not here the solemn shades of forests, the majestic course of rivers, the mountains wrapped in eternal frost, that excite our emotion. A few drops of vegetable juice recall to our minds all the power, fulness, and the fecundity of nature. On the barren flank of a rock grows a tree with coriaceous and dry leaves. Its large woody roots can scarcely penetrate into the stone. For several months of the year not a single shower moistens its foliage. Its branches appear dead and dried; but, when the trunk is pierced, there flows from it a sweet and nourishing milk. It is at the rising of the sun that this vegetable fountain is most abundant. The blacks and natives are then seen hastening from all quarters, furnished with large bowls to receive the milk, which grows yellow, and thickens at its surface. Some empty their bowls under the tree itself; others carry the juice home to their children. We seem to see the family of a shepherd who distributes the milk of his flock."

Humboldt speaks of the cow tree as growing on the barren flank of a rock, where it has little soil, and less moisture. Sir Robert, on the contrary, says that it grows to a vast size in the depths of humid forests, where it enjoys a rich and fertile soil. The nature of the locality will account for the difference in the statements. In Kunth's description I have introduced those points in which he seems to differ from my specimen: the point of attachment of the footstalk (which is broken off) is deeply sunk in the body of the first, giving it almost the appearance of being hearted; the equatorial diameter (if I may use the expression) exceeds the polar, or that measured in the direction of the insertion of the footstalk; the former measuring 2 in., the latter $1\frac{7}{8}$ in. only: hence its shape is more that of an oblate spheroid, or, rather, approaches to reniform. The form of the specimen sent, on the contrary, approaches nearer to a sphere, being nearly $\frac{7}{8}$ of an inch in its polar, and somewhat less than this in its equatorial, diameter; it has, also, a cicatrix at its base, as though it had been attached to a dissepiment.

In order to give a connected view of all the information I possess on the subject of this interesting tree, I shall now extract the particulars furnished to me by Mr. Thomas Higson, in a letter, dated Carthagena, May 16. 1824, eleven years ago.

Mr. Higson states, that this tree abounds in the deep and humid forests of the provinces of Choco and Popayan, on both sides of the line; but states that he had not been fortunate enough to see the flowers. He then gives some extracts from his Journals of the date of May 7. 1822, from which it appears that, during the intermission of an attack of intermittent fever, he accompanied the Alcaide and two other gentlemen from the town of Quibdo, on an excursion about twelve miles up the river, to examine the cow tree, which is there known by the name of *Popa;* the milky juice of which is procured by the Indians from incisions made in the trunk, and by the jaguars, or wild tigers, by lacerating the bark with their claws; and he confirms Humboldt's accounts of its nutritive qualities, by remarking on the improved condition of both men and brutes during the season in which this milk is had in greatest abundance; although, he observes, "the better conditioned inhabitants, timid of its effects, and having other food, make no other use of it than

to besmear straws to catch parrots, by placing them across their nests; and, by boiling it with the gum of the mangle tree (?), tempered with wood ashes, producing a glue impervious to moisture."

He then proceeds to state, that they obtained abundance of the milk, which he describes as being aromatic, sweet, of the thickness of good cream, and so white as to stain substances on which it fell pretty durably. He says, that it mixed as readily with spirits as cow's milk, and, either with it or with water, formed an agreeable beverage, of which they drank freely without injury. They cut down one of the trees, which he describes as being the loftiest of the forest, in order to obtain specimens, and found that the timber was white, with a fine grain, proper for boards or shingles. The flowers, which he was informed were very showy, were gone; but the branches were loaded with fruit, of about a month old, growing in clusters from the alæ of the leaves: they were scabrous, and about the size of small nutmegs. The leaves he describes as standing on short footstalks, coriaceous, hearted at the base, and marginate, or sometimes pointed at their summit: they were, he says, covered over, to a considerable extent, with large semiglobular glands. He considers this tree as different from Humboldt's *Palo de Vaca;* which latter he supposes to be the same with that called lyria in the Checo. In a further part of his letter, he speaks of some of the fruit of the popa gathered by himself in the wood of the Esca, adjoining Citara, or Quibdo, which he sent to our common friend Mr. Watts; and which, although he was uncertain how far they were sufficiently mature to germinate, were sufficient, he observed, to show that it was not a drupe, but a berry. It appears to me not improbable, although the observation seems to have escaped even the penetration of Humboldt, that the *Chichiuhalquehuitl* of the Mexicans, spoken of by Humboldt in the 2d vol. of his *Researches*, p. 32., on the authority of the *Codex Vaticanus* Anon., No. 3738., is a species of the *Palo de Vaca.* The MS. quoted contains, as he informs us, several curious figures; and, among the rest, one of the *Chichiuhalquehuitl*, tree of milk, or celestial tree, that distills milk from the extremity of its branches, and around which infants are seated who expired a few days after their birth.

Besides the popa and the lyria, Mr. Higson speaks of another tree, the milk of which is not so palatable, although yielded in far greater abundance. The milk of this tree, which is called sandè, is thinner than the former, of a bluish cast, like skimmed milk, not so pleasant to the taste, and not employed for food; but, in every other respect, closely resembling Humboldt's tree, rising, as Mr. Higson says, like a broad-leaved star apple (Chrysophýllum *Cainìto*), with alternate leaves seated on short petioles, 10 in. or 12 in. long, oblong, ovate, and sharp-pointed, with the veins alternate, and ferruginous underneath. The milk of this tree, inspissated in the lees, acquires the colour and consistence of a black gum prized as a medicine, especially for external use in spleuitis and pleuritis. Such is the estimation in which it is held, that it sells, even in the vale of the Cauca, for a dollar the pound weight.

Thus, besides the *Palo de Vaca* of Humboldt, the locality of which appears to be limited to the Cordillera of the coast, we have here (if we can depend upon Mr. Higson's account) three other distinct milk trees, yielding a liquor more or less potable, and applicable to various other uses, belonging, possibly, to the same genus, or forming distinct genera of the same family, together with, perhaps, a fourth to be yet sought for amidst the unexplored parts of Mexico, and thus giving a far wider range to this valuable production than that assigned by Humboldt. — *William Hamilton. Oxford Place, Plymouth, June* 20. 1834.

SCOTLAND.

The Idea of an Experimental Farm has been thrown out, from time to time, by different individuals, both in France and Britain. A farmer in Scotland has lately sent to the Highland Society "Suggestions" on this subject; and the following are the very judicious observations of the Directors, who, at the request of the Duke of Gordon, took the paper into consideration: —

" Transmitted through such a channel, the Directors gave the suggestions the fullest consideration; but they are sorry they cannot recommend to the Society to adopt the proposal contained in the paper. In point of expense, it would far exceed the amount of funds at the disposal of the Society; and it is, besides, in a great degree, inconsistent with the principle upon which the Society uniformly acts. The Directors are not prepared to say that, although similar establishments, hitherto tried, have all proved failures, an experimental farm could under no circumstances be productive of benefit; but it must, under any circumstances, be conducted at a great expense, its objects being in a great measure incompatible with attention to profitable return from its operations; and they are well convinced that such a farm, and for such purposes as are contemplated in the " Suggestions," would, in a very short time, exhaust the capital, instead of the portion of the annual income proposed by the projector. Besides this fundamental objection, the plan is inconsistent with the present system of the Society, which is, not to be itself the experimenter, but to encourage, stimulate, and in some cases to remunerate, those who are about to make, or have made, experiments in the improvement of agriculture. For conducting such experiments the most useful course will generally be followed by those who must necessarily keep ultimate profit in view; and the Directors are of opinion that the Society have wisely left it in their hands, aiding them, as far as possible, by collecting and digesting information as to the objects to be kept in view, and the most probable means of attaining them, by offering premiums to those who, keeping these objects in view, will conduct their experiments on the principles pointed out by the Society, and, finally, by promulgating the results regularly through their Quarterly Transactions, for the use of the public generally. There is no doubt that the application of scientific principles, and extremely accurate observation of results, which might be commanded under the Society's auspices, are important objects, and have been attained in horticulture; but the Directors conceive the objects of investigation in agricultural practice to be of so extended and diversified a character, that it cannot be so well carried on in one spot, one climate, and nearly one soil, as by the Society's present practice, which brings it at once to the doors of a great many acute examinators in every part of the country, and causes the trial to be made simultaneously, under every possible variety of situation and circumstance. Nor is the whole advantage of the Society's present system to be confined to these two points; another and important result is the habit of mental exertion thus fostered among the agricultural classes, and the practical experience which each successive experiment supplies, opening up new trains of interesting speculation, and giving confidence to push forward in hopes of farther discovery. The Directors point with satisfaction to the Society's proceedings, as a proof that there is no difficulty in getting correct reports of numerous and complicated experiments from practical men, and no want of enterprise where there is a reasonable prospect of success in any new inquiry, which, if deemed too hazardous for the tenant's exertions, is generally taken up by some public-spirited proprietor, who is willing to encounter the risk, in hopes of producing a result which may be useful to the community at large." After some farther observations, the report concludes by adding, that, " if an experimental farm, on a well-digested plan and moderate scale, should be thought an advantageous adjunct for the investigation of certain phenomena, of which cases may perhaps, be conceived, offering a too uncertain or too remote chance of advantage for individual speculation, the means of carrying it on being procured and placed at the disposal of the Society, they would do their utmost to make the scheme conducive to the public advantage. (*Scotsman*, July 11. 1835.)

As Useful Reading for Gardeners, we would strongly recommend two works, one by Dr. Andrew Combe, of Edinburgh; viz. the *Principles of Physiology applied to the Preservation of Health*, which will show the immense importance of breathing fresh air; and the other, by Mr. George Combe, also of Edinburgh, is *The Constitution of Man considered in relation to External Objects*, which

will make them natural philosophers. No man, who has perused the first-mentioned work, will voluntarily consent to live in the small low-ceilinged, and often damp, houses or sheds, which gardeners, both journeymen and masters, now too frequently occupy; neither will they consent to have them surrounded by trees and bushes, in such a manner as to render ventilation impossible. The second book is most delightful and instructive reading. In that excellent newspaper the *Scotsman*, for October 28., there is a review of it, which thus concludes: — "It contains the most clear and satisfactory exposition of the nature of man, and his relations to the external world, which we have ever met with; and we rejoice to see it brought within the reach of all classes. In its subject it has a considerable analogy to the *Bridgewater Treatises;* and in quantity of matter it rather exceeds one of the volumes of that work; but it is amusing to observe, that, by a skilful employment of the powers of the press, a volume directed to the same end, and, in our opinion, affording a much clearer and more instructive commentary on the moral and physical world, than all the published *Bridgewater Treatises* put together, is here presented at the price of 1*s.* 6*d.*; while each volume of that work costs 8*s.*, though some thousand pounds were bequeathed to promote the diffusion of its supposed wholesome doctrines among the people." The price of the work on ventilation is 7*s.* Some farther details respecting it will be found in the *Architectural Magazine*, II. 460.

IRELAND.

Effect of Light and Heat in affecting the Exhalation of Moisture from the Leaves of Plants. — At the meeting of the British Association at Dublin, in August, 1835, Professor Daubeny reported that, since his communication to the British Association at Cambridge (when he had ascertained that the quantity of carbonic acid decomposed by a plant was in proportion, not to the chemical or heating influence of the ray transmitted to it, but to its illuminating power), he has found that the functions of exhaling moisture by the leaves, and absorbing it by the roots, depend upon the same law; with this difference, however, that, provided some light be present, much heat will serve as a substitute for our transmitting a greater degree of light. He has made experiments which serve to show, that, so long as the plant continues healthy, in the mutual action of the plant and atmosphere, the balance is always in favour of the purifying influence of plants. Dr. Daubeny employed Drummond's light; but he could not discover that it had any influence on the functions of the plants. (*Ed. Phil. Journ.*, vol. xix. p. 404.)

Structure of the Wood of the Coniferæ. — At the meeting of the British Association at Dublin, in August, 1835, Mr. Nicol of Edinburgh "read a paper on the horizontal branches of the natural family of the Coníferæ. He stated that in these branches the pith is always nearer the upper than the under side; that the upper side is of a paler colour than the under side; that the upper side is softer, and less dense than the under side; and that, whilst the upper side has a structure similar to that of the stems, the under side has a structure so different in all the three principal sections, that, without occular proof, no one could imagine it to belong to the very same branch. The transverse section has the partitions forming the network of the under side considerably thicker than those of the upper side. The vessels, or openings, of the former are, consequently, smaller than those of the latter; and hence the greater solidity of the wood on the under side. The longitudinal sections, parallel to the radial partitions of the under side, have smaller, less numerous, and more obscure discs than those in the upper side. The vessels, or spaces, containing the discs in the under side present numerous decussating fibres, which do not occur in the upper side; and these fibres also occur in the longitudinal concentric section of the under side. The branches of ten different species of pines were examined, and the same structure was observed in them all, although in some it was better defined than in others. The peculiarity of the structure

in the branches was stated as an additional proof of the absurdity of attempting to constitute new fossil genera, on the supposition that a single slice of a Scotch pine, or spruce fir, is characteristic of the whole family of Coníferæ. In conclusion, Mr. Nicol observed, that an accurate knowledge of the anatomical structure would sometimes enable the botanist to classify aright, when the external character might leave him in doubt; and, in proof of this, was observed, that, had the structure been known, the miro of New Zealand would not have been represented as a podocarpus. The structure of that tree bears no resemblance to that of any of the Coníferæ, its character being that of a true dicotyledon. It was also mentioned, that the Tasmánn*ia* dipétala (insípida of Brown), which has been classed with the Magnòl*ia*, is decidedly not a dicotyledon, it having the structure of the Coníferæ; and, although the texture is more minute, and less defined, than that of any of the larger species of *Araucària*, yet it is evidently allied to the Araucarian division. Since the meeting of the Association at Dublin, Mr. Nicol has received, from Mr. Allan Cunningham, a bit of the wood (probably a branch) of the Tasmánn*ia* aromática; and he finds that, although there is a peculiarity in its structure, yet there is not a doubt of its resemblance to the dipétala. The peculiarity alluded to consists of curvilinear rays proceeding from the pith to the surface. These are composed of one or two rows of quadrangular apertures, three or four times larger than those constituting the intermediate spaces. (*Edin. Phil. Journ.*, vol. xix.)

Glasnevin Botanic Garden. — An arrangement of plants, according to the natural system, is about to be formed in this garden by Mr. Niven, the intelligent and active curator. We have received a plan of it, together with a list of the orders in the series in which they are to be placed, which will appear in our next Number. In the mean time, we may observe, that it is one of the most comprehensive and expressive arrangements which has hitherto been executed in any garden, either foreign or domestic. Not only does it include ligneous and herbaceous plants, but the foreign and domestic species are kept apart in separate beds; and those of the indigenous species which are peculiar to any one of the three kingdoms, are designated by characteristic marks on the tallies. — *Cond.*

Art. IV. *The London Horticultural Society and Garden.*

Jan. 19. 1836.—*Works presented.* Among these is the American Silk-grower's Guide, presented by the author, Mr. William Kenrick; also a Catalogue of the Nursery of Mr. William Kenrick, presented by him.

Read. Observations on the Althorp Crassane pear; by Mr. Robert Thomson. Description of a hot-water apparatus used by John Rogers, jun., Esq.

Exhibited. Apples of the kinds gilliflower, Bampton nonesuch, aromatic nonesuch, and Cambridge pippins, from William Rashleigh, Esq. Apples of the kinds Kirke's Lord Nelson, Norfolk beaufin, Woodstock pippin, scarlet nonpareil, French crab, Newtown pippin (Sir Joseph Banks), Powell's russet, golden noble, Hawthornden, Pile's russet, cockle pippin, Beauty of Kent, fameuse, Braddick's nonpareil, from Mr. J. Kirke. Renanthèra coccínea, Justíc*ia* coccínea, from S. F. Phelps, Esq. Astrapæ'a Wallích*ii*, Caméll*ia* japónica *a*lthæiflòra, C. j. the white single, and a kind of *Cy*clamen, from Mrs. Marryat.

From the Garden of the Society. — Apples of the following kinds: Court-pendu plat: this escaped the frost in spring from its late blossoming; it was likewise free from the blight in summer: reinette du Canada; new rock pippin, a seedling from Newtown pippin; Hubbard's pearmain, one of the best of the pearmains; Stagg's nonpareil, or Hicks's fancy, a good brisk early nonpareil; golden russet, mère du ménage, Martin nonpareil; golden reinette, kept much

longer than usual, probably from being of a smaller size; federal pearmain; cockle pippin, a justly esteemed Sussex apple, a fertile bearer; Pennington's seedling, usually a very rich apple, but, this year, the flesh is too dry; red everlasting; reinette blanche d'Espagne, or Cobbett's fall pippin; Braddick's nonpareil, a very fertile bearer; St. Julien, Wareham's russet, tulip. Pears from standards of the following kinds: glout morceau, the specimens not very good; ne plus meuris, a very fertile bearer, keeps sometimes till March, its good qualities reconcile one to its irregular form; beurré rance; Dowler's seedling, a fertile bearer, the fruit keeps well, and is, on the whole, a very good pear. Flowers: Chimonánthus frágrans, f. var. grandiflòrus; Camél*lia* japónica *a*nemonefl*o*ra álba, C. j. imbricàta; Epidéndrum odoratíssimum, Amaryll*is* calypträta, and *E*uphórb*ia* élegans.

Art. V. *Covent Garden Market.*

	From £ s. d.	To £ s. d.
The Cabbage Tribe.		
Cabbage, per dozen:		
Large White	0 2 0	0 2 3
Red	0 1 6	0 3 0
Plants, or Coleworts	0 0 6	0 0 8
Savoys	0 2 6	0 3 0
Brussels Sprouts, per ½ sieve	0 2 0	0 3 0
German Greens, or Kale, per dozen	0 0 9	0 1 6
Broccoli, per bunch:		
White	0 3 6	0 5 0
Purple	0 2 6	0 4 0
Tubers and Roots.		
Potatoes per ton	4 10 0	5 0 0
Potatoes per cwt.	0 5 0	0 5 6
Potatoes per bushel	0 2 6	0 2 9
Kidney, per bushel	0 3 0	0 0 0
Scotch, per bushel	0 3 0	0 0 0
Jerusalem Artichokes, per half sieve	0 1 6	0 0 0
Turnips, White, per bunch	0 0 5	0 0 6
Carrots, per bunch	0 0 4	0 0 6
Parsneps, per dozen	0 1 0	0 1 3
Red Beet, per dozen	0 1 3	0 1 6
Skirret, per bunch	0 1 6	0 0 0
Scorzonera, per bundle	0 1 6	0 0 0
Salsify, per bunch	0 1 6	0 0 0
Horseradish, per bundle	0 1 6	0 3 6
The Spinach Tribe.		
Spinach per sieve	0 2 0	0 3 0
Spinach per half sieve	0 1 6	0 1 9
Sorrel, per half sieve	0 2 0	0 2 6
The Onion Tribe.		
Onions, old, per bushel	0 3 0	0 4 0
Leeks, per doz. bunches	0 1 3	0 1 6
Garlic, per pound	0 0 6	0 0 8
Shallots, per pound	0 0 8	0 0 10
Asparaginous Plants, Salads, &c.		
Asparagus, per 100:		
Large	0 10 0	0 12 0
Middling	0 5 0	0 6 0
Small	0 2 6	0 3 0
Sea-kale, per punnet	0 1 3	0 2 0
Lettuce, per score:		
Cos	0 1 6	0 2 0
Cabbage	0 0 6	0 0 9
Endive, per score	0 2 6	0 4 0
Celery, per bundle (12 to 15)	0 0 6	0 1 6
Small Salads, per punnet	0 0 2	0 0 3

	From £ s. d.	To £ s. d.
Pot and Sweet Herbs.		
Parsley, per half sieve	0 2 6	0 4 0
Tarragon, dry, per doz. bun.	0 2 0	0 0 0
Thyme, per dozen bunches	0 3 0	0 0 0
Sage, per dozen bunches	0 3 0	0 0 0
Mint, dry, per dozen bunches	0 1 0	0 0 0
Peppermint, dry per doz. bun.	0 1 0	0 0 0
Marjoram, dry, per doz. bun.	0 1 0	0 0 0
Savory, dry, per dozen bun.	0 1 0	0 0 0
Basil, dry, per doz. bunches	0 1 0	0 0 0
Rosemary, per dozen bunches	0 2 0	0 0 0
Lavender, per dozen bunches	0 2 0	0 0 0
Stalks and Fruits for Tarts, Pickling, &c.		
Rhubarb Stalks, forced, per bundle	0 1 3	0 1 6
Edible Fungi and Fuci.		
Mushrooms, per pottle	0 1 6	0 2 0
Morels, dry, per pound	0 10 0	0 12 0
Truffles, dry, per pound:		
English	0 4 0	0 5 0
Foreign	0 12 0	0 14 0
Fruits.		
Apples, Dessert, per bushel:		
Nonpareils	0 5 0	0 8 0
Golden Pippins	0 12 0	1 0 0
Baking	0 2 0	0 6 0
American	0 10 0	0 16 0
Pears, Dessert, per dozen:		
Chaumontel	0 4 0	0 6 0
Glout Morceau	0 3 0	0 4 0
Beurré d'Hiver	0 4 0	0 6 0
Baking, per half sieve	0 2 0	0 3 0
Almonds, per peck	0 6 0	0 0 0
Chestnuts, French, per peck	0 3 0	0 4 0
Filberts, English, per 100 lbs.	1 10 0	2 0 0
Pine-apples, per pound	0 4 0	0 6 0
Grapes, per pound:		
Spanish	0 0 10	0 1 0
Black	0 1 0	0 2 0
Oranges per dozen	0 0 6	0 2 0
Oranges per hundred	0 3 0	0 14 0
Bitter, per hundred	0 6 0	0 16 0
Lemons per dozen	0 0 9	0 2 0
Lemons per hundred	0 5 0	0 12 0
Sweet Almonds, per pound	0 3 0	0 0 0
Brazil Nuts, per bushel	0 16 0	0 0 0
Spanish Nuts, per peck	0 4 0	0 0 0
Barcelona Nuts, per peck	0 5 0	0 0 0

Up to the present date the weather has continued changeable and unsettled; the supply to the market has been irregular, and prices have fluctuated considerably; nevertheless they have been generally good, but the quantities brought have been inconsiderable. During the prevalence of frost, in the

early part of this month, broccolis have suffered materially, so that a short supply may be expected during the spring. Coleworts and savoys are getting scarce, and will necessarily command good prices. We have had considerable quantities of drumhead cabbages brought from Essex, which have proved acceptable to the dealers during the prevailing scarcity of the finer and better varieties. Turnips are still furnished in moderate quantities; so that the prices, as yet, have not offered a sufficient inducement to the far-off growers to send supplies, which might be obtained readily by water, did not the absurd objection still prevail against having this valuable vegetable sent in baskets or sacks, with the green part cut off. Carrots are still moderately plentiful, and in good demand. Little doubt can exist but that all the varieties of vegetable will become scarcer and dearer during the next two months.

It has been from time to time reported, that, in consequence of the long prevailing drought during the preceding summer, all kinds of vegetables are so scarce and dear in the London markets, as to induce a considerable importation of the more general articles, such as turnips, cabbages, &c., from Holland, by steam. I have made some enquiry on the subject, and can safely say, that nothing of the sort has taken place as regards this market, not an article of the sort having as yet been introduced. That, in cases of shortness of crop in future, we shall be amply supplied from more distant parts of the country by steam communication, I have not the least doubt; but, except carrots and onions from Bedfordshire, we have as yet but little furnished beyond the distance of twelve or fifteen miles; and that for heavy articles, such as turnips, &c., is a material addition to the expenses of preparing and bringing to market.

The supply of apples continues to be good, although partially interrupted by frost, which at all times prevents the grower's sending any quantities. It is generally understood that the stock on hand is considerable, and will be sent steadily to market as soon as the weather is settled and steady. Of pears we have at present but few varieties offered, and those in very inconsiderable quantities. The gardeners about London have, for some time past, turned their attention to the culture of the new and improved varieties; so that we may, in a few years, expect a much better and more general supply. Oranges are abundant, and at very moderate prices. Foreign nuts are not so plentiful as usual. We have still a considerable quantity of last year's crop of filberts, and some walnuts, on hand, which are now out of season, and comparatively unsaleable. — *G. C. January* 23. 1836.

Art. VI. *Obituary.*

Died on December 31. 1835, in St. Clement's, Oxford, in the 87th year of his age, *Charles Williamson*, for more than forty years one of the under-gardeners in the Botanic Garden in that university. He was a native of Aberdeen, in Scotland; in which country he served his apprenticeship to a gardener. Shortly after he was out of his time he came to England; and, on his first arrival in this country, he worked in some of the nursery gardens near London. He was afterwards gardener to Admiral Bowyer, at his seat near Harley Green, Oxfordshire; and, on his leaving there, he was employed in the Royal Gardens at Windsor. He afterwards went to Oxford, where, after working for some time for Mr. John Madox, gardener, at Christ Church, he got into the Botanic Garden, sometime about 1790, where he continued till within about three years of his death. — *W. B. Bot. Gard., Oxford, January* 18. 1836.

THE

GARDENER'S MAGAZINE,

MARCH, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Descriptive Notice of Castle Coole, in the County of Fermanagh, Ireland.* By Y.

CASTLE COOLE, the demesne of the Earl of Belmore, is situated within an English mile of Enniskillen, in the county of Fermanagh. The house stands on a commanding eminence, about half a mile from the entrance lodge. It is a noble mansion, and was built by the late earl. We entered by the new approach from the Dublin road, which is two miles long, and sweeps boldly through the park, affording magnificent views of the surrounding country; and which has lately been completed under Lord Belmore's own superintendence, since his return from Jamaica. From the house, there are varied and extensive views: on the left, about four miles distant, we have Florence Court, the beautiful demesne of the Earl of Enniskillen; in the foreground is the broad winding lake, studded with woody islands; and farther beyond it are the mountain plantations of Florence Court; while, to terminate the scene, the bold Benaughlin and the lofty Cultagh Mountains rise. In front, there is a distant prospect of Belmore Mountain rising in lofty grandeur; and, nearer, are the Castle of Portera, and the picturesque town of Enniskillen, with its numerous towers and steeples. On the left, two miles distant, are the sombre plantations of the Temple Hills, broken into irregular dense masses, and forming such mountain scenery as we always consider the distinguishing feature of alpine regions. On the lawn, in front of the mansion, are some magnificent old trees; and, among others, an ash which measures 65 ft. in height, and 23 ft. in girt; the tree has a fine straight bole, and its branches extend over a space 270 ft. in circumference. There are, also, a noble beech, which, at a distance, resembles a group, more than a single tree, and which is 123 ft. high, and 13 ft. 10 in. in girt, circumference of the top 885 ft., forming a beautiful, close, regular column, crowning a fine clear bole, 25 ft. high; a sweet

chestnut, 80 ft. high, 10 ft. in girt, 20 ft. of a clear bole; a horse-chestnut, 50 years old, 60 ft. high, girt of the trunk 7 ft. 7 in., and diameter of the head 60 ft. This is a very superb specimen; and Lord Belmore told us that it increases one inch every year in solid timber. We measured another very fine beech, which was planted by Lord Belmore about thirty years since, and found it to be 80 ft. high, 10 ft. in girt, with a head 18 ft. in diameter, and a straight bole of 20 ft. We saw, also, some other fine specimens, which we noted down for the *Arboretum Britannicum*. In a noble avenue of oaks, we measured several, one of which was 90 ft. high, girt 10 ft. 5 in., bole to the branches 30 ft. Here we were shown an old oak, taken out of the wood when it was 70 years old, and planted in the lawn, in a very exposed situation, by His Lordship, after some peculiar method of his own, differing from Sir H. Steuart's plan. This oak has now been planted 25 years; and, it having thrown out some small spray, and proved strong enough to weather the Atlantic blast, we need not say that such planting will answer the purpose, particularly where there is little shelter. We were shown a design for a walk round the rear of the plantation in front of the mansion, but which we thought would be of little interest or use, except being on a level with the other parts of the grounds. We would beg to suggest the propriety of bringing it on the same level in front of the plantation, when it would form by far the best walk in the demesne, at once giving a beautiful prospect of the different surrounding scenery, and affording a full view of the front of the house. Situated at a short distance in the rear of the mansion, and seen from the approach road leading to Enniskillen, is a beautiful lake, nearly two miles round, inhabited by numbers of domesticated and wild fowl. The bank on the distant side is clothed with venerable oak trees projecting over the water, and thus affording shade for the swans and wild geese; while their tops are clustered with myriads of rooks, and the trees in the island, and on the margin of the lake, are knotted with the nests of the heron. The varied chattering of the waterfowl, combined with the monotonous croaking of the raven colony, and the singular beauty of the wild scenery around us, raised in our minds poetic feelings fraught with beauty, that it would require the genius of a Scott or a Byron to describe.

The approach to this front comes too near the lake, and is too low. It would be a decided improvement to carry it into the majestic oak avenue, bringing it with a gradual sweep towards the offices. The garden is an extensive parallelogram, surrounded with high walls, which are well clothed with fine old fruit trees. There are extensive ranges of hot-houses on the old plans; peach-houses, vineries, and pine-stoves; and frames for forcing melons, cucumbers, &c.; a general assortment of herbaceous plants, dahlias of every variety, rhododendrons of the

newest kinds, roses, kalmias, and every sort of American plant. We saw a fine collection, in full bloom, of new annuals, from Mr. Charlwood, the celebrated seedsman in Covent Garden, that we admired very much; also a fine collection of camellias and other new green-house plants, selected by His Lordship from the English nurseries. His Lordship's taste for plants gives him a botanical knowledge, as well as an inclination for rural affairs. We were disappointed in the appearance of a green-house, which is the only modern improvement in the garden: it is not at all in character with the splendid mansion and other buildings, and it is only fit for a nurseryman to put his seedling heaths and cuttings in. It is a pity to see such fine plants in it. We expected to see a splendid modern conservatory, in an appropriate situation, in character with such a demesne. We were informed by Mr. Fennelly, who is an experienced gardener and practical botanist, that His Lordship intends to remodel the hot-houses, and to change the general appearance of the garden into a more modern style — an improvement which is much wanted.

The offices are in character with the noble mansion, and form extensive and separate squares. There is the stable square, the cattle square, and the poultry square, all situated at a little distance from the house, and all screened by a fine plantation and shrubbery. The woods are extensive; and we were informed by Mr. Greenfield, the steward, that they consist of 750 acres. We went a little way into them; and, according to our judgment, they are very skilfully managed. There are some fine young oak plantations, managed in the same manner as those of Lord Enniskillen, at Florence Court, mentioned in the *Irish Farmer's and Gardener's Magazine*, vol. i. p. 70. We saw some beautiful drawings of well-designed lodges and gates, which are to be put up: we should say the sooner the better; for the present appeared to us more fit for a country chapel than a park, and only just wide enough for the family carriage to pass through.

The approach leading to Enniskillen, we thought, should be extended to the public road, and brought with a gentle sweep into the avenue, ornamental trees and shrubs being planted on the rising ground.

Enniskillen, Nov. 16. 1835.

ART. II. *Extracts from the Letters of an English Traveller, now at Sydney, mentioning the Trees and Shrubs that he found in Flower during May and June, the Winter Months, in New South Wales.* Communicated by Mr. THOMAS BACKHOUSE, Nurseryman, York.

MAY 28. 1834. — Winter is now far advanced; but in this mild climate we found *Acàcia suavèolens*, and some other species,

Bánks*ia* integrifòlia and spinulòsa, Hàke*a* gibbòsa, E'pacris grandiflòra, Ricinocárpus *p*inifòlius, a narrow-leaved Loránthus, and several other plants, in blossom.

June 1. — In addition to the shrubs noticed on the 28th ult., the following were in flower: Bánks*ia* *e*ricifòlia and austràlis, Conospérmum *e*ricifòlium, Cròwe*a* *s*alígna, Eriostèmon linearifòlius; E'pacris pulchélla, microphýlla, and heteronèma; Styphèlia tubiflòra, and Zièr*ia* lævigàta.

June 2. — In our walk, the following plants were seen in blossom, in addition to those already noticed at this season. *Ac*àcia plagiophýlla, *l*inifòlia, and *m*yrtifòlia; Bánks*ia* oblongifòlia, Ægíceras frà*g*rans, Lambért*ia* formòsa, Grevílle*a* *b*uxifòlia and lineàris, Lobèl*ia* grácilis, Bossiæ*a* heterophýlla, *Ac*àcia púngens, Dillwýn*ia* *e*ricoìdes, and Mélichrus urceolàtus.

June 3.—We met with Corræ*a* speciòsa, Stenanthèra *p*inifòlia, Boròn*ia* tetrathecoìdes, Grevíll*ea* serícea, Isopògon *a*nemonifòlius, Leucopògon microphýllus and *e*ricæfòlius, Pimelèa *l*inifòlia, Hibbért*ia* lineàris, and Eriostèmon *s*alicifòlius, in blossom, in our walk.

June 9.—At an early hour, we set out for the residence of a friend, on Cook's River, at about seven miles distant from Sydney. The road is well tracked; and, in some places, it is formed by the edges being cut, and the earth levelled: portions of it are also bounded by post and rail fencing. Some of the land through which it passes is of a stronger quality than most of that in the vicinity of Sydney. It is cultivated, and has cottages or farmsteads upon it; but the greatest part of the way is through bush, or forest, of eucalyptus, casuarina, and acacia, with underwood of various shrubs, intermingled, in the more open places, with the singular Zàmia spiràlis. From some parts of the road there is a fine view of the waters of Botany Bay, of which Cook's River forms an arm, which is crossed by boats, at about five miles from Sydney, to the residences of a few settlers. The river here has a low sandstone cliff on the west side, and patches of low level land, backed by sandstone rocks, on the east side. The muddy margins, like those of Port Jackson and other similar places washed with salt water, are covered with Ægíceras frà*g*rans, and another arborescent shrub, both of which go here promiscuously under the name of mangroves, and are burnt for the sake of their ashes. A man was waiting for us, who conducted us along a narrow path under the cliff to a large boat, used for bringing shells from Botany Bay to burn for lime, in which his fellow-prisoner servant and himself conveyed us about a mile further up the river to his master's house, which is built in the style of many of those of persons of the middle class in the West Riding of Yorkshire, and which is commodious, but by no means elegant. Our friend has a wife and four children;

and the whole family are located between the rocks and the river, on a slope naturally grassy, but a part of which has been converted into a garden, chiefly planted with grape vines. Near the house we conversed with a party of blacks, who were assembled in the bush around a small fire, on which they had been cooking some fish. We had seen two of them spearing fish in the river, which they do with great dexterity, both from logs lying with one end in the river, and from their canoes. Their fish-spears are made of long pieces of wood, with a socket at one end, into which four long wooden prongs are fixed, by means of the yellow gum of a species of grass tree (Xanthorrhœ'a), and some string. Their canoes are made of single sheets of bark drawn together in folds at the ends, by heating them over a fire, and tied so as to keep them in that state: a few sticks are placed across and bent to the inside, so as to keep the canoe properly open. These canoes will accommodate two persons. They are propelled by means of paddles put perpendicularly and alternately into the water by a man sitting on his knees; and are made to move very steadily and rapidly, in the direction of the face of the person who propels them. Sometimes a fire placed on a stone is carried in the canoe. The natives look for fishes about dead logs in the river, and bring their spears almost close to them before they strike: they seldom miss their prey, which they generally transfix near the head.

On some sandy table land we saw Hàke*a* aciculàris, Grevíll*ea* sphacelàta, and a variety of other shrubs, in blossom. There was a species of Cállitris 20 ft. high, with spherical cones; and, by the side of the river, Eucalýptus robústa was in flower. This tree is quite distinct from the one that attains such great magnitude in Van Diemen's Land (see *Gardener's Magazine*, vol. xi. p. 570.), which is called there stringy-bark, and which is probably Eucalýptus oblìqua. The remarkable elkshorn fern (Acróstichum alcicórne) is very common in fissures of the sandy rocks, in this part of New South Wales: occasionally it is found on trees, and at a great height up. I saw one mass of it to-day, encircling the upright slender trunk of a tree, by the side of a creek of fresh water.

June 15. —We took a walk in the afternoon, and enjoyed the fine clear weather of an Australian winter. The thermometer is often a few degrees above 60° in the shade at noon, and about 45° in the evening, when the cold is sensibly felt, and we are glad of fires.

(To be continued.)

ART. III. *Some Account of the Vineyard and Plantations of the celebrated Jacob Tonson, in* 1727, *at Haffield, near Ledbury; with a Notice of the Improvements lately made, and now in Progress, at that Place.* By Mr. D. BEATON.

THE estate at Haffield consists of several small estates, which were in the hands of different proprietors till 1817, when they were united into one. One of these small estates, containing about 25 acres, and called the Vineyard, was bought, in 1726, by the celebrated London bookseller, Jacob Tonson, whose name is so intimately associated with those of the great men whose works he published. This small estate no doubt derived its name from a vineyard on it, which had been cultivated from time immemorial. The site of this vineyard was a steep bank, facing the south and south-east; and that it was considered of some importance in 1726, may be inferred from the following extract of a letter, from Mr. Tonson to his agent, when he was about buying the place:—"Pray take care about the title, and that the house, *wine-press*, tools, glasses, and every other thing belonging to it, be particularly included in the bill of sale." In a bill sent in to Mr. Tonson, by his tenant, May 1727, are the following charges: —

	s.	*d.*
"For three chickens, and dressing them - -	1	6
For six pounds of butter - - -	2	6
For the use of my tubs, and a vessel for making the wine	3	0"

In another bill, not dated, but supposed to be about the same time, strawberries were charged 6*d.* per quart or pound, and raspberries at 4*d.* ditto. Tradition, in this quarter, says that the vines were first trained against the steep banks (a practice of late years supposed to be new), but that Mr. Tonson introduced espaliers, which the common people called "diamond palisading."

Mr. Tonson evidently made great alterations and improvements, soon after purchasing the place. He formed terraces on the bank on which the vineyard stood, and planted Scotch pines, common spruce firs, and yews, on the north-west and east sides of his vineyard; and, near the house, some yews and lime trees, and some variegated hollies, one of which now remains, and is 47 ft. high, the girt, at one foot from the ground, being 4ft. 3 in. A few of the Scotch pines have reached within a fraction of 100 ft., and girt from 8 ft. to nearly 12 ft., at one foot from the ground. They were "shredded" about 70 years ago; and some of the trees have now 40 ft. of clean straight stems. They are still in the greatest vigour, and produce abundance of seeds every year. The soil is 6 inches of gravelly marl on a hard red conglomerated rock, and on the termination of a range of low

hills, much esposed. The trees are fac-similes of the Scotch pines in the forests of Braemar and Strathspey. The spruce firs are all gone, except two trees, which are now in a sickly state; though one of them is 70 ft. high, and girts 7 ft. 2 in. at one foot from the ground. The lime trees have been pollarded for a length of time. The yews, which were planted about the same time, are comparatively young trees: a fine upright one is 40 ft. high, and 6 ft. 2 in. in girt, at one foot from the ground. If yews were planted close together, or among close young plantations, so as to "draw" them up, and if attention were paid to keep down contending leaders, and to foreshorten the strongest branches, I have no doubt they might be grown as straight and as high as the larch.

No traces of any vines are now to be seen on this bank; but a few plants, as late as 40 years ago, were growing on the original site, and there were some remains of the espaliers. The white muscadine is supposed to have been the chief sort used, as some very old plants of this variety are still to be found in the neighbourhood, trained against houses, and bearing immense crops every year. An old mulberry, in one corner of the vineyard, was blown down some years since; its larger boughs stuck in the ground, and, having taken root there, they now support the trunk, though all traces of the original roots are gone. This tree produces a regular and good crop every year.

The present house at Haffield (by Sir Robert Smirke) was built in 1818 and 1819, and the grounds were planted from 1820 to 1823, chiefly with forest trees on dry shallow soil, which was formerly under corn. It was thought of no use to trench such soil, it being no where deeper than 9 inches, on a hard red sandstone rock. The trees have, notwithstanding, made rapid progress, and are very promising. They consist of larches, Scotch pines, beech, and spruce and silver firs, with a few oaks and chestnuts in the best soil. In a low part of the grounds, there are a few acres of peat bog, similar to that of Chat Moss, in Lancashire. This has been partly drained, and planted with alders, ash trees, willows, abele trees, and black Italian poplars. The latter surpass every thing I have ever seen in the growth of trees: the abeles are fair specimens, but are beginning to look old already; and the ashes do not promise much better. The alders are quite at home, although the black Italian poplars are double their size and strength. I mean this winter to plant a salicetum here; and hope to make it complete, as upon the margin of this bog I can find different soils, sandy loam, mixing with peat and bog earth. I shall give the ground a deep digging, and shall then plant potatoes for the first three years, which will effectually clean it from weeds, without hurting the progress of the trees, notwithstanding all that has been written to the contrary. Last spring,

we began a pinetum, and got thirty species; and thus, by degrees, with a little industry, I may have a complete arboretum.

Speaking of arboretums generally, I do not at all think it necessary for their success, or for the enjoyment to be derived from them, that private gentlemen of limited fortunes should plant full collections of either trees or shrubs, even should there be plenty of ground to spare for them. Selections, and not collections, should always be the study of the private gentleman; and, if a selection be judiciously made from all the tribes, or even from the principal tribes, so as to maintain the leading features of each tribe, and its connexions with those immediately following and preceding it, all the purposes of a complete arboretum are answered. In the meantime, the greatest desideratum is to know how to make the best selection; and to this point you, and those capable of cooperating with you, ought to pay particular attention. Owing to the manner in which most places have been planted within the last thirty years, all that ninety-nine gardeners out of a hundred can do is, to plant as many trees or shrubs as they can procure, in suitable places, which will be at least one step towards the formation of general arboretums.

Very few shrubs were planted here when the grounds were first laid out; but the soil about the house is suitable for most kinds, being deep strong loam on gravel, sand, or rock, and since 1830 a good many have been planted. The kitchen-garden is four acres in extent, and the enclosed pleasure-grounds about twelve acres. In the kitchen-garden are grown the finest out-door grapes I have ever seen, an account of which, and some pomological notes, I have been preparing for you for two or three years back.

[We need hardly say how glad we shall be to receive these notices, or any other, from a correspondent of so much scientific knowledge, and practical experience, as Mr. Beaton. See vol. xi. p. 580—582.] — *Haffield, near Ledbury, August*, 1835.

Art. IV. *Plan for the Exhibition of a Natural Arrangement of Plants, in the Glasnevin Botanic Garden.* By N. Niven, Esq.

Agreeably to your wish, I send herewith my plan for the exhibition of a natural arrangement of plants, an account of which is published by Mr. Dixon Hardy of Dublin, in his *Report of the Transactions of the British Association* held in Dublin; but not the plan. When you look at *fig.* 11. you will at once see my object; viz. the uniting together of a British and an exotic arrangement, on a serpentine walk: the whole suited for a piece of ground at present preparing for such purpose in this garden. On

the right of this walk I propose as full an exhibition as possible of the exotic genera, as shown by the dark figures ; on the left, as they occur, the British natural orders, proposing to identify the plants peculiar to any of the three countries, by distinctive labels of metal, impressed with the rose, shamrock, or thistle ; entering the principal divisions of the system, through appropriate archways, over the continuous walk, on each of which, as they occur, I mean to have the leading characters painted, &c.

I have been induced to think that such a plan would be well adapted for the purpose of facilitating the progress of the student. I also think that the effect to be produced by such a mode of arrangement must be, not only simple, but beautiful.

Glasnevin Garden, Dublin, October, 1835.

[We have waited till February 15. before sending this article to the printer, in the hope of first seeing the report above referred to ; but, though we have written to Dublin, and applied to different public institutions in London, we have not been able to obtain a copy.]

First Grand Division, VASCULA'RES.

Class I. DICOTYLEDO'NEÆ.

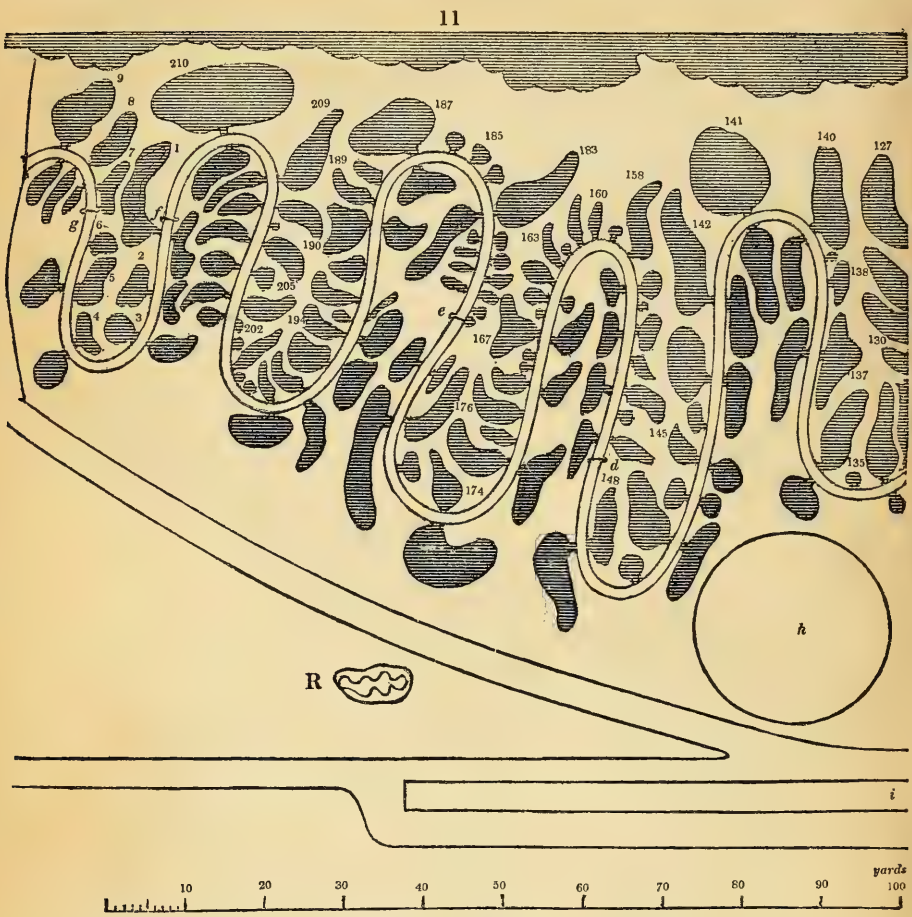
Subdivision I. *DICHLAMYDEÆ.*

Subclass I. THALAMIFLO'RÆ.

1. *R*anunculàceæ.
2. Dilleni*àceæ.*
3. Magnoli*àceæ.*
4. *Anonàceæ.*
5. Menispermàceæ.
6. *Berberàceæ.*
7. Podophyllàceæ.
8. Hydropeltídeæ.
9. *N*ymphæàceæ.
10. Sarraceni*èæ.*
11. *P*apaveràceæ.
12. *F*umariàceæ.
13. Cruciàceæ (Crucíferæ).
14. *R*esedàceæ.
15. *D*atiscàceæ.
16. *C*apparidàceæ.
17. Flacourti*àceæ.*
18. *Bixàceæ.*
19. *C*istàceæ.
20. *V*iolàceæ.
21. Droseràceæ.
22. *P*olygalàceæ.
23. Tremandràceæ.
24. Pittosporàceæ.
25. Frankeni*àceæ.*
26. Caryophyllàceæ.
27. *L*inàceæ.
28. *M*alvàceæ.
29. Bombàceæ.
30. Byttneri*àceæ.*
31. *T*iliàceæ.
32. Elæocarpàceæ.
33. Chlenàceæ.
34. Ternströmi*àceæ.*
35. Camelli*èæ.*
36. Olacàceæ.
37. Aurantiàceæ.
38. *H*ypericàceæ.
39. Guttàceæ (Guttíferæ).
40. Marcgravi*àceæ.*
41. Hippocrate*àceæ.*
42. Erythroxýleæ.
43. Malpighi*àceæ.*
44. *A*ceràceæ.
45. *Æ*sculàceæ (Hippocastàneæ).
46. Rhizobolàceæ.
47. Sapindàceæ.
48. *M*eliàceæ.
49. *V*itàceæ (*A*mpelídeæ).
50. *G*eraniàceæ.
51. Tropæòleæ.
52. *B*alsaminàceæ.
53. *O*xalidàceæ.
54. Zygophyllàceæ.
55. *R*utàceæ.
56. *Simarubàceæ.*
57. *O*chnàceæ.
58. *C*oriàceæ.

Subclass II. CALYCIFLO'RÆ.

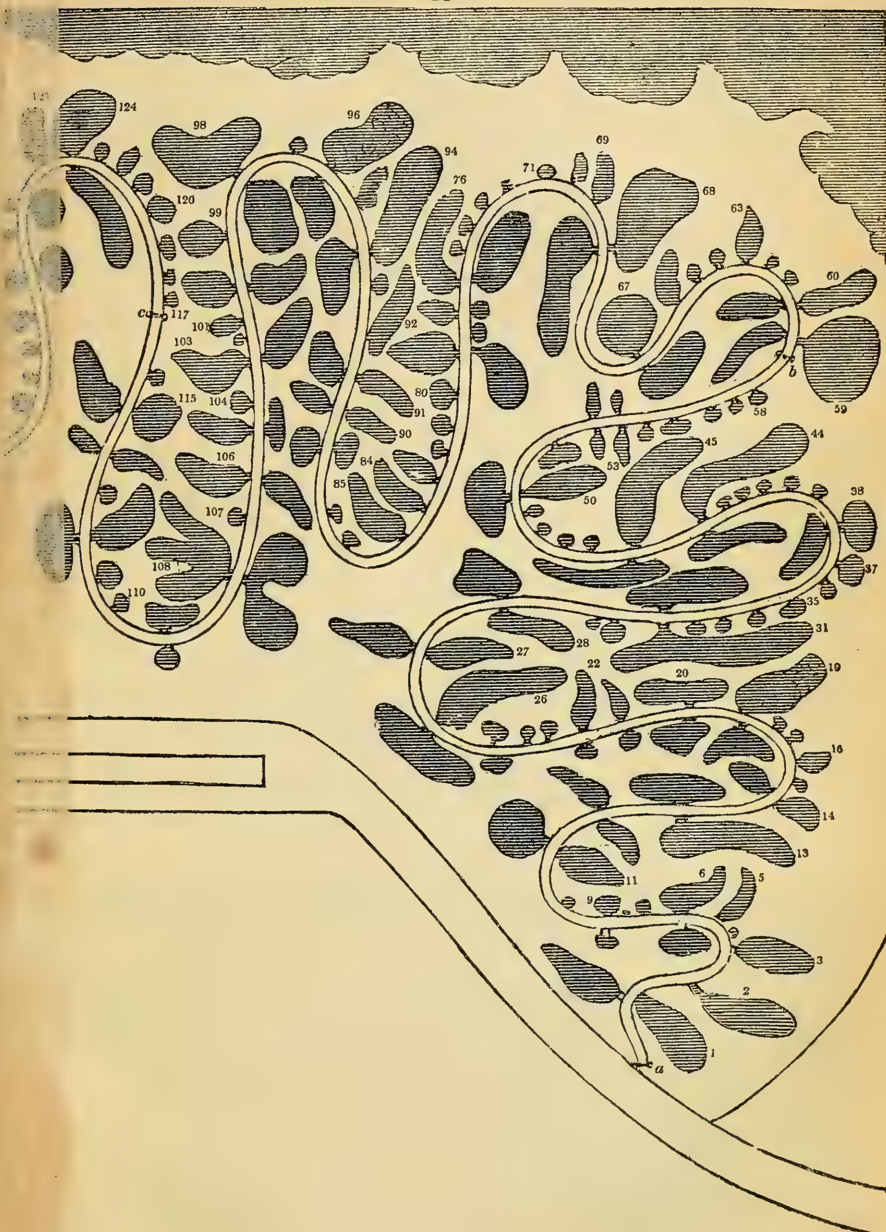
59. *C*elastràceæ.
60. *R*hamnàceæ.
61. Bruni*àceæ.*
62. *S*amydàceæ.
63. Homalinàceæ.
64. Chailleti*àceæ.*
65. Aquilariàceæ.
66. *T*erebinthàceæ.
67. Leguminàceæ.
68. *R*osàceæ.
69. Calycanthàceæ.
70. *G*ranàteæ.
71. *M*emecylàceæ.
72. *C*ombretàceæ.
73. *Vochyàceæ.*
74. Rhizophoràceæ.
75. Lophíreæ.
76. *O*nagràceæ.
77. Haloràgeæ.
78. Ceratophýlleæ.
79. *L*ythràceæ.
80. *T*amaricàceæ.
81. Melastomàceæ
82. *Alangiàceæ.*
83. *P*hiladelphàceæ.
84. *M*yrtàceæ.



This arrangement may be commenced at either end. If we enter the walk at *a*, we begin with Division I. Vasculàres, Class I. Dicotyledòneæ; Subdivision I. Dichlamýdeæ, Subclass I. Thalamiflòræ, Order I. *R*anunculàceæ. Proceeding onwards, from No. 1. to No. 58., according to the list in p. 117., we arrive at Subclass II. Calyciflòræ. The groups containing the British species are always on the left-hand side of the walk, and those containing foreign species on the right-hand side. On both sides of the walk, those groups supposed to require rock-work are indicated in the manner shown at R. At *b*, commences Subclass II. Calyciflòræ; at *c*, Subclass III. Corolliflòræ; at *d*, Subdivision II. Monochlamýdeæ; at *e*, Class II. Monocotyledòneæ; at *f*, the Second Grand Division, Cellulàres, Class I. Foliàceæ, Order 211. *Fí*lices; and at *g*, Class II. Aphýlleæ, which is continued to the termination of the walk, where it ends with Order 219. *F*ungàceæ, as indicated in p. 121.

At *h* is a mount, which has no connexion whatever with the natural arrangement, but is merely a labyrinth for amusement. The bed *i* is devoted to ornamental shrubs. We refer for other particulars to p. 116. and p. 117. When we receive the *Report* alluded to in p. 117., we shall give such other particulars as we may think necessary, in a succeeding Number.

11


124
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104
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a

85. *Cucurbitàceæ.*
86. *Passifloràceæ.*
87. *Loasàceæ.*
88. *Turneràceæ.*
89. *Portulàceæ.*
90. *Illecebràceæ* (*Paronychièæ*).
91. Crassulàceæ.
92. *Ficoïdàceæ.*
93. *Cactàceæ.*
94. Grossulàceæ.
95. *Escallonièaceæ.*
96. *Saxifragàceæ.*
97. *Cunoniàceæ.*
98. Umbellàceæ (Umbellíferæ).
99. Araliàceæ.
100. *Caprifoliàceæ.*
101. Loranthàceæ.
102. Chloranthàceæ.
103. *Rubiàceæ.*
104. Opercularièæ.
105. *Valerianàceæ.*
106. *Dipsàceæ.*
107. Calyceràceæ.
108. Compósitæ.
109. *Lobeliàceæ.*
110. Stylidiàceæ.
111. *Goodeniàceæ.*
112. Campanulàceæ.
113. *Gesneràceæ.*
114. *Vacciniàceæ.*
115. *Ericàceæ.*
116. *Penæàceæ.*

Subclass III.

COROLLIFLO'RÆ.

117. Epacridàceæ.
118. Symplocíneæ.
119. *Styràceæ.*
120. *Myrsinàceæ.*
121. *Sapotàceæ.*
122. *Ebenàceæ.*
123. Brexiàceæ.
124. *Oleàceæ.*
125. *Jasminàceæ.*
126. *Strychnèæ.*
127. *Apocynàceæ.*
128. *Asclepiàceæ.*
129. *Gentianàceæ.*
130. Bignoniàceæ.
131. *Cobæàceæ.*
132. Pedaliàceæ.
133. *Sesàmeæ.*
134. *Polemoniàceæ.*
135. Hydroleàceæ.
136. *Convolvulàceæ.*
137. *Boraginàceæ.*
138. *Cordiàceæ.*
139. Hydrophyllàceæ.
140. *Solanàceæ.*
141. Scrophulariàceæ.
142. Labiàceæ.
143. *Verbenàceæ.*
144. Myoporàceæ.
145. *Acanthàceæ.*
146. *Orobanchàceæ.*
147. Lentibulàceæ.
148. Primulàceæ.
149. Globulariàceæ.
150. *Plumbaginàceæ.*

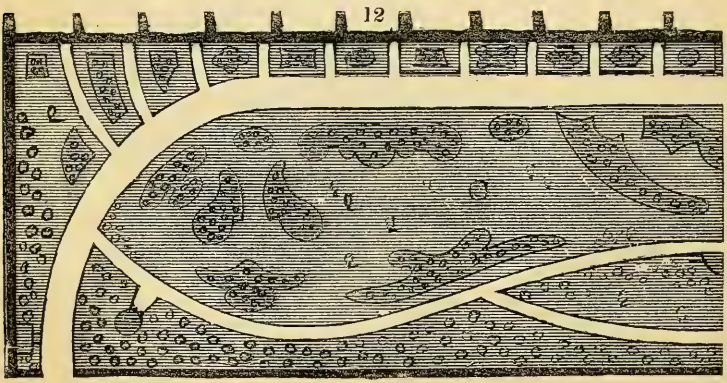
Subdivision II.

MONOCHLAMY'DEÆ.

151. *Plantaginàceæ.*
152. *Nyctaginàceæ.*
153. *Amarantàceæ.*
154. Phytolacàceæ.
155. Chenopodiàceæ.
156. Begoniàceæ.
157. *Polygonàceæ.*
158. *Lauràceæ.*
159. Myristicàceæ.
160. Proteàceæ.
161. *Thymelàceæ.*
162. *Osyrídeæ.*
163. *Santalàceæ.*
164. *Elæagnàceæ.*
165. *Aristolochiàceæ.*
166. *Cytinàceæ.*
167. *Euphorbiàceæ.*
168. Stackhouseàceæ.
169. Stilaginàceæ.
170. *Urticàceæ.*
171. *Ulmàceæ.*
172. *Piperàceæ.*
173. *Juglandàceæ.*
174. Amentàceæ.
175. *Hamameliàceæ.*
176. Conàceæ (Conífera).
177. *Empetràceæ.*

Class II. MONOCOTYLEDO'NEÆ.

178. *Cycadàceæ.*
179. Hydrocharàceæ.
180. *Alismàceæ.*
181. *Butomàceæ.*
182. *Juncaginàceæ.*
183. *Orchidàceæ.*
184. *Zingiberàceæ* (Scitamíneæ).
185. Marantàceæ (Cánneæ).
186. Musàceæ.
187. *Iridàceæ.*



188. Hæmodoràceæ.
189. Hypoxidàceæ.
190. Amaryll*àceæ*.
191. *H*emerocallídeæ.
192. Dioscore*àceæ*.
193. *T*àmeæ.
194. *S*milàceæ.
195. *A*sphodèleæ.
196. *Tulipàceæ*.
197. *M*elanthàceæ.
198. Bromeli*àceæ*.
199. Pontederà*ceæ*.
200. Commelinà*ceæ*.
201. *P*almàceæ.
202. *Pandanàceæ*.
203. *T*yphàceæ.
204. *A*ràceæ (*A*röíde æ).
205. Fluviàceæ.
206. *J*uncàceæ.
207. Gillies*iàceæ*.
208. Restiàceæ.
209. *C*yper*àceæ*.
210. *G*raminàceæ.

Second Grand Division, CELLULA'RES.

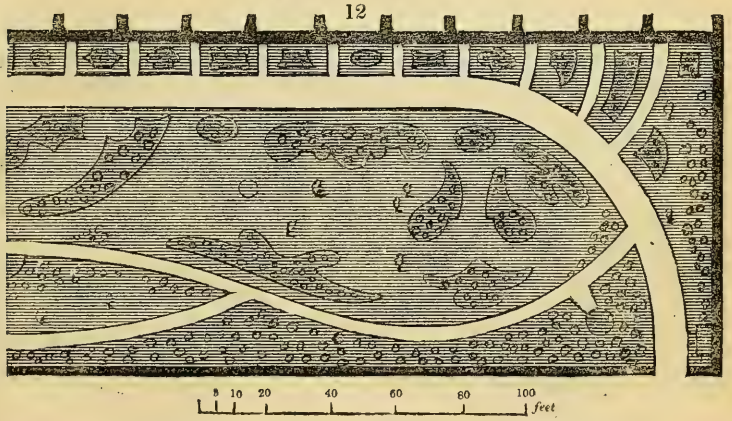
Class I. FOLIACEÆ.
211. *F*ílices.
212. *E*quisetàceæ.
213. Lycopodiàceæ.
214. Marsile*àceæ*.
215. *M*uscàceæ (*M*úsci).
216. Hepatàceæ (Hepáticæ).

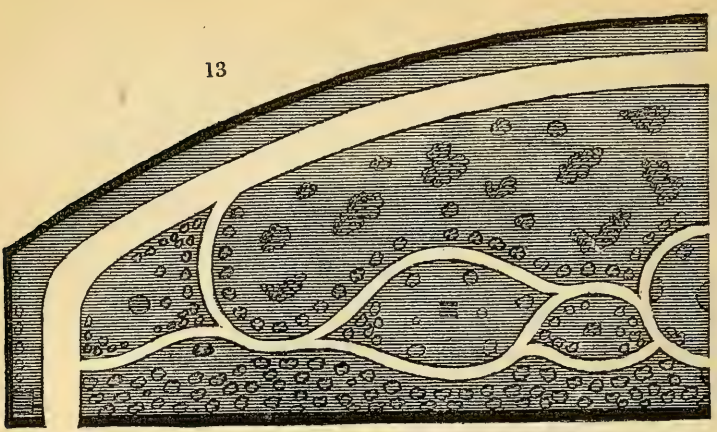
Class II. APHY'LLÆ.
217. *A*lgàceæ.
218. *L*ichenàceæ.
219. *F*ungàceæ.

ART. V. *A Series of Designs for laying out Suburban Gardens and Grounds, from One Perch to several Acres in Extent.* By Mr. T. RUTGER. Design 7. *For laying out the Frontage Grounds of Twenty-one Houses.* Design 8. *For laying out the Ground in Front of a Crescent.*

DESIGN 7. (*fig.* 12.) represents the frontage of a terrace, consisting of twenty-one houses, which are approached by a carriage drive, with a small entrance lodge at each end. The front is laid out in the parterre style, with shaded walks at the back; an alcove stands in the centre; and there is a seat at each angle, where the two walks join. The small circles at the two extreme corners are intended either for small rotundas to sit in, or for statues, or vases, for embellishments. The small walks are recommended to be laid down with stone.

12





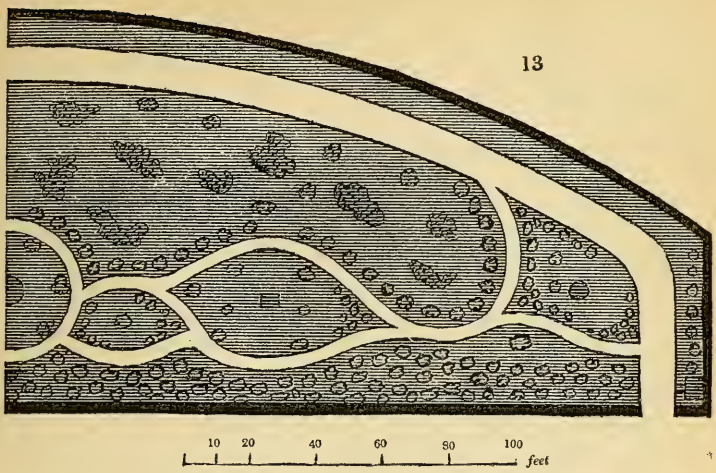
Design 8. (*fig.* 13.) represents a crescent, where only the line for the houses is given. The front is laid out as a shrubbery, with groups of shrubs planted on the grass, but where clumps may be introduced if better approved of. In the centre is a circle intended for a fountain, or any other appropriate embellishment; at the back of which is an alcove. The other small circles and squares are also intended for articles for embellishment; and seats may be introduced at pleasure in any of the shaded situations. The approach to the crescent is by a carriage drive, with a small entrance lodge at each end. The small walks are meant to be laid down with stone.

Portland Place, 1835.

ART. VI. *Remarks on the Ringing of Fruit Trees.* Translated from an Article on that subject by M. VAN MONS, published in Belgium.

THE season for ringing fruit trees [the spring] is approaching; and I cannot let it pass by without a word or two on the practice, and on the effects of the operation.

Ringing a tree cuts off the part operated upon from the circulation of the sap, and necessitates it to subsist principally on the nourishment which the leaves derive from the air. We will not say in what respects this nourishment differs from that which the tree derives from its roots; but we will remark that nature provides abundance of leaves for those buds which she intends to produce flowers.



Peach and apricot trees will not bear ringing, because they always produce their fruit on the young wood; and the vine still less, because it bears on the growing shoot. Ringing does not advance the fructification of either plum trees or young cherry trees; and it is apt to produce the gum in old trees of the latter species, as the wound is a long time before it heals. Apple trees shrivel above the ring; and, if they live, they do not soon bear any fruit. The pear tree thus remains the only species of fruit tree on which the operation of ringing can be practised with advantage.

Ringing may be performed at any season, but it only produces its full effect when undertaken in the spring, at the first appearance of the movement of the sap, and as soon as the bark begins to crack. The wound ought not to be wider than the thickness of the blade of a knife, if it is desired that it should heal before the end of the season. The operation ought to be performed on a side branch which is rather stronger and more elevated than its neighbours; or one which is badly placed, and which, in the end, may be removed without disfiguring the tree. A tree will not bear ringing either round the trunk or round the leading shoot, unless there should by chance be a second leader, and one may be removed without injury.

The tree which has had its trunk operated upon is in danger of either perishing, or remaining a long time in a sickly state; and, after it has recovered its health, its sterility will be more durable than if it had never undergone the operation.

If a branch is ringed too close to its base, or the point where

it is inserted into the trunk, it will be in danger of being beaten down by the wind, or broken by the weight of fruit. A good place is at a quarter of the length of the bough, and beyond other side shoots, the eyes of which will also generally produce fruit.

The upper lip of the wound swells considerably, and the more so according as the ring has been broad, or the season far advanced. This tumefaction of the bark is partaken of by the wood; and the formation of this tumour proves that it is principally by the descent of the sap, which has been elaborated in the leaves, that the tree increases in girt. It rarely happens that a pear tree, operated upon when it has attained the age for bearing, does not go into flower the same year that the operation is performed. There are, however, cases in which the repugnance of a tree to flower resists the efficacy of this method: these occur with all drooping trees, and whenever the wood is hard and rough; and, when at last trees of this description do show flowers, it is upon another branch rather than on that which has been operated upon.

The eye which is constrained by ringing to form its flowers prematurely, is of the same description as a similar eye springing from the young wood: the flowers, in both cases, are very liable to drop off; and the fruit, when it becomes ripe, is deficient in colour.

The fruit of a branch operated upon, if it comes to anything, owes its strength to the state of suffering of the bough which bore it: it is unequal in bulk, very often small, worm-eaten, dry, cracked, gritty, and of an excessive sweetness, which it obtains at the expense of its juice. The fruit should be reduced, by thinning, to a very small number, if it is wished that they should attain perfection.

The new property which I have discovered to belong to ringing is, that it causes the eyes of branches which have not undergone the operation to flower also; and that these are almost always immediately opposite to the branches which have been operated upon, or a little above those branches. There is not a single case known where this effect has not been produced, though till now no one has remarked this excellent property, which is itself sufficient to prove the advantage, and perpetuate the practice, of ringing; because it not only makes the wounded branches produce fruit, but, by throwing those branches into bearing that are not mutilated, it insures a fertility to the tree which is not likely to be soon interrupted.

Another mode of bringing fruit trees into bearing is, to take a ring of bark from some of the principal roots, at a little distance from the trunk. The ring ought to be more or less broad, according to the thickness of the root. The operation may be

performed at any season, in April or May, as well as in August or September, without there being any reason to fear the extravasation of the sap, which is so prejudicial to the tree when the roots are pruned in the spring. A year, however, is gained when the operation is performed early in the season. There is no occasion to apply any dressing or covering to the wound: in fact, there is no occasion to do anything more than to draw the earth round the tree, and to tread it down firmly with the feet. If the roots are not ringed all round the tree, the opposite side to that on which the incision has been made will bear fruit; which coincides with the effect produced by ringing on the branches, and denotes a physiological fact which has not been hitherto noticed. The wound heals so rapidly, that in about a year no traces of it can be discovered, except a few wrinkles in the bark. No excrescence is formed, and no other roots are sent out, either from the lips of the wound, or above or below it; at least, none that can be supposed to have been occasioned by the incision. The root operated upon appears, indeed, less likely to send out suckers than any of its neighbours. The fruit does not in the slightest degree participate in the state of disease or suffering in the tree, which has thrown it into bearing.

The wood of the shoot below the incision bursts almost always from the bark, or the lips of the wound: this wood is of the kind called false; and the buds of it ought to be rubbed off as soon as they appear; as preserving this wood can only injure the bark, and retard the healing of the wound.

The principal object of ringing ought to be, not to throw known varieties prematurely into fruit, or to make trees bear on which other resources may be resorted to in order to produce the same effect (such as shortening the largest roots, pruning the tree after the sap has risen, &c.); but to force young seedling plants to show early the bad or good quality of their fruit. It must, however, be used cautiously, as it sometimes does injury instead of good, and when applied to the side branch of an espalier, it produces no other effect than that of rendering wood sterile which was before only backward in bearing.

Ringing never produces a marked effect on the fertility of a branch more than once: if repeated the following year, it more frequently produces sterility, than a continuation of bearing.

The mode in which ringing affects a tree is precisely similar to the effect produced by many other modes of suffering which are employed to throw trees into bearing: such as bending the tree, breaking or twisting the branches, transplanting, &c., and it should only be employed with one branch at a time; it cannot be applied to several branches at once, without disfiguring, and probably ruining, the tree.

ART. VII. *On the Arrangement and Management of Fruit Trees in Kitchen-Gardens.* By Mr. ROBERT ERRINGTON.

HAVING promised, in a former paper on fruit trees, to resume the subject at a future opportunity, and to offer some suggestions as to a different arrangement of them, and as to a better system of management, I shall now attempt to make that promise good: but, I must say, with some apprehensions that it will hardly be admissible in your useful work, so much having already been written on this subject, and, I fear I may add, so little done. It seems to be generally admitted, both by writers on horticulture and by good practitioners, that, when the fruit department must be blended with the culinary one, it is by far the best arrangement to place the fruit trees round the margins of the quarters, and to leave the interior completely at the service of vegetables, as well for the sake of economy as of effect. These borders are generally formed from 4 ft. to 6 ft. in width, and are, for the most part, cropped with some kind of vegetable that requires digging. It seems surprising to me that a border of this width should be deemed too much for a row of trees of this description; but it appears that such is the case; and, through the practice just alluded to, the upper and most valuable roots of the fruit trees are continually cut away, and the trees driven to seek their food in a subsoil of the most ungenial character. Whether trees of this class possess the power of selection in regard to their food, I am not physiologist enough to know; but, if they do possess it, it would be of little avail when they were situated in a barren sand, clay, or gravel; besides the great difference in the average temperature of the soil, which temperature does, of course, decline progressively downwards to a certain depth. Now, what is the consequence to trees thus situated? They are rendered doubly liable to the blight produced by various kinds of insects: as, for instance, the aphides, the scaly insect, the red spider, &c.; all of which, it is well known, will make way much more rapidly on a diseased subject, than on a healthy one: and, very frequently, by these means all the early-made wood is either crippled or destroyed, and a later crop of watery wood is produced at or after midsummer; which, I hardly need say, is quite immature. In trees thus situated, the sap in the shoots is put in motion a long time before that in the roots; and the consequence is, that leaves are produced chiefly from the fund of sap of the former year deposited in the branches, and which, being of a sweeter character, if I may use the expression, than the ascending sap, is the very food for the above-named insects, as we find by experience; and the wood that is produced later is overtaken by the chills of autumn, before the leaves have performed half their functions.

These observations apply most especially to apples; but they will apply, in some degree, to almost every other kind of fruit tree, if treated in the way here described. Having thus glanced at a few of the evils resulting from the mismanagement of the roots of fruit trees, I may proceed with what I have to suggest in the room of such treatment. I will suppose, in the first place, a new garden, and that the borders are all fitted for the reception of fruit trees, either by nature (which is rarely the case) or by art. Such being the case, I should dispose of my trained trees against the walls much after the usual manner, as to distance, aspect, &c.; but, instead of cropping the whole of the border with vegetables, I should plant a line of dwarf fruit trees of various kinds, according to the situation, along the margin of the wall border next the walk, to be trained on table trellises: as, for instance, along the margins of the south borders, I should plant the new Flemish pears; along the east and west, favourite dessert apples or plums, of a tender or late character; and, along the north or other cold aspect, a line of bush fruit. It is probable that green gage, Washington, Coe's golden drop, impératrice, and other dessert plums, together with some cherries, would succeed well in some of the aspects, with a particular kind of management; but on this head I am not prepared to speak fully. For the southern margins, I recommend, as I before said, the best Flemish pears; of these the country has a very extensive collection of the very first-rate quality. These pears are a most valuable acquisition to the dessert, and rank next to the pine and the grape, both as to flavour and keeping properties; and nothing is wanted to insure a most extensive cultivation of them, but some method to guarantee their free and certain bearing, and perfect ripening, without the aid of walls: not but some of them will always find a place on a good aspect, such as a beurré d'Aremberg, beurré d'hiver, the best chaumontelle, and many others I could name; but there are so many kinds possessing very high merit, that it is impossible places could be found for even a select lot, unless in a few of the most extensive kitchen-gardens in the country. On the kind of trellis I am about to describe, and with a proper system of both root and top management, I am convinced that five out of six of the kinds now in cultivation may be fruited in very great perfection. We will suppose, in the first place, that the walls are of the usual height, viz. from 9 ft. to 12 ft., and that the borders are about 10 ft. or 11 ft. wide: in such a case the trellises should be from 4 ft. to 5 ft. wide, to admit of a man reaching to dress and prune them. The trellises should be about 9 in. from the ground, or, in fact, as near as a bunch of pears would hang without touching the stones, which will be placed under them to increase heat. The bars of the trellis must be 1 ft. apart, and, in whatever situation they are placed, must run north and south

invariably, and, of course, in parallel lines. On their running north and south I lay much stress, as that direction will admit the full effect of the sun's rays at noon, for nearly two hours, on that portion of the stones which is unshaded between the bars of the trellis, and, of course, heat them in a very considerable degree; which heat by radiation will increase that of the atmosphere immediately round the plant for some time after sunset. It is absolutely necessary, for this purpose, that the soil for these pears be a good, sound, and rather stiff loam, in a dry and, if possible, impenetrable bottom; and that it should not be deeper than 18 in. or 20 in.: the subsoil may be either strong clay, gravel, or stones. Let it be borne in mind that I lay the greatest stress on the conditions of soil and subsoil here stated. I should by all means choose the trees on free stocks, provided their subsequent management was in every respect correct; as I am satisfied that apples on Paradise stocks will never endure long, except the circumstances of soil, &c., are particularly favourable. As the trees become established on the trellis, the ground beneath should be covered with stones or clean gravel; I should prefer the former, as the ground, after some few years, would, in all probability, require top-dressing, and the stones would be easily moved to accomplish this: slates would not do; they would prevent the free ingress of the rains, as well as the air. A systematic mode of training would be necessary, both for effect and utility; and the following rough sketch (*fig.* 14.) will give an

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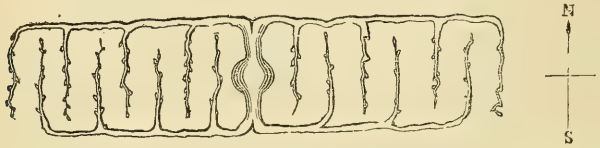

idea of the appearance that the trellis would present, when the tree was fully established on it. The trees should be planted about 16 ft. apart, which would, of course, give eight parallel bars on each side of the centre one; and the lateral branches for spurs should be placed four on each side, alternating with each other.

One thing more remains to be recommended; and that is, after the trees are established, and in a bearing state, to cover them all the time they are in bloom with canvass. If this plan be adopted (and which I should not hesitate to do a moment), it will be necessary, in making the trellis, to have the outer lines of it of iron, and made after the manner of a railway, only very slight; and, by having the canvass rolled round a strong hoop (which hoop must work in or on the groove of the railway), a considerable length of these trellises might be covered, and uncovered, in a few minutes. This canvass might also be put on in

the end of September, to accelerate the ripening of both wood and fruit; which it would do, by preventing, in a considerable degree, radiation.

Having now stated, as far as the limits of a paper of this kind will allow, every thing connected with the mode of arranging fruit trees in kitchen-gardens, I will add a few loose remarks on fruit trees in general; especially pear trees on walls. Before I proceed farther in this way, methinks I hear some honest gardener of the old school lamenting the loss of his early border for peas, or his row of early lettuces: I, however, must contend, that there is not an early crop of vegetables which I could not obtain within one week of those on a wall border, on proper spots in the interior of the quarters, by making artificial slopes, and by careful protection otherwise; and I beg to remind my nervous friends that, if they think a week of paramount importance in such matters, there is still a foot or two of wall border left for the peas, or the other early crops, if they will fain have them in that situation: for the border being 10 ft. or 12 ft. wide, and the trellis not occuping more, at any rate, than 5 ft., the vegetables may yet come in, though in a more limited quantity. As to pears on walls, although they bear chiefly on spurs from the old wood, after the manner of apricots, plums, &c., yet there is dissimilarity enough to require a somewhat different treatment. In the first place, they cannot endure what I must call a capricious soil; I mean one that works by fits and starts: such are all light sandy soils, which derive all, or most of, their virtues from manures. Such soils, in the months of June and July, with showery weather, will make pear trees grow more like willow bushes than fruit trees; whereas in dry hot summers the very extreme effects are, of course, produced; and, although such trees may have a good crop of fruit on, little of it will come to proper perfection, in either size or flower, or both will be lamentably deficient. But in a strong loamy soil their growth is steady and uniform, in spite of seasons, and can be depended on; the sap, also, is more easily controlled, or directed, in trees on such soils. It is of the utmost importance, of course, in all modes of training whatever, to get as perfect a command over the ascending sap as possible, through the mismanagement of which most of the barrenness so much complained of in pear trees, in my humble opinion, arises. It needs not any pains on my part, I presume, to prove that the free admission of light to all parts of a trained tree is the cause of more pruning and stopping of shoots than is at all times wholesome to the constitution of the tree. The question here assumes a physiological character; and, although "fools rush in where angels fear to tread," yet, having got my foot fairly in, I feel I must proceed in spite of angry critics. As to the effects of shade on the buds of fruit trees, I am quite aware

that it tends to barrenness, as being adverse to the elaboration of the sap, or true blood, of the plant. Let its evils, however, be as great as they may, I am satisfied that they are not greater than injudicious disbudding. As, however, it will happen, through most seasons, especially moist ones, that they will make more breast wood than is compatible with the due admission of light, what must be done? If it be pruned away, or disbudded nearly as fast as it is made, the embryo flower buds will be forced from their snug retreat into wood. If it be left on the tree all the summer, from the almost total exclusion of light, the buds will be meagre and imperfectly ripened, and a bad developement in the ensuing spring, and a shy setting, will be the consequences. How, then, are these evils to be avoided? Simply by laying in the leading branches at greater distances than they are commonly done (I should say a foot apart); and then we shall be enabled to procure a moderate crop of foreright shoots, without excluding the light. My maxim is this as to disbudding, as it is termed. Having abundance of free-growing wood in the centre of the tree, and this all nailed as nearly perpendicular as possible, I proceed (I speak now of pear trees), in the early part of July, or, at the earliest, the end of June, to crop with a knife some of the foreright shoots back to four or five joints, commencing at the bottom of the tree, and doing a few tiers of branches at a time; in the course of another week, I go over them again, and crop another tier or two, and so on, advancing from the bottom of the wall towards the luxuriant centre of the tree; and always, if possible, taking advantage of a dry time for the purpose, or when, in fact, there is the least excitement to wood. Some few shoots here and there I entirely disbud: for instance, where there are several situated close together, making the tree dark in that part; and those I leave are pruned to within about four or five leaves. As for neatness of appearance, I esteem it as highly as any one; but when, in kitchen-gardening, neatness is found in opposition to utility, the former, of course, must give way: however, a clever hand at fruit trees will render the two sufficiently compatible for all purposes. It is a fact, and known well to most practical gardeners, that those embryo buds of pear trees which are to produce blossoms the next spring must develope a good tuft of large and healthy leaves early the spring preceding; for, if they do so, and do not push into wood, they are sure to be blossoms the ensuing spring. How frequently we see pear and other trees against walls, in which the upper branches cannot bear through luxuriance, and the under ones through weakness; and this in the selfsame tree! Now, this is very commonly the case on the capricious light soils above alluded to, and it requires no small skill and attention, on such soils, to divert the ascending sap into the lower branches; and, unless diverted

into these inferior parts of the tree, to the production of young wood, ay, and breast wood too, from where is the true sap conducive to fructification to be secreted? Let any one, for instance, select an apple or pear tree, growing in his garden as a rough espalier or standard, with a succession of side shoots from the lower part of the bole upwards; in fact, as nearly resembling a wall tree, in the position of its branches, as possible. Let him, then, I say, continually divest one portion of the tree of all its foreright shoots, as fast as they are produced, and leave the other with all its breast wood on, and observe the difference. He will soon find that the stripped part will almost cease to thicken, and, in a short time, will not possess power sufficient to form a good tuft of leaves on the embryo buds, as noticed in the early part of this paper; and will eventually become what practical men term "hide bound." The only way to decoy the ascending sap into the inferior branches, in the growing season, is, by stopping the superior ones at a certain period of their growth, and leaving the inferior ones with all their breast wood growing. In the rest season, another way of effecting this is, by close pruning and shortening all the heart of the tree, which, by my mode of management, is always full of young luxuriant wood, and which I denominate "waste pipes." These waste pipes I not only encourage, but I stimulate the tree to make them by pruning. The purpose to which I hold these shoots subservient is, by their strong action, to cause the roots to make plenty of new fibres every year (the action of the root and top being well known to be reciprocal); which fibres, when in motion, are made, in the ensuing spring, to serve the purpose of the inferior branches. I speak now of such trees as I alluded to above. By pruning these "waste pipes" tolerably close (as to the degree of which, nothing but an intimate knowledge of the habits of the tree, and the effect desired, can guide us), the new root, now beginning to work, and which would have filled those shoots removed with the ascending sap, is made, instead, to fill all the inferior branches of the tree first; and, by the time that the trees have developed a good strong tuft of healthy leaves on the embryo buds, the waste pipes in the centre of the tree are getting to work, and decoy that heavy fund of sap away, which, had it not vent in this way, would have driven most of these buds into wood. Another point of much importance is, carefully, and at all times, to preserve a leading shoot at the extremities of all the branches.

Some soils are so happily constituted by nature, that fruit trees on them will bear almost any kind of abuse; and on such soils very good crops of fruit are obtained, with a system of digging and cropping underneath. This is the case, however, with, perhaps, only one garden in twenty; and I am quite convinced, having paid the very closest attention to the subject for

some years, that three fourths of the evils complained of in fruit trees arise from mismanagement of the root. It will be readily seen that this is one of the reasons why I recommend table trellises on wall borders; and, with the other reasons, viz. the reciprocal injury done to bush, tree, and vegetables, in mixed cropping, in regard of light, together with the great advantage these borders possess for a system of trellising the tender pears, &c., it is sufficient, in my opinion, to warrant a departure from the old practice.

I believe that I have now said all that the limits of this paper, and the character of your work, will allow; though I have only exhibited what I call a skeleton of the affair; and it is very probable that this article will be much too long for one party, and much too speculative for another. However, I have not forgotten the old fable of "the Man and his Ass." I am well aware how difficult it is for the human mind to shake off entirely its early prepossessions in favour of certain habits and systems. I can only hope that these observations and suggestions may be judged with candour and caution before they are condemned, especially by those of your readers who love to see the profession in the ascending scale. As for those who read with the preintention of snarling, not to say biting, I can only say I am sorry for them, and that such folks too frequently "die in their sins."

Oulton Park, June. 1835.

ART. VIII. *On the Culture of the Potato.* By R. L.

TURNING over the last volume of your Magazine, in order to see what it contained respecting potatoes, I was disappointed at the very little notice taken of that root, which may now almost be considered as the staff of life. One of your correspondents, from East Ham, speaks most decidedly against planting whole potatoes; whereas I am satisfied, by repeated experiments, that one third more potatoes (especially of the kidney kind) are produced by whole potatoes than by cuttings or sets. I have, for twenty years, been a grower of this valuable article; and, though only in a small way, yet I do not think myself the less qualified to form a judgment; because I have often and carefully made experiments, both as to the mode of culture and sorts of potatoes. Persons who plant 300 or 400 acres annually, have neither time nor inclination for observation and experiment; and, perhaps, like other farmers, are wedded to their own system.

A Yorkshire gentleman, who plants yearly 150 acres for the London market, informs me that he plants sets, and not whole potatoes, and thinks 350 bushels an acre a very great crop. Now,

I have repeatedly grown from 500 to 600 bushels per acre. He says he is a great sufferer by what he calls the dry rot. Two years ago, he lost 80 acres from that cause. The term dry rot, as applied to potatoes, is new to me; but I presume it means that the cutting dries up, and is not productive. Supposing this to be correct, would that have happened had whole potatoes been planted? I think not; for, though I have frequently seen cuttings dried up and withered, I never had to complain when whole potatoes were planted. The operation of cutting potatoes for sets is very often left to ignorant and unpractised persons, and any old woman is thought capable of performing it: but this is not the case. If the knife goes either through the eye, or very close to it, I believe it will not produce.

Last year (by no means a favourable one) I made the following experiment: —

One row was planted with eight whole potatoes (of the agricultural kidney), each containing eight eyes, sixty-four in the whole. Produce, 33 potatoes; weight, 12 lb.

Two rows of the same size were planted with eight sets each, each set containing four eyes, sixty-four in the whole. Produce, 52 potatoes; weight, 18 lb.

The result was, that twice the quantity of land produced only an excess of one third in weight: but, if two rows had been planted with whole potatoes, the produce would have been 24 lb. I have repeatedly tried the experiment, with nearly the same result; and, therefore, I come to the conclusion, that it is more advantageous to plant whole (kidney) potatoes than sets. The rent, the taxes, the ploughing, and the dung must be the same in both cases. I calculate that my Yorkshire friend loses 7*l.* an acre, or 1000 guineas a season, by the use of sets.

I have not tried the experiment with the round potato, which, generally, is so full of eyes, that it must be cut. But the pigs ask no questions: I speak only of potatoes fit to be eaten by man.

I take it for granted that you know the agricultural potato is decidedly the best for the gentleman's table, though not so productive as many others. The bread-fruit potato is also, I presume, well known to you; and you may, perhaps, have seen or heard of a new potato, called the poor man's profit, which was sent to me as a very great bearer.

Last year they produced, after the rate of, per acre: agricultural, 572 bushels; bread-fruit, 689 bushels; poor man's profit, 636 bushels. This last is a round purple and white potato, very good for the table. Any one of these proceeds far exceeds the quantity which contents my friend in Yorkshire.

I am now preparing some ground for experiments in small

quantities. I shall carefully mark the result; which, with a specimen of the three kinds of potato, I would send you, if you like it. [We shall be very happy to receive it.]

April 6. 1835.

ART. IX. *An Account of an Experiment made with Three Potatoes.* By Mr. JOHN DENSON, Sen.

IN 1832, I received three potatoes from you, with a request that I would plant them, and get what produce I could from them. When I received them they bore shoots in a forward state; those I took from the plants, and struck in a slight heat, at the same time covering the potatoes over with the warm earth. By this method the potatoes, by the time the cuttings were struck, had formed fresh shoots: those shoots I carefully took off; I then cut the potatoes, leaving one or two eyes to a cutting: by these means I had nearly plants sufficient to plant half a pole of land: the produce was upwards of two bushels.

This year (1833) I planted the produce in an open field, in the latter end of May, in rows a yard distant from each other: by this means my crop had the full benefit of the sun and air; and, notwithstanding the season being unkind for potatoes, the produce averaged at the rate of full 400 bushels per acre. The greater portion was earthed up in due time: some few rows, for a time, were not: both were kept free from weeds. There was very little difference in the produce: what difference there was was in favour of those that were earthed up; and as, besides, the earthing up causes the culture to look more workmanlike, I shall continue to practise it.

The potatoes are of the red kind, with a purple eye, and are of good size and excellent flavour.

I believe I have previously informed you that, owing to the kindness of the vicar, the greater portion of the labourers in the village occupy from half an acre to an acre of land. It was on a portion of this land that I grew the potatoes I have been speaking of. My neighbours have been in the habit of planting their potatoes in rows from 18 in. to 22 in. asunder. As my crop has been the most productive of any in the field, they will alter their system: by so doing, their potatoes will be better with less labour and less seed. I have often considered a crop might almost as well be smothered with weeds, as to suffer it to smother itself by being planted too thickly.

Waterbeach, Cambridgeshire, December, 1833.

[THIS communication has been delayed at the request of the gentleman from whom we received the three potatoes, who was

also trying the experiment with them, with the intention of letting us know the result. He died, however, before the experiment was completed; or, at all events, before sending a final account of it. — *Cond.*]

ART. X. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

A LITHOGRAPHED portrait of the lamented Douglas is published in the *Companion to Curtis's Botanical Magazine*, the Number for February.

EMBRYO DICOTYLEDONOUS: COROLLA POLYPETALOUS, OR NOT ANY.

XLVII. *Onagràceæ.*

1183. ŒNOTHE'RA
†10018 humifûsa *Nutt.* ground-spread ○ ☘ or ½ s Pa Ro Florida 1824 S co Bot. reg. t. 1829
Synonyme: *Œ.* concînna *D. Don*, in Sw.fl.gar. 2. s. t. 183

See in *Gard. Mag.*, vol. ix. p. 235, 236. Mr. D. Don (since Professor) had reputed this to be a native of Chili. Dr. Lindley has not been able to find any trace of it as Chilian, and has judged it to be identical with *Œ.* humifûsa *Nutt.*, which was originally discovered on the sea coast near Cumberland Island, in Florida. It is a pretty little hardy annual, which creeps close to the ground, forming a plant 1 ft. across, and shedding its seeds freely. The tube of the calyx is of a red colour. Its expanded corolla is scarcely so far about as a shilling: when exposed to much light, it is of a very pale delicate flesh-colour, but when the plant grows in a cool shaded place, of a beautiful pink colour. Mrs. Marryat has the species in cultivation. (*Bot. Reg.*, Feb.)

*1183*a* GODE'TIA *Spach.* 8, 1. Sp. 2.

Dr. Lindley has communicated in the *Bot. Reg.*, the number for February, 1829, that M. Spach, a German botanist, resident

at Paris, has produced a revision of the genus Œnothèra, and distributed the species into several groups, which he has deemed and denominated as genera, on, Dr. Lindley has represented, very insufficient grounds. However, Dr. Lindley has expressed the following notice of a part of the results of M. Spach's researches that he deems of value. "He [M. Spach] states that certain supposed œnotheras have their chalaza ["a sort of vascular disk at the base of the nucleus," within the ovule, or embryo seed] bordered by a fringed margin. This is an additional organ, and a special type of structure: it is the beginning of the feathery appendage of the seed of Epilobium; but it is incapable of performing the office of buoying up the seed in the air, so as to enable it to be dispersed from place to place. I find the structure to be as M. Spach states, and that the species collected by the character are Œ. Romanzovii, purpurea, and the like, which will not intermix with the true evening primroses, and which have quite a peculiar habit. Among other things, their flowers have no tendency to become yellow."

LI. Loasàceæ.

1477. BARTO'NIA
* aúrea *Lindl.* golden-*flowered* ○ or 3 jl Go California 1833 S m.s.r.m Bot. reg. 1831

"A very beautiful half-hardy annual, discovered by Mr. Douglas in California, and raised in the garden of the" London "Horticultural Society, where it flowered in July last." Stem 2–3 ft. high, upright, branched, hispid; the branches brittle. Leaves dark green, sessile, acuminate, pinnatifid; the lower one 3 in. long. Flowers axillary, produced towards the tips of the branches. Corolla as wide as, or wider than, a crown-piece. It is only beneath bright sunshine that its splendid flowers unfold. As the sun exercises its influence, the petals gradually unroll, till every branch is radiant with gold; and so metallic is the lustre of the inside of the petals, that they seem as if composed of something more solid and enduring than the delicate and perishable tissue of a flower. Dr. Lindley has recommended for it a sheltered, warm, and sunny situation, and a rich moist soil. (*Bot. Reg.*, Feb.)

LX. *Prote*àceæ.

802. PETRO'PHILA [New Holland 1830 S s.p Bot. mag. 3469
*2436*a* aciculàris *R. Br.* needle-shaped-*leafed* ♚ ⌴ cu ... ap W R King George's Sound in

Shrub erect. Leaves 3 in. to 6 in. long, thread-shaped. Head of flowers terminal. Perianth silky, concave, and red internally in the tips of the segments. Raised in the Botanic Garden, Edinburgh, from seed communicated by Colonel Lindesay, in 1830, under the name of Petróphila filifòlia. Plants flowered in April, 1834, and in April, 1835. (*Bot. Mag.*, Feb.)

LXXIII. *Rosàceæ* § Quillàjiæ.

KAGENE'CKIA R. & P. (*M. de Kageneck*, ambassador from the Emperor of Germany to the King of Spain.) 22. 11. Sp. 3.
†28592 cratægifòlia *Lindl.* Cratægus-*leafed* ♚ ⌴ or 10 jn W Chili? 1830? L? C l Bot. reg. 1836
Synonyme: K. cratægòides *D. Don*, in Edinb. N. Phil. Journ. 10. 229.

An evergreen shrub, with slender branches, oblong, serrated, acute, green leaves, and corymbs of white flowers produced on short axillary shoots towards the tips of the branches. The species is dicœcious, and it is the male sex which is figured. The corolla in this is of five distinct petals, and its outline of greater extent than that of a sixpenny-piece. The stamens are fifteen. (*Bot. Reg.*, Feb.)

The figure is from this sex of the species, in a living state, in the garden of the London Horticultural Society, where it is trained to the southern face of a tall wall, and is sheltered above, more or less, through the winter. It is pleasing in its foliage and its flowers.

LXXVII. *Leguminàceæ.*

1985. *LUPI'NUS* [between Brazoria and San Felipe (Mr. Drummond) 1835 S s.1 Bot. mag.'3467
*subcarnòsus *Hook.* almost-fleshy-*leafed?* O or 1 jl Dp B W Texas (M. Berendier), and

The leaf has a long petiole, and a disk of five leaflets that are in substance singularly thick and almost fleshy; they are glabrous on the surface, and silky with scattered hairs on the subface, and severally obovate-lanceolate and retuse. Flowers disposed in terminal pyramidal racemes, many in a raceme. Corolla extremely richly coloured: standard bent back, especially at the sides, orbicular, deep rich blue, with a nearly quadrangular white or yellowish-white spot in the centre; wings deep blue, oval, combined by their lower margin and concealing the keel, which is much acuminated, white, purple-black at its tip. "An extemely beautiful, and, apparently, very distinct species." Raised, and one may conclude in the Glasgow Botanic Garden, from seeds received from the late Mr. Drummond. (*Bot. Mag.*, Feb.)

2066. *TRIFO'LIUM*
†18515 reflèxum *L.* reflexed (*the effloresced flowers*) ✳ △ or ?1 jn.jl Ro W "long cultivated in the southern states of North America, and as far north as Kentucky." "Texas." 1794 S 1 Bot. mag. 3471

Long cultivated in the southern states of North America, and even as far north as Kentucky, by the name of buffalo clover. The figure, as compared with the kind of clover cultivated in British fields (*T.* praténse), shows a more globular head of flowers, and these individually party-coloured: the standard, by the description, is of a beautiful rose-red; the wings and keel are white. "After flowering, the wings spread considerably, and, by slightly cohering with the sides of the keel, they cause it to dilate and to have the appearance of a white bird with its wings expanded." Stems decumbent. Foliage resembling that of *T.* praténse. Flowers, after flowering, deflexed: those of *T.* rèpens, the white-flowered clover, are obviously so. *T.* refléxum is stated to be handsome, and one would desire it in a garden. Is not the field clover a very ornamental plant? *T.* refléxum has been raised from seeds, which the late Mr. Drummond had sent from Texas; it is most probable, in the Glasgow Botanic Garden. (*Bot. Mag.*, Feb.)

1980. ADE'SMIA [fl.gar. 2. s. 322
†17684 péndula *Dec.* pendulous-*fruited* ♃ △ or 1 su O and Y Buenos Ayres 1825 S s.l Sw.

"A creeping perennial herb, furnished which long white runners," apparently under-ground ones. Scapes 7 in. or 1 ft. high. Leaves radical, impari-pinnate, 9 in. long. Leaflets, about twelve pairs with the odd one, obovate or elliptical-oblong. Racemes terminal, solitary, many-flowered, erect. Flowers more than half as broad as a sixpenny-piece. Standard orange yellow, streaked with purple lines; wings orange yellow, keel pale yellow. A native of dry sandy pastures in Buenos Ayres, raised in 1834, by Dr. Neill, Canonmills, near Edinburgh, from seeds sent by Mr. Tweedie. The figure is from a plant in the Chelsea Botanic Garden, where, in an open border, it has produced an abundance of flowers and ripe fruit. It "appears to be quite hardy." (*Brit. Flow.-Gard.*, Feb.)

CXXXI. *Passifloràceæ.*

1923. PASSIFLO'RA
* ? 16889*a* Mayàna May's ♃ ⎯ or ? 30 ... ... English hybrid ? 1833 C r.m

On the wrapper of the *Floricultural Cabinet*, the number for February, 1836, is an advertisement from Mr. William May, nurseryman, &c., Hope Nursery, Leeming Lane, near Ripon, of a kind of passion-flower, named as above; and, besides, his "new hybrid fruit-bearing passion-flower," and particulars to the following amount are stated of it. It flowers early, and bears numerous flowers and fruits, insomuch that the plant, covering a space of wall 15 ft. square, was on December 24. 1835, bearing 94 fruits in a state of perfection. The fruit resembles the yellow magnum bonum plum; but it is of a deep orange colour, ripens in October and November, and hangs upon the plant until the end of January; and the fruits, in contrast with the fine deep green foliage, render the plant, in mid-winter, exceedingly interesting.

CLI. *Amarantàceæ.*

735. CELO'SIA [(*Kēleos*, something burnt, *Lindley*; appearance of the inflorescence. *Kelos* is [the word in *Hort. Brit.*
†6004 coccinea *L.* scarlet-*inflorescenced* ⓞ or 5 jn.s S China 1597 S r.m Bot. reg. 1834

"It differs from C. cristàta [the common cockscomb] chiefly in the crowded pyramidal arrangement of the inflorescence, the narrower leaves, and the short stamens. It is also a far more hardy plant, and goes on producing, glowing crimson tassels, in the open border, till winter destroys it." The inflorescence seems by the figure, composed of numerous ovate-acuminate spikes, disposed into an ovate-acuminate one of more than 3 in. long, and of nearly 3 in. broad in its broadest part. The figure is from specimens from the Hon. W. F. Strangways, from his garden in Dorsetshire. (*Bot. Reg.*, Feb.)

EMBRYO DICOTYLEDONOUS: COROLLA MONOPETALOUS.

CLXXXVI. *Compósitæ.*

2415. COREO'PSIS [mag. 3460
*coronàta *Hook.* "crowned" ♃ or 2 su aut Y Br spot Texas in Mexico 1835 S co Bot.

Annual. Beautiful in the many heads of flowers produced in the summer and autumn: the heads are remarkable for the ray bearing a circle of brown spots placed at a distance from the disk. Peduncles much elongated, sometimes almost 1 ft. long. Stem erect. Leaves opposite, undivided or cut in a pinnated manner. Seeds received in the spring of 1835, from Mr. Drummond, who had gathered them in Texas. (*Bot. Mag.*, Jan.)

CLXXIX. *Brunoniàceæ.*

*BRUNO'*NIA* Smith. (So named by Smith in compliment to *Robert Brown, Esq.*, D.C.L., &c. &c., the present keeper of the Banksian herbarium in the British Museum, whom I may designate, with perfect truth, as the most learned systematic botanist of this or any previous age. — *Lindley.*) *5.* 1. Sp. 1.

*austrâlis *R. Br.* southern ₤ △ or and fra 1 ... B New Holl. 1834 D? 1? Bot. reg. 1833

Leaves all radical, spathulate, hispid, and radiating from the crown of the rootstock. Three scapes are shown in the figure, the longest near 1 ft. long, terminated by a head of numerous, rather small, flowers, that is subtended by an involucre of a few leaves small and shorter than the flowers. The plant "in appearance is very like our wild scabiouses," but the flowers are delightfully fragrant. According to the generic character by Brown, each flower is subtended by four bracteas; has a 5-cleft calyx; a corolla of one petal, with a slender tube and a limb of five spreading segments; five stamens arising from beneath the pistil and with connate anthers; a one-seeded ovary; and a stigma with a two-valved indusium. The fruit is a utriculus [one-celled, one-seeded, capsule] enclosed in the enlarged hardened tube of the calyx, which spreads upwards, and has its segments plumose. The seeds are without albumen. "A most interesting perennial, introduced by Mr. James Backhouse in 1834. The drawing was made from specimens supplied by Mr. Low of Clapton; and" Dr. Lindley has "also received it from the Messrs. Backhouse of York." He has recommend the protection of a frame or cool green-house for it. (*Bot. Reg.*, Feb.)

CC. *Polemoniàceæ.*

473. COLLO'MIA [3468

†Cavanillèsii Hook. and Arn. Cavanilles's ○ or 1½ jn—n R Y Chile 1832 S co Bot. mag. *Synonymy:* *Phlóx* linearis *Cav.*, Ic., not Collòmia linearis *Nutt.*; Collòmia Cavanillèsii Hook and Arn. Bot. of Beech. Voy. v. i. p. 37. 1831; C. coccínea *Lehm.*, Delect. Sem. Hort. Hamburg., 1832; Bot. reg. t. 1622.; C. lateritia *D. Don*, in Sw.fl.gar. 2. s. t. 206.

Previously noted on by other names in Vol. IX. p. 620. 704. 706. "A very desirable annual." (*Bot. Mag.*, Feb.)

CCXI. *Scrophulariàceæ.*

1717. PENTSTE'MON [St. Austin 1835 S s.l Bot. mag. 3465

*Cobœ'*a* Nutt. Cobœa-*flower-like-flowered* ₤ △ or 2½ aut W P Y R Interior of Texas, about

Stem 2 ft. and more high. Leaves, the upper ones, oblong, or even oblong-cordate and half stem-clasping; the middle ones oblong, narrower at the base, but sessile; the radical leaves oval-spathulate petiolate: all of them somewhat glossy, denticulate at the margin. Flowers in a terminal leafy panicle. Mr. Nuttall has called the species Cobœ'*a* on account of the magnitude, and a sort of general resemblance in its flowers to those of Cobœ'*a* scándens. Dr. Hooker has stated that the specimen that he has figured had

not flowers so large as some of those on wild specimens, nor of the colour described by Nuttall; and he has attributed this to the plants, from seeds sent by Mr. Drummond in the spring of 1835, not producing their blossoms till the period of the autumnal colds. It may be found in future seasons to flower earlier. The flowers are described to have a corolla that has the tube considerably inflated, pale, almost white, tinged with purple; the limb of five spreading segments, within white, slightly suffused with yellow, and streaked with red. According to the figure, the corolla is 1 in. long, and the limb nearly 1 in. across; the lower part of the filaments whitish, the anthers deep purple. The figure is from the species, in a living state, in the Glasgow Botanic Garden. (*Bot. Mag.*, Feb.)

CCXIII. *Solanàceæ.*

587. SA'RACHA R. and P. (After *Isidore Saracha*, a Benedictine monk, much attached to botany, and who enriched the royal gardens at Madrid with many rare plants.) 5. 1. Sp. 3. [fl. gar. 2. 3. 323
* viscòsa *Lk?* clammy-*herbaged* ♃ ⊔ cu 1 s W spot. with Ol. Peru? 1834 S C p.l Sw.

Stem suffruticose. All parts of the plant thickly clothed with glandular clammy hairs. Leaves heart-shaped, about 5 in. long, and about as much broad, sinuosely lobed, with several large triangular pointed teeth, or sometimes wholly entire. Flowers in nearly sessile umbels in the forks of the branches: the umbels of from three to five flowers. Corolla with its limb nearly $1\frac{1}{2}$ in. across, with five ovate-triangular acute lobes, white, marked towards the centre with olive-coloured spots: tube very short and wide. Berry globose, the size of a cherry, scarlet. The account is relative to "a plant which flowered, and subsequently ripened its fruit, in an open border of the Chelsea Botanic Garden." It "is shrubby, and requires to be protected in the green-house during winter. It is easily multiplied both by seeds and cuttings." (*Brit. Flow.-Gard.*, Feb.)

588. *LY'CIUM* [co Sw. fl. gar. 2. s. 324
†1678 âfrum *L.* African ♃ or 10 su Liv P. Northern Africa, or else C. G. H. (see below) 1712 C

"Although too tender to grow in the open border unprotected, it will be found to succeed admirably well, if planted against a wall in a favourable aspect. The plant whence our drawing was taken is placed against the wall of the Chelsea Botanic Garden, where it has stood for many years, without any kind of protection, except what its situation affords, and is annually adorned throughout the summer months with a profusion of its rich purple blossoms." As to its native country, "some will have it to be indigenous to northern Africa; while others, with Thunberg, give the Cape of Good Hope as its native country. The former opinion I am rather inclined to adopt, as Thunberg's description would seem to apply to a species different from the present." (*Professor D. Don*, in *Brit. Flow.-Gard.*, Feb.)

EMBRYO MONOCOTYLEDONOUS.

CCXXXVIII. *Amaryllàceæ.*

The Hon. and Rev. W. Herbert is preparing for publication a revision of the order Amaryllàceæ, preceded by a review of the defects of the present arrangement of monocotyledonous plants, and an attempt to remove them. It is to contain between thirty and forty copper-plate engravings, in which representations of upwards of eighty "new plants" will be given; and it is to "contain ample details; and is intended equally for the use of the scientific botanist and the unlearned cultivator. A treatise on hybrid vegetables will be subjoined to it."

§ 2. *Scapàceæ*, suborder *Schistándræ* Herbert.

74a. COOPE'R*IA* Herb. (*Mr. Joseph Cooper*, who has now had, for upwards of twenty years, the management of the botanic garden at Wentworth [House, the property of the Earl Fitzwilliam family, and the place of residence of one or other member of it], and is one of the most zealous and successful cultivators of rare plants in this kingdom, and has, with unremitting exertion, brought together the fine collection of plants now at Wentworth, by a liberal system of exchanging his superfluities for those of other persons. — *Herbert.*) 6. 1. Sp. 2.

*Drummónd*i* Herb.	Drummond's	☿	△ or ▲	cu	½	? su	W R	Texas in Mexico	[O ? p.1 Bot. reg. 1835. ? 1835
*chlorosòlen *Herb.*	green-tubed	☿	△ or ▲	cu	? ½	W G	...	Texas in Mexico	[? p.1 Bot. reg. t. 1835, in the text ? 1835 O

A bulbous genus, nearly allied to the genus Zephyránthes.

Drummónd*i*. The bulb, by the figure, of about the size of a large acorn, and of similar form. Leaves 12 in. to 13 in. long, and the 12th of an inch broad, channeled, twisted, glabrous, green, reddish near the bulb; protruded in autumn. Scape 4½ in. long, bearing a spathe out of which emanates a flower that has a tube 4½ in. long, slender, terminated by a limb flatly expanded, and 1⅜ in. across, and formed of six segments that are white within, lineated with red at the back; and the tube is externally red. "This plant is at once distinguished from all the known genera of the order to which it belongs, by anthers sessile on the mouth of the tube, so that the filaments are consolidated with it, and decurrent in its texture." The tube is striated from the decurrence of the filaments. "Discovered in the province of Texas in North America, by poor Drummond." It has flowered in the Botanic Garden at Wentworth House, that of Edinburgh, and at Mr. Dickson's nursery.

At Wentworth, two 1-flowered scapes were successively produced, and, on the first, ripe seeds, that have readily vegetated. It is possible that it may endure our climate, as the frosts are severe in Texas.

Chlorosòlen. Leaves nearly 18 in. long, an eighth of an inch broad, twisted, green. Tube of the flower, 4½ in. long, green; limb 1⅛ in. across, white, with the segments tipped with green and lineated externally with green. (*Bot. Reg.*, Feb.)

CCXL. *Orchidàceæ.*

A prospectus of an intended work by Dr. Lindley on tropical Orchidàceæ, to be published by Messrs. Ridgway, has been issued. It is named *Sertum Orchideum* (the orchideous garland),

and is to include figures of a selection of the most remarkable of the tribe, and to be published in 20 two-monthly parts, of folio size, each containing 5 plates, highly finished, from drawings made for the purpose by Miss Drake. The subjects of the figures will be any very beautiful kinds of which fine specimens may be produced from time to time in the hot-houses of Britain, and some of those magnificent species which are at present unknown in Europe in a living state.

2540. ONCI'DIUM [Mrs. Moke, at Tejuca, near Rio Janiero 1835 D p.r.w Bot. reg. 1830
Russellìanum Lindl. Russell, *Duke of Bedford's* £ ☐ or 1 ℓ... Li P Br G From the garden of

Pseudo-bulb ovate, ribbed, bearing strap-shaped spreading leaves. Four flowers and a flower-bud are shown upon the stem. The divisions of the flower spread beyond the outline of a half-crown piece. The sepals and petals are described to be in colour brown purple, edged with green; the labellum lilac, and bearing lamellæ in its disk, which are purple, edged with white; the wings of the column and the gynizus yellow, the latter edged with purple. Named in compliment to the Duke of Bedford. The Hon. Capt. J. Roos, R. N., sent it, derived from the source named above, to Woburn, with many other valuable plants, in 1835. (*Bot. Reg.*, Feb.)

†2525. SARCOCHI'LUS [D p.r.w Bot. reg. 1832
†22643 falcàtus *R. Br.* falcate-*leaved* £ ☐ or ⅓ ap W Pk New Holl., near Hunter's River 1821

Stem very short. Leaves linear-lanceolate, rather leathery, about ½ in. wide, the longest depicted about 3 in. long, disposed in 2 rows. Flowers in axillary upright racemes, 3—6 in a raceme, and turned to one side, nearly entirely white. Perianth spreading, of about the width of a shilling. It "is so neat and simple in its appearance, as to be sure to captivate the feelings of every lover of nature. It must be treated just like other orchideous epiphytes." Messrs. Loddiges and Mr. Bateman possess the species in a living state. (*Bot. Reg.*, Feb.)

REVIEWS.

ART. I. *Royle's Illustrations of the Botany and other Branches of the Natural History of the Himalayan Mountains, and of the Flora of Cashmere, &c.* Part VI., containing from p. 177. to 216. of letterpress; a view of the Himalayan Mountains, a plate of birds, and eight plates of plants, all beautifully coloured.

THE letterpress commences with *T*erebinthàceæ, which contains chiefly Indian trees, though the group of Anacardièæ contains the *P*istàcia vèra, *P. T*erebínthus, and *P. L*entíscus, the two former of which stand the open air in this country. The tribe *Sumachíneæ* is also chiefly hardy.

They "exude resin. The bark, as well as the leaves and fruit, of several species is astringent, on which account they are employed in the preparation

of leather. The genus *R*hús includes some true poisons, as *R.* venenàta [*R.* vérnix], *R.* perniciòsa, *R.* radìcans, and *R.* Toxicodéndron; and, though most are inodorous, others, as *R.* suavèolens and *R.* aromática, exhale a pleasant odour; while some of the species have acid berries, as *R. C*oriària, *R. Búcku-Amèla,* and *S*chìnus *Mólle.* Thus, *R. C*ótinus, or the red sumach, has wood, called young fustick, which is astringent, as well as the berries; and *R. C*oriària, known in India by the same name as in Europe, is a powerful astringent, chiefly employed in tanning leather, but also in Indian medicine. The seed of *R.* parviflòra, *tuntereek,* is frequently substituted in India for that of the sumach. *R.* glàbra is considered a febrifuge. *R.* vérnix, a Japanese tree, exudes a whitish resinous juice, which soon becomes black in the air. *R.* succedànea, and *R.* vernicífera, both common to the Himalayas and Japan, are said, in the latter, to yield a similar product. Species of other genera, as of *S*chìnus, contain a resinous matter." (p. 179.)

The *T*erebinthàceæ, Mr. Royle concludes, are one of the most important families in India, for the number and value of their products. There appears to be a number of species of *R*hús in the Himalayan Mountains which have not yet been introduced into Europe; and these, it is observed by Mr. Royle, "being found at any elevation, might, no doubt, be introduced into English shrubberies." By grafting and transplanting the mango, its "ordinary growth is much impeded; and shrubs of less than 4 ft. in height have borne, in the Saharunpore Garden, above a dozen mangoes. It would be necessary only to imitate the climate, by giving a green-house cold in winter; rapidly raising the heat in February and March, and continuing it till May or June, or about the time of the accession of the rains, when the addition of moisture to the heat is indicated; as the mangoes only perfectly ripen after the atmosphere has become moist in the rains." (p. 180.)

Moríngeæ form an order consisting of a single genus, separated from Leguminòsæ by Mr. Brown. *Moríngа* pterygospérma is common in most parts of India. From the seeds "an oil is procured, which is described as not becoming rancid. Being inodorous, it is now chiefly employed for retaining the aroma of delicate flowers, and, though aperient, is seldom used as medicine. The flowers, leaves, and tender seed-vessels are eaten by the natives of India in their curries; and the roots are universally known to European residents in India, as a substitute for the horseradish. They are remarkable for their pungent and stimulating nature, and are employed for the latter property, by the natives, in medicine." (p. 180.)

Leguminòsæ.— This order forms one of the most important of the vegetable kingdom in point of number of species, diversity of form, and important uses, as food, medicine, and in the arts. Many of the species are also highly beautiful; and the Amhérst*ia* nóbilis Mr. Royle characterises as "the most splendid of the many magnificent objects of the vegetable kingdom." In consequence of the irritability of the leaves of many of this

species, and their collapsion during sleep, they have been considered by some authors as the most highly organised of plants, and therefore placed at the head of the vegetable kingdom. They may be almost universally recognised (*Detàrium* is the only exception) by the form of fruit, from which they are named. They form, in almost every country, a considerable portion of the flora. In the present collection, they amount to 300 species, which is about one twelfth of the whole. The hill specimens being, to those found in the plains, in the proportion nearly of 92 to 208." (p. 180.)

The Leguminòsæ have been divided into the three orders of Mimòseæ, Cæsalpíneæ, and Papilionàceæ, by Mr. Brown; and into two grand divisions, and a number of sub-orders and tribes, by Professor De Candolle, whose arrangement we have adopted in our *Hortus Britannicus*. Mr. Royle devotes a considerable space to this important order; and, in conclusion, there is given an account, by Mr. Bentham, of the Himalayan Leguminòsæ of European and Siberian forms. Mr. Royle adopts Mr. Brown's division, and speaks first of the Mimòseæ. The plants of this order belong almost entirely to warm climates. There are only two species; viz. the *Acàcia Julibríssin* and affìnis, or dealbàta, and, perhaps, a few others, which stand the open air about London. Some species, however, are found as high as 6000 ft. on the Himalayas, in north latitude 30°; and there can be little doubt that these will resist our British winters.

The Cæsalpíneæ, also, chiefly inhabit the warm parts both of the New and Old Worlds; and to this order belong Amhérst*ia*, just mentioned, and the well-known carob tree.

The Papilionàceæ include by far the greater number of the species belonging to the order Leguminòsæ, as the reader may see by turning to our *Hortus Britannicus*, p. 511. Some genera of this order are found at the elevation of 8000 ft. and 10,000 ft. Piptánthus nepalénsis, from this region, is already in our gardens, and is found about London to be nearly as hardy as the laburnum; and Thermópsis barbàta, which is described by travellers as a "superb sort of lupine," and many others, may be expected. *T*rifolièæ and *V*icièæ, which form the principal plants for fodder, and for producing leguminous seeds of European agriculture, are also, with the Cereàlia, the principal plants of the "cold weather cultivation" of Northern India. At this cold weather season, "the obliquity of the sun's rays allows the plains to be cooled down to a temperature which approximates to that of the summer of the mountains, and of European latitudes." Mr. Royle thinks it probable "that both the red and white varieties of *P*hasèolus vulgàris were introduced into Europe from Caubul, Cashmere, or the neighbouring countries; as the seeds of both were brought to him "from

the latter, and they can only be successfully cultivated in a lower temperature than other species of the genus." (p. 192.) Passing over numerous important observations respecting this order, we stop to notice Dalbérg*ia Sissoo*, one of the most valuable of the Indian timber trees, and, except Shòre*a* robústa (called the saul tree), more extensively used than any other in Northern India; "but, like every other, subject to be speedily destroyed by the unceasing ravages of the white ant.

"It would be important to ascertain whether timber and vegetable matter might not be defended from these destroying hordes by the same process as employed by Mr. Kyan in so effectually preserving from the dry rot, and of which so luminous an account was given by Dr. Faraday, in his lecture, and subsequently in the *Quarterly Review*. When in India," Mr. Royle continues, "it was my intention to have prosecuted a series of experiments on the subject. I commenced by dissolving corrosive sublimate and assafœtida in strong spirits (articles, all of which are procurable in every bazaar), and poured the solution into any place where the white ants were beginning to make their appearance. The process was so effectual, that they were always driven away from the point attacked; and my servants were afterwards in the habit of resorting to the same measure whenever occasion required. I regret that my avocations did not allow me leisure to pursue the subject; but I commend it to my ingenious friend Mr. James Prinsep.

"While this is passing through the press, I have seen (March 14. 1835) specimens, at the Royal Institution, of oak and deal, which had been sent to and have returned from India, with a certificate from Mr. Kyd, stating that both had been freely exposed in such situations as where timber is never known to escape the depredations of white ants; but neither piece had been touched and both were returned sound and uninjured. It is hardly possible to calculate the benefit of which this may be productive. It remains to be ascertained whether the preparation (*ruskupoor*) procurable in India is equally efficacious; as well as to ascertain the Indian woods in which the chemical combination is most complete and effectual in resisting the destructive powers of the white ant; powers second only, if second, indeed, they be, to the dry rot."

Rosàceæ. — This order is "chiefly confined to the cool parts of the northern hemisphere, being found in the plains of high latitudes, and in the mountains of more southern regions. Though roses, peaches, and some of the apple tribe, are found in the gardens, we do not meet with any of the *R*osàceæ in the plains of India, with the exception of *R*ùbus, found, however, only in hilly places in the southern parts of India, and a single Potentílla." (p. 202.)

"Two other species of Poténtilla are found on the Neelgherries, with a Cotoneáster Fragària, and species of *R*ùbus and Photínia. Of this last genus, species are also found in the mountains above Silhet and Pundua, and extending further north, with a species of Eriobótrya in Nepal; making these genera common to the Himalayas and to China. A Raphiólepis is also mentioned in India, but it does not appear to extend beyond China or Cochin-China. A species of Eriobótrya is said to be found in Persia.

"In addition to these, in the northern as in the southern parts of the Himalayas, there are numerous species of *R*osàceæ belonging to such genera as are found in Europe, Siberia, the Altai Mountains, China, Japan, and North America; and from Caucasus to the Hindoo Khoosh, on the ramifications of which, and in the valleys they include, some, as the Pomàceæ and *A*mygdàleæ,

appear to have their favourite resort. The genera of which species are found in the Himalayas are, *Amýgdalus*, *Pérsica*, *Armenìaca*, *Prùnus*, *Cérasus*, *Spiræ'a*, *Neíllia*, *Gèum*, *Sievérsia*, *Rùbus*, *Dalibárda*, *Fragària*, *Potentílla*, *Sibbáldia*, *Agrimònia*, *Sanguisórba*, *Ròsa*, *Cratæ'gus*, *Cotoneáster*, *Cydònia*; and of *Pỳrus*, species of the sections *Pyróphorum*, *Málus*, and *Sórbus*. Of these, *Neíllia* is alone peculiar to these mountains. *Sievérsia* is interesting, as found on the Alps, in Kamtschatka, in Melville Island, and in the Himalayas, on such lofty mountains as Choor, Kedarkanta, and Gossainthan; and *Dalibárda*, in these mountains, in North America, and the Straits of Magalhaens. Though the *Rosàceæ* are chiefly confined to the northern hemisphere, yet the southern is not without them, as a *Gèum* is found in the last-mentioned straits; a *Fragària* and *Rùbus* in the Andes and Peru; a *Cratæ'gus* and *Potentílla* in Chili; and, though not to the south of the line, a *Gèum*, *Rùbus*, and *Amýgdalus*, in Mexico; and a *Cérasus* in the West Indies; appearing to indicate that, where any similarity of climate exists, representatives of genera and families may be found, of which the greater numbers exist in very distant regions.

" With respect to species which, independent of those yielding the well-known fruits, are common to these mountains and other parts of the world, *Pỳrus baccàta* may be mentioned, which, common in Siberia, was procured by Dr. Wallich from Kemaon, and found by myself on Kedarkanta. Of the spiræas, one is near, if not identical with, *S.* callòsa of Thunb.; *S.* chamædrifòlia *Linn.*, and *S.* kamtschática *Pall.*, allied to *S.* Ulmària, found in Siberia, are also so in these mountains. *S.* triternàta approaches *S.* Arúncus; and *S.* Lindley*àna* is like *S. s*orbifòlia. Agrimònia nepalénsis resembles A. *Eupatòrium*. The potentillas are thirty-one in number: of these, twenty-one are in Dr. Wallich's, and twenty-three in the author's collection: of the latter, six are new, and three are Siberian species. Many are highly ornamental, as may be seen by those already introduced, as well as by those figured in the present work, which would succeed equally well in England. P. cathaclînes, multífida, and bifúrca are the three Siberian species found in Kunawur. Sibbáld*ia* procúmbens is common to Europe, Siberia, America, and the Himalayas.

" Nothing can be more ornamental than the double white rose of Northern India and the Deyra Doon, *R.* Lyéllii, *kooza* of the natives; nor than *R.* Brunònis, allied to *R.* moschàta *Linn.*, common in the valleys, or the banks of streams within the mountains, ascending to the tops of lofty trees, especially alders, and hanging down in elegant racemes. On more lofty and drier situations, as the passes of Kunawur, *R.* Webb*iàna*, allied to the Scotch rose, is common. *R.* macrophýlla is the most common species on the southern face of the mountains; but on Choor, Urrukta, and such situations, *R.* serícea *Lindl.* is remarkable in always having four (as P. Tormentílla among the potentillas) instead of five, the usual number of petals. In the plains, though so extensively cultivated, no species of rose appears to be indigenous. *R.* damascèna (*goolab* and *sud-burg* of the natives, *wurd* of the Arabs) is that most highly esteemed, and cultivated in Northern India for making rose-water and the *atter* of roses. The latter is, however, only extensively distilled at Ghazipore, probably from this species, as it is in Persia; though it is difficult to ascertain whether the same species be cultivated for these purposes in Cashmere. Some of the species of *Rùbus*, as in Europe, ripen their fruit early in the season, and others towards autumn. *R.* fruticòsus is found in Cashmere. *R.* rotundifòlius (*zurd-anchoo* of the Hill people) affords a grateful fruit in April and May; but *R.* lasiocárpus (*kul-anchoo*) not until the rains. *R.* cóncolor comes the nearest to the raspberry, and is not found except on lofty mountains, as Dhunoultee, Choor, and Kedarkanta. In addition to these, a species of strawberry, Fragària nubícola *Wall.*, very closely allied to F. collìna, affords a grateful fruit in May, on such places as Phagoo, Mhasoo, Bhoke, &c.

" With exception of the *Amygdàleæ*, which secrete hydrocyanic acid, none

of the *Ro*sàceæ are possessed of deleterious properties; but many are remarkable for producing the most delicious fruits, both in Europe and Asia. Of most of these, the native country is not well ascertained; but in Europe we point to the S.E., and in India to the N.W., as their native country. Thus, in India, Caubul and Cashmere; and, in Europe, Pontus and Armenia, are considered as the native countries of the same fruits, which the ancients generally named from the places whence they were procured. Thus, we have *C*érasus and *P*érsica, *A*rmenìaca, and *C*ydònia màla. In India, however, the languages being more analogous, they adopt the names of the countries more to the northward. But, as none of these fruits have been found wild in the plains of these Asiatic countries, we must look to the mountains which run along their whole extent, as their probable native sites, especially as we shall there find most of the fruits alluded to, if not wild, yet in a high state of perfection, with new species of the genera to which they belong.

" Thus, the almond, peach, nectarine, apricot, plum, and cherry, with the apple, pear, and quince, are all found, either in a wild or cultivated state, on the ramifications of Taurus and Caucasus, Hindookhoosh and the Himalayas, or on the valleys included within them. Most of them are enumerated by Forster and Moorcroft, as being abundant in Cashmere, whence I introduced them into the Mussooree Nursery. Mr. Elphinstone and Lieut. Burnes inform us they abound in Peshawur and Caubul; and by the latter, the peach, apricot, cherry, plum, pear, apple, and quince are represented as abundant at Bokhara, and other places on the north of the Hindookhoosh. In Kunawur, on the north of the Himalaya, we have the apricot, peach, plum, and apple.

" The almond, which, though flowering, does not ripen its fruit in N. India, and of which both the sweet and bitter kinds are known and imported into the northern parts from Ghoorbund, and into the southern parts of India by the Persian Gulf, is so extensively cultivated in the south of Europe, in Syria, and Barbary, that it is probable its native country may be further north than others of the tribe, and therefore the north of Africa, as generally supposed; though it may also be found in the mountains of Asia.

" The peach, introduced into Europe from Persia, a country in which the fruit is very fine, and where both the free and clingstone varieties are known, and called *kulloo* and *kardee;* the general name for peach being, Persian, *aroo*, and, Arabic, *khookh*. They ripen well, and are of a fine flavour in Peshawur; also, in the north of India, with the well-flavoured flat peach from China. With care, it succeeds also in the elevated land of Mysore; it is found wild in different parts of the Himalayas, as about Mussooree, at elevations of 5000 ft. and 6000 ft. In the district of Bissehur there is a distinct kind, called *bhemee* by the natives (*P*érsica *s*alígna *nob.*), which, though small, is juicy and very sweet. The nectarine is found in gardens in Northern India, where it is called *shuft-aloo*, and *moondla* (smooth) *aroo*, though it does not perfectly ripen its fruit, nor is it known from whence it was introduced, though probably from Caubul.

" The apricot is very abundant round almost every village in the Himalayas, rendering it difficult to ascertain whether it be ever found wild, as the trees remain the only vestiges of deserted villages. It has been supposed to be a native of the Oases of Egypt, in consequence of its name (*burkook*) being probably the original of the old term apricoke and Præcòcia; but as that is its name in the Arabic language, which prevails, like the apricot, over a great extent of the Oriental region, the same name is likely to be everywhere applied to it. At Caubul it is said to be preserved in fourteen different ways, with and without the stones, or the kernel left, or an almond substituted. (*Burnes.*) It is generally brought in this state into Northern India, under the name *khoobanee;* the Arabic name is *mishmish;* in Bokhara, where they are particularly fine, they are called *bakur-khanee*. In the Himalayas, the fruit is called *zurd-aloo*, *chooloo*, and *chinaroo*. In Kunawur, the fruit is dried on the tops of their houses, and, when pounded, mixed with their meal. It is chiefly cultivated on account of the beautiful oil which is expressed from the

kernels. These may also be found in the bazaars, under the name of *badam-kohee*, or hill almonds. The oil has a slight smell of hydrocyanic acid, and must resemble that from almonds, especially the bitter kind, or that obtained from *P*rùnus brigantìaca.

" Specimens of the cherry, or *aloo-baloo*, which I obtained from Cashmere, appear to Dr. Lindley not to differ from the common species, which therefore is probably that met with at Caubul, perhaps also at Bokhara. The fruit of *C*érasus *Púddum*, common in the Himalayas, is not edible, but is employed for making a well-flavoured cherry-brandy, though not distilled like the *kirschen-wasser;* the bark (*pudmak*) is used in medicine, as is that of species of cherry in the United States and Mexico. *C*érasus undulàta and capricìda (the last so called from the leaves being poisonous to goats), and *C.* cornùta, remarkable for its pod-like monstrosity, are handsome and showy trees, growing on lofty mountains, and worthy of introduction into England.

" The plum is known in India in a dried state, under the name of *aloo-bokhara*, though chiefly cultivated about Ghuzni. It was seen by Lieut. Burnes, both at Koondooz and Bokhara, whence it may originally have been introduced into the kingdom of Caubul. Specimens of the plants from Cashmere appear to Dr. Lindley to be a new species, *P*rùnus bokhariénsis *nob.* To this kind, *kokamalis* is applied as the Greek name in Persian works on Materia Medica. From Irki, near Sabathoo, a small, yellow, thin-skinned, and very juicy sweet plum was introduced into the Saharunpore Garden, and which, though I considered to be a new species (*P. Aloòcha*), is very like a variety of the common plum. It is this, probably, which is called *green gage* by travellers. Mr. Moorcroft also mentions a plum in Ludak, *C*érasus tomentòsa *Wall., Cat. N.*, 715. *P*rùnus triflòra *Roxb.* is a plum now common in gardens in India, which Dr. Roxburgh states was originally introduced from China. The peach, apricot, cherry, and plum all exude gum in Northern India.

" Of the Pomàceæ, the quince plants, introduced from Cashmere, do not differ from those already in India, *C*ydònia vulgàris *Pers.* The seeds (*bihee dana*) being mucilaginous, and used in medicine, are imported from Caubul and Cashmere into Northern, and by the Persian Gulf into Southern, India.

" Of pears, that of Samurcund is most noted: they are plentiful at Caubul, and excellent at Peshawur; and are brought into India by the northern merchants from Cashmere and Boodurwar. In the gardens of India, the only kind known is one introduced from China, *P*ỳrus sínica, or sand-pear, which more nearly resembles the baking pear than any other I know. *P. Páshia* Ham., *P.* variolòsa *Wall.*, or wild pear tree of the hills, attains a great size; but the fruit is not edible until it becomes somewhat decayed. *P.* lanàta and crenàta are other species of this genus, which are found at higher elevations. The first affords an edible fruit called *paltoo.*

" Apples alone of the tribe succeed well in the southern parts of India, as they are stated to be excellent at Bangalore and in Tirhoot; and, though small, of a good quality in most parts of Northern India. As an instance of the difficulty attendant on the introduction of European plants into Northern India, it may be mentioned, that an apple tree from Liverpool, in consequence of being the only one which survived, cost upwards of 70*l.* before it was planted in the nursery at Mussooree, where, however, it was thriving along with the fruit trees introduced from Cashmere. The apple is grown in some of the villages of the Himalaya, as well as in Kunawur. They are remarkably fine at Peshawur and Caubul, and are brought down to India from Boodurwar and Cashmere. On the northern face of the mountains they are grown both at Balkh and Bokhara, and are remarkably fine at the former."

Granàteæ. — There is only one genus, *P*ùnica (which, Mr. Royle says, might be retained in *M*yrtàceæ), originally of Western Asia, but which has extended into the south of Europe, and been taken from thence to India and the north of Africa.

" Lieut. Burnes describes the pomegranates as forming quite a wood in Mazenderan, whence the dried seeds are exported for medicinal use; and mentions that the famous pomegranates without seeds are grown in the rich gardens, called *Balabagh*, lying under the snowy hills near the Caubul river. Mr. Forster describes them as delicious about Hadgiabad, as they are, indeed, in most parts of Persia. (*Journ.*, p. 169.) Though grown in most parts of India, large quantities of a superior quality are yearly brought down by the northern merchants from Caubul, Cashmere, and Boodurwar. In the Himalayas, the pomegranate may be seen growing wild, and also near villages. The fruit, though small, is brought down for sale to Saharunpore; it is called *darmee:* and the rind (*naspal*), being very astringent, is used in medicine, as well as in dyeing. The employment, by the natives of India, of the bark of the root for the expulsion of tape-worm being now well known, since the subject was communicated by Drs. Hamilton and Fleming, is a remarkable instance of the oblivion into which even a valuable medicine may fall, as this property was well known to Dioscorides, l. c. 154. The natives give *bulooSiton* and *rooman* as the Greek names of the pomegranate."

Memecýleæ and *Combretàceæ* are equinoctial orders, respecting which Mr. Royle has given information most valuable for the settler in India, but which we pass over, confident that his work will soon find its way into the libraries of the wealthier classes of British residents in India, or of British Indian merchants, or of other men of wealth resident in Britain.

Onagràriæ. — This order contains Epilòbium, of which thirteen species have been found in the Himalayas. It also contains *Circæ*a, of which some species are found in Nepal; and Tràpa, which, like many other aquatic genera, spreads over a great extent of latitude, " being common everywhere in the waters of India and China, as well as of Cashmere, of Europe, and of Siberia." (p. 211.)

Haloràgeæ, " being an aquatic family, does not, by its distribution, indicate differences of climate, as its plants are found in streams and wet situations in various parts of the world. Thus, *Hippùris* is common to Europe and America, and has been found at Unalaschka, but not in India. Callítriche is common to India and Europe; *Myriophýllum* to both these and to America. Serpícula is common to India and Africa, being found in the Mauritius, the Cape of Good Hope, and the Indian Peninsula; Haloràgis in the last, as well as in New Holland."

Ceratophýlleæ is also an aquatic order, distributed over a wide extent, both in Europe and India.

Lythrarièæ, or Salicarièæ. — The true Salicarièæ form a tribe which contains a number of aquatic species, and, as is generally the case, these are distributed over a wide extent, and in very different climates. *Lythrum* is found in Europe, America, and New Holland, and in the Himalayas.

Tamariscíneæ. — The genus *Tămarix* is distributed over a wide extent in the Old World, from Britain to China, on the shores of the ocean, on the banks of large rivers, in arid and sandy plains, and in saline soil in the cold climates and elevated plains of Thibet in Siberia.

Melastomàceæ. — One of the most natural families: the species are for the most part tropical, and are chiefly found in the southern parts of India.

P*hiladélpheæ.* — The genus *P*hiladélphus has several species which grow on the Himalayas, all of which, Mr. Royle observes, "appear to be suited to the open air in English shrubberies."

M*yrtàceæ.* — This order is well known, from its European representative, the common myrtle. It abounds in Australia and New Zealand; but is not common in the hilly regions of India.

"The *M*yrtàceæ are chiefly remarkable for secreting volatile oil, which gives an aromatic fragrance to the leaves and other parts of many species, rendering these useful as condiments; they also secrete tannin; hence the employment of some as astringents: others yield edible fruit, as the guava and the different kinds of rose-apple, which are, however, seldom unaccompanied by a degree of aromatic principle, which renders them agreeable to some, but disagreeable to others."

We cannot too highly commend this work, or respect the talent and industry of its enlightened and scientific author.

ART. II. *The Landscape-Gardener; comprising the History and Principles of Tasteful Horticulture.* By J. Dennis, B.C.L., Prebendary of the Collegiate Church of Exeter Castle, and Author of "The Key to the Regalia," "Architectura Sacra," &c. &c. 8vo. London, 1835.

THIS work, which has no pretensions to being scientific, may be characterised as a series of unconnected, and sometimes irrelevant, remarks, in a rambling and very peculiar style. Its chief merits are, that it displays a great love of the subject on the part of its author, and that it contains some descriptive notices of country seats. The following extract will, we think, justify what we have said, or it will, at all events, enable the reader to judge for himself. It commences about the middle of the volume (at p. 48.); and contains a recapitulation of what the author considers the contents of the preceding pages, a specimen of the kind of remarks that are made on planting, and a descriptive notice.

"In the historical portion of this essay, [the] commencement of plantations was ascribed to the expediency of preserves for game, consequent on [the] destruction of forests; and the succession of style in [the] formation of parks was detailed. Horticulture was stated to have originated with the monastic orders, yet not to have extended beyond esculent, bibulent, and sanative objects of culture. Ornamental gardening was traced from the Roman quincunx, through Dutch distortion of nature, and its subversion by Kent's investigation and defective transcript of Continental forests, on taste for pictoresque scenery having been elicited through importation of paintings by Italian masters, concurrently with the influence of poetic lucubrations. The peculiar

style of several subsequent landscape-gardeners, as Brown, Davis, Repton, Eyton [? Aiton], was distinctively described. Numerous errors were detected, and various improvements suggested. Adaptation of different classes of trees and shrubs to the respective parts of pleasure-ground was then in part detailed. The concluding topic was the design of the yew tree, as an invariable appendage in ancient churchyards; a topic frequently discussed, but never previously developed. It being an enquiry of somewhat interesting character, probably its repetition for information of absentees from the last lecture [?] may be permitted, although a twice-told tale can only be tolerated by special indulgence.

" If yews be planted in proximity to a mansion, for the sake of valuable shelter from bleak winds, they should not assume a prominent position, but should be interspersed with groups of Weymouth pine or bay, and be faced with laurels of luxuriant growth. By such contrast, the gloom of their dingy leaf [foliage] is relieved with vivid and glossy green; or, if the contrast appear too strong, it may be mellowed by blending Portugal laurel in [an] intermediate position. In short, the recommendation cannot be too frequently reiterated, to substitute [a] studied assortment of tints for tasteless indiscriminate admixture. Let but the pictorial artist be permitted, or the amateur condescend, to transfer his principles of taste, the one from his easel, the other from his gallery, to occasional superintendence of English landscape-gardening, and they [? he] would contribute to [the] production of a living vegetative picture, constituting incalculable improvement in style, and commanding inevitable commendation from the spectator of cultivated taste. Nay, pleasure-grounds thus constructed would excite universal admiration, and impart universal gratification. Pictoresque effect, copying and harmonising with natural scenery, elicits pleasurable emotions, even in such as 'know not why, and care not wherefore.' But, for accomplishment of such [an] important *desideratum*, science must be suffered to acquire unlimited confidence, in exercise of control; while prejudice must cease to plead for senseless 'custom, more honoured in the breach than in the observance.' An individual proprietor, or a public association, might rest assured of the anticipation of a result decidedly warranting the experiment.

" In resumption of the topic of evergreen trees, for formation of a foreground, it may strongly be recommended, while collecting perennial foliage of every species, to permit the beautiful ilex of each variety [? each variety of ilex] to predominate. Single or combined, from elegance of shape, delicacy of leaf, and duration of mantling, the ilex constitutes an embellishment almost unparalleled, yet too frequently neglected. Of faster growth than the deciduous oak, it [here it would appear that our reverend author alludes to the *Quércus Cérris*, and not to the *Q. Ilex*, as that is of slow growth as compared with the common deciduous oak] attains expansion competent to [the] gratification of the planter's eye, with not less certainty, in the ordinary calculation of life's duration, than to please and profit posterity. It should, then, on various accounts, abound in proximity to [? the proximity of] a decorated mansion, blended with masses of bay, backed by cypress, yew, and pinaster, and faced with laurel, laurestinus, Portugal laurel, privet, phylirea [phillyrea], arbutus, with other flowering or variegated shrubs.

" In similar relative situation, but in prominent advance from trees and unblossomed shrubs, flowering evergreens should invariably rank. Defying 'the icy fang and churlish chiding of the winter's wind,' the gay, cheering, precocious laurestinus anticipates the lingering arrival of an English spring. Tenacious of florage and permanently retentive of foliated decoration, it is entitled to numerical predominance over every blossoming shrub. By seasonable intervention and flowering profusion, it compensates for temporary diminution of ornament, in other component ingredients of a shrubbery, thus transferring to nipping winter's gloom the exhilarating semblance of summer's embellishment. Productive of such interesting impression in pleasing the eye, it certainly merits conspicuousness by prominent position.

"The arbutus is a shrub peculiarly elegant and eligible, from perennial decoration, rapid growth, and superior beauty in shape and tint of leaf, from delicate blossom, and glowing berry. If suffered to remain unpruned, by gaining height, it becomes hollow and leafless beneath, retaining, like other evergreens, only two years' shoots [leaves], except about midsummer, when the third year's are annexed, some weeks previously to [the] decay of the first. If not surrounded by evergreens more stunted in growth, for concealment of its lower leafless branches, it should biennially be deprived of a few long shoots, by application of the pruning-knife, the shears being calculated to render a shrub hideously cabbage-poled [?]. Any shrub judiciously pruned will retain resemblance of its natural form. Artificial treatment should be studiously disguised, and interposition of control be invariably concealed.

The phylirea [phillyrea] presents striking contrast to the gay or gaudy display of flowering shrubs, being characterised by singular chasteness and unobtrusive simplicity. It is of intermediate tint, diminutive leaf, and moderate growth; consequently is precisely adapted to an advanced position. It will there present [a] striking contrast to the imposing glare of variegated shrubs, whether holly, aucuba, or others of similar class. Here, too, that lowly, yet cheering, harbinger of spring, the meserium [? mezereon], should rank, interspersed with contemporaneous masses of hepatica, snowdrop, crocus, red daisy, and other vernal flowers, protected by [a] wicker fence. The cypress is adapted, by [its] taper form and elevation to relieve a structure. The pyracanthus [pyracantha], pomegranate, trumpet-pomegranate, white jessamine, but, paramount to all, the elegant tamarisk, supply ornamental covering to a wall. In a sheltered nook, even this [these] may be surpassed by the beautiful single-blossomed myrtle. From mildness of climate, it abounds in Devonshire, perhaps in no instance so luxuriantly as in a garden of Mr. Neck's, [?] curate of King's Kerswell, where it acquires considerable size detached from a wall, as well as height when attached. The front of a house at Bishop's-Teington has long been covered to the top by myrtles of forty years' growth, protected from the easterly wind by a wing, and from the westerly by an equal defence, with the advantage of a southern aspect. Inspection of these flourishing shrubs, of such delicate character, attracts frequent visitors from the adjacent watering-place, Teignmouth. The broad-leafed species, when annually deprived of its lateral shoots, has been found to acquire astonishing size and strength of stalk, and, on recovery of lower leaves, has eventually become a bold shrub, contributing handsome decoration to the interior of a drawingroom."

This last sentence we do not pretend to understand.

As an appendix to the work, a map of the gardens at Buckingham Palace is given, accompanied by two views, which are very neatly executed and coloured. There is also a map of St. James's Park, with the piece of water as altered; an island concealing the boundary at one end, and a peninsula at the other.

ART. III. *Curtis's Botanical Magazine; or, Flower-Garden Displayed; a New Edition, with amended Characters of the Species; the whole arranged according to the Natural Orders.* By W. J. Hooker, LL.D. F.R.A. and L.S., &c. &c. &c., and Regius Professor of Botany in the University of Glasgow. *To which is added, the most approved Method of Culture.* By Samuel Curtis, F.L.S., of

the Glazenwood Horticultural Grounds, Essex, and Proprietor of the Botanical Magazine. Vol. I. 8vo. London, 1833.

In our Volume for 1833, we announced the intention of Mr. Curtis, the proprietor of the *Botanical Magazine*, to publish a new series of that work, with the engravings arranged according to the natural system, and at a comparatively low price. It was intended to appear in monthly numbers; but it has been found more convenient to bring it out in volumes; and the first of these, price 21*s.*, is now before us.

The work is prefaced by an outline of the natural system, by Dr. Hooker, and his reasons for preferring that arrangement to any other. The plates are beautifully coloured; the descriptions have been amended, or re-written, by Dr. Hooker, and the modes of culture given in a concise and masterly manner by Mr. Curtis. We can, therefore, strongly recommend the work, and only deeply regret that some arrangement could not be formed by which the possessors of this work could purchase from the proprietors of the *Botanical Register* such plates as have appeared in that work, and not in the *Botanical Magazine;* and this accommodation, we think, ought to be reciprocal. For example, there are some species of magnolia figured in the *Bot. Reg.*, that have not been figured in the *Bot. Mag.;* and some in the *Bot. Mag.* that have not been figured in the *Bot. Reg.* Now, it would be a great advantage to the possessor of either work (and we do not suppose that there is any one who takes in both), if he could purchase such plates from the other as he might want, either to render as complete as possible his collection of figures of one genus or of one natural order, or to complete his collection of plates of the whole vegetable kingdom. Why should not the proprietors of these and similar works sell single plates, or plates by the dozen, by the score, or by the hundred, charging a handsome price for a single plate, and diminishing the rate per plate according to the quantity taken? If we could be the means of inducing the proprietors of botanical works to do this, we think we should be rendering an essential service to gardeners and botanists, more especially in remote parts of the country, or in other countries; and even to the publishers themselves. It would then be practicable for a gardener or amateur, in any part of Britain, or for an amateur on the Continent, or in North America, when in doubt about any particular species, or the species of a genus, to obtain the plate or plates he might desire to solve his doubts, by post.

We frequently hear of disputes between gardeners in the country respecting the name of a plant. Now, by such an arrangement as that which we suggest, all such differences could be settled in a post or two.

ART. IV. *Remarks on the Geographical Distribution of British Plants; chiefly in Connection with Latitude, Elevation, and Climate.* By Hewett Cottrell Watson. 12mo. London, 1835.

THE author has taken very great pains to render this work as perfect as the present state of our knowledge on the subject of which it treats permits; and he has succeeded in producing a book which will be read with instruction and delight by every one fond of the study of plants, and more especially by the British gardener. Its use to the practical gardener may not appear obvious at first sight; but it will enable him to judge of the comparative difference of climate in different parts of the island, and to generalise on the important subjects of climate, weather, and soil. To the gardener, and to every botanical reader, it will add greatly to the local interest of particular places; for it is hardly possible to live in any part of Britain that is not cited in this volume, or in the *New Botanist's Guide* (to be next noticed), as the station of some plant.

ART. V. *The New Botanist's Guide to the Localities of the Rarer Plants of Britain; on the Plan of Turner and Dillwyn's Botanist's Guide.* By Hewett Cottrell Watson. Vol. I. England and Wales. 12mo. London, 1835.

WE cannot better recommend this work than by the following short extracts from the Introduction, and from the Prefatory Notice.: —

"In publishing the following work, two subjects are immediately in view: first, to exhibit the ascertained distribution of our less common indigenous Plants throughout Britain; and, secondly, to form a Guide-Book for botanical tourists. The well-known *Botanist's Guide* of Turner and Dillwyn may be said to form the model of the present one, omitting the cryptogamic plants. But the lapse of 30 years since the publication of that work has greatly increased our knowledge on the subject; while the manuscript communications of several friends, and personal researches, enable me to add considerably to it, independently of the information contained in various local floras and catalogues of more recent date." (Introd., p. 1.)

"This volume includes all the counties of England and Wales, and will form a complete work in itself, if the publication of the second volume should be prevented by any unforeseen circumstance. The counties of Scotland, with the adjoining isles from Man to Shetland, are intended to be comprised in the second volume, which will be ready in 1836. (Not., p. v.)

ART. VI. *The Florist Cultivator, or Plain Directions for the Management of the principal Florist Flowers, Shrubs, &c. &c., adapted to the Flower-Garden, Shrubbery, and Green-house; with select Lists of the finest Roses, Geraniums, Carnations, Pinks, Auriculas, Polyanthuses, Tulips, Dahlias, Heartsease, &c. &c. The whole arranged on a Plan different from any Work hitherto published.* By Thomas Willats, Esq., Amateur Cultivator. Small 8vo. London, 1835.

THIS is a well intended book; but it is behind the age in the manner in which the author has treated the subject. For example, in his enumeration of plants he has occupied, generally, more than the fourth of a page for each species, without giving the authority for the name, the accentuation, the derivation, the natural order, or, in short, more than half the information which we have given in the *Hortus Britannicus* in a single line. As a proof of this, we may take his first three species.

"1. ACHILLEA TOMENTOSA, *or Woolly Milfoil.*

"This is a hardy Perrenial for the borders; it is increased by parting the roots in the spring. It affects a dry and open situation. It blows from June to October.

"It is a native of the South of Europe, and was first brought to England in 1658.

"This plant is of the 19th Class, under the head 'Syngenesia Superflua.'

"2. GAURA BIENNIS, *or Biennial Gaura.*

"This herbaceous plant requires rather more trouble than many of this kind, from its being a Biennial; it is increased by seed, and blows in the autumn.

"It is a native of North America, and was first brought to England in 1762.

"It belongs to the 8th Class, under the head 'Octandria Monogynia.'

"3. ONONIS ROTUNDIFOLIA, *or Round-leaved Rest Harrow.*

"This is a hardy plant, and raised by seed.

"It affects a sunny aspect, and will thrive well in the border; it blows in May and July.

"It is a native of Switzerland, and was first brought Into England in 1570.

"It belongs to the 17th Class, under the head 'Diadelphia Decandria.

*2387. *ACHILLE'A L.* MILFOIL. (*Achilles*, pupil of Chiron, first used the plant in med.) *Com. Anthem.* 74.
21858 tomentòsa *L.* tomentose ♃ △ or 2 my.o Y Britain hea. D co Eng. bot. 2532

*1184. GAU'RA *L.* GAURA. (*Gauros*, superb; flowers.) *Onagràriæ.* 6.—7.
10041 biénnis *L.* biennial ☿ ☉ or 5 au.o R.w N. Amer. 1762. S p.l Bot. mag. 389

*1966. ONO'NIS *L.* RESTHARROW. (*Onos*, an ass; *onemi*, to delight; grateful to.) *Leg. Pap. Lòt. Gen.* 56.—111.
17576 rotundifòlia *L.* round-leafed ♃ or 2 my.jl Pk Switzerl. 1570. C s.l Bot. mag. 335

If the author had endeavoured, by giving authorities, synonymes, references to figures, and descriptive traits, to convey an idea to the reader's mind of what the plants were, he would have succeeded better in attaining the very laudable end which he professes to have in view.

ART. VII. *An Essay on Calcareous Manures.* By EDMUND RUFFIN. Small 8vo, pp. 242. Petersburg, Lower Virginia, 1832.

THE object of this essay, Mr. Ruffin informs us, is to investigate the peculiar features and qualities of the soils of the tide-water districts of Lower Virginia; "to show the causes of their general unproductiveness; and to point out means, as yet but little used, for their effectual and profitable improvement." The sterility of these soils Mr. Ruffin has ascertained to arise from their being destitute of calcareous earth, and from their being injured by the presence of vegetable acid.

After two chapters on earths and soils generally, and on the soils and state of agriculture in the tide-water districts of Virginia, the author treats of the different capacities of soils for improvements, and discusses the following propositions: —

1. "Soils naturally poor, and rich soils reduced to poverty by cultivation, are essentially different in their powers of retaining putrescent manures: and, under like circumstances, the fitness of any soil to be enriched by these manures, is in proportion to what was its natural fertility.
2. "The natural sterility of the soils of Lower Virginia is caused by such soils being destitute of calcareous earth, and their being injured by the presence and effects of vegetable acid.
3. "The fertilising effects of calcareous earth are chiefly produced by its power of neutralising acids, and of combining putrescent manures with soils, between which there would otherwise be but little, if any, chemical attraction.
4. "Poor and acid soils cannot be improved durably or profitably, by putrescent manures, without previously making them calcareous, and thereby correcting the defect in their constitution.
5. "Calcareous manures will give to our worst soils a power of retaining putrescent manures equal to that of the best; and will cause more productiveness, and yield more profit, than any other improvement practicable in Lower Virginia." (p. 30.)

These propositions contain the marrow of the essay, which is closely reasoned, and, in several particulars, original. Mr. Ruffin has the merit of first pointing out that there can be no such thing as a naturally fertile soil, without the presence of calcareous earth; but, where this earth is present, the soil, however exhausted it may have been by culture, will, when left to itself, after a time regain its original fertility: that soils which contain no calcareous earth are never found naturally fertile, except masses or beds of vegetable matter, which are not properly soils: and that all that art can do to them, exclusive of adding calcareous earth, is, to force crops by putrescent manures; but that, when these manures are withheld, the soil will speedily revert to its original sterility. Mr. Ruffin observes that no agricultural or chemical writer ever denied these facts; but he asserts, and we think with truth, that by not one of them have they ever been distinctly stated. We are not quite certain as to Grisenthwaite, but we are so as to Kirwan, Dundonald, Davy,

Chaptal, and other agricultural chemists of the Continent. Mr. Ruffin allows that it might be inferred from the ingredients exhibited by the analysis of fertile soils, as given by these chemists, that calcareous earth was an ingredient essential to permanent fertility; but still none of them have ever distinctly said so. We shall probably examine the work more in detail hereafter: in the mean time, it is due to Mr. Ruffin to state it as our opinion that he has performed a very important service to the scientific agriculturist in this country, as well as in America.

MISCELLANEOUS INTELLIGENCE.

Art. I. *Domestic Notices.*

ENGLAND.

Linnæan Society. — Nov. 3. Mr. Lambert exhibited a branch and leaves of an arborescent species of dahlia, from Oaxaca, Mexico, which is said to grow to the height of 50 ft. There are living plants of it in the Liverpool Botanic Garden. Mr. Lambert also exhibited the root of a remarkable fern (Angiópteris erécta) from the Society Islands, which is used by the natives for food, and the root of which weighed 14 lb. This may probably be a useful plant for Australia.

Society of Arts. — Nov. 4. At this meeting were exhibited, a sample of cloth from Assam, made from the down of the silk-cotton (Bómbax heptaphýllum); a fine sample of safflower, from the same country; a sample of fibre prepared from the leaf of the pine-apple, with netting made of the same, also from Assam; and extraordinarily beautiful specimens of natural lace from the inner bark of the lace-bark tree (*Lagétta* linteària), from Jamaica.

The Stamford Hill Horticultural Reading Society. — A sneer thrown out against this Society, in a contemporary publication, has induced the Secretary to send us a communication, full of practical instruction, relating to societies of this kind, which we regret that we cannot find room to insert at length; but from which we make the following extract: — "This Society has been established about two years and a half, for the study of Horticulture, Botany, and Natural History; and it consists of more than fifty members: it has a monthly meeting for the production of specimens of plants, and for conversations on their mode of culture, &c.; also, meetings for botanical discussions. If the benefits the gardener and his employer derive from such institutions as this were better made known than at present, I am quite sure that every nobleman and gentleman having an interest in the welfare of his gardener and garden would feel the propriety of contributing to their formation and support; and such societies would then be found in all parts of the kingdom." — *Stamford Hill, Jan.* 21. 1836.

The Stratford Nursery, formerly in the occupation of Mr. Corbet, has lately been taken by our correspondent Mr. W. Garvie, many years foreman to Messrs. Low and Co. of Clapton; and we sincerely hope that he will do well.

Stercùlia platanifòlia has stood in the open ground at Flitwick House, near Ampthill, Bedfordshire, for several years, producing its fine large leaves during summer, though frequently killed down to the ground during winter.

In the Milford Nursery, Genísta monospérma is now covered with fragrant white flowers; and *C*ytisus fílipes, *H*elléborus purpuráscens, and *C*rámbe fruticòsa, are in flower. This nursery has just received some new species or

varieties of *Pyrus*, *Tilia*, *Acer*, and *Pavia* from France, through Mr. Webb; among the pavias are, P. mutábilis fóliis varieg., and P. pállida fóliis varieg.

List of Kinds of Wheat, received from Mr. Gorrie. — Nov. 1835.

1. Victoria wheat, sown Oct. 24. 1834, at Annat Park; ripe 30th of July. The grain seems larger than when first introduced; and, being sown in the middle of a field of common wheat the preceding year, it appears to have sported.
2. Early white-bearded Tuscany wheat.
3. Early beardless white-glumed Tuscany wheat.
4. Blanc d'Hongrie, supposed to be the best sample amongst 60 sorts; requires an early situation; and is rather a late wheat in Scotland.
5. Hunter's white, raised successively for 65 years on one farm in the Lothians.
6. Blé de Mars d'Odessa; too late for Scotland. The seeds were received from Mr. Lawson of Edinburgh.
7. Early striped chaff, gathered in a field, in 1834, on Shanny farm.
8. Shanny yellow Surrey, gathered by Mr. Gorrie in a field on the farm of Shanny.
9. Richelieu blanc.

Wheats received from Mr. Lawson of Edinburgh, through Mr. Gorrie, Jun.

10. *Tríticum æstivum*, var. Victoria wheat.
11. *Tríticum* bengalénse, received by Mr. Lawson from Germany.

Wheats received from Mr. Taylor, of Whittington, Stokeferry, Norfolk.

12. Hickling wheat; prolific winter variety.
13. Golden drop wheat; also a winter prolific wheat.

The above wheats were chiefly sent to M. Vilmorin, Paris, but partly to Vienna, Poland, and to different correspondents, farmers, and seedsmen in Britain.

The accompanying sample of *Tríticum* bengalénse is part of the produce of a spelt-like wheat, which Mr. Lawson procured when in Germany, in 1833, under that name. It is a free grower, very early, hardy, and prolific; and (as you will see by the ear sent) quite distinct from either *T. Spélta* or *T. Zea*.— *W. Gorrie. Edinburgh, Nov.* 13. 1835.

Hickling Wheat. — I see you wish for a quantity of any new and valuable variety of wheat; and I therefore present for your acceptance a small parcel of the "Hickling wheat," of which you have doubtless heard, as a lately-discovered and most productive kind in Norfolk. Now, observe, in sending you the above, I do not vouch for the truth of the marvels of which so much has been said and written concerning it; still less am I disposed to draw the inference that, because a fine sample and an immense crop has been produced on *some* soils, the same may be expected from *all* soils. You and I know such reasoning is very likely to lead to disappointment: at the same time, I would by no means be understood as wishing to discourage experimental husbandry; and I know none more important than that branch of it which involves attention to a judicious change of seed, both in grain and roots. With regard to the wheat in question, I have heard from so many quarters, that I cannot doubt the fact, that from 12 to 20 bushels per acre have been grown of it more than of any of the common wheats. The parcel I sent you was grown by my neighbour, Mr. Pearson of Sporte, near Swaffham; and is, I think you will say, excellent in quality.

Golden Drop Wheat. — There is another variety of wheat, which has lately occasioned a good deal of talk amongst our farmers, called "the golden drop." It appears to me of the yellow lammas, or something very like it; a fine, bold, yellow sample; though the quality of this, as well as all other varieties, will depend much on the nature of the soil. I have seen it very good, and I have also seen it miserably bad. It originated with Mr. Fullard, a tenant of the Duke of Bedford, I think, at Thorney.

Whittington Stokeferry. — Nov. 19. My neighbour Mr. John Bush, of Stow, has given me the quantity sent herewith of this wheat. The sample is not so fine as it often has appeared; but Bush assures me you may rely on its being the genuine stock. The same observations I made anent the Hickling wheat apply with equal force to this variety. It is impossible to know from the stock how the produce may turn out. Of one thing only can we be certain, — that, be the quality what it may, the stock will be pure; and I am one of those who, if I can but be sure of the stock, care very little what the quality of the seed may be. My agricultural training, from my youth up, has led me to entertain these notions. My father sowed about 100 acres of wheat annually; and invariably made it a practice to use his most shrivelled and mildewed grain: no matter how thin it might be in the sample, *it would do for seed.* The only difference he made was (especially in the beginning of the wheat sowing) a trifling reduction in the quantity sown per acre, in consequence of the smallness of the seed. I beg your pardon for this digression, and the rather so, as these doctrines may to you be "damnable and heretical;" but they appeared to me necessary to explain the fact of the wheat sent being so unlike the golden drop as it is often found in our markets. One thing I ought to state, in recommendation of the wheat; Mr. Bush so highly approved of what he grew that year, *that he has sown nothing else this year!* And here endeth my lecture on seed. — *Samuel Taylor.*

Vicia villòsa. — This is an excellent and prolific tare, which was found by Mr. Gorrie among a sample of Russian wheat. It should be sown in October, or early in the spring. The seeds which we received of it from Mr. Gorrie have been distributed to the same parties as the wheat. — *Cond.*

List of Melon and Gourd Seeds, received from Sr. Manetti of Monza.

Melone grosso (long, and of excellent quality); M. grosso (long, and of a pyramidal shape); M. moscatello (middling); M. moscatello (green and round); M. ovale (green); Bariri; M. zucohinno (excellent); M. arancini; M. Palermitano; M. Parmigianino (early); M. olandese; M. di Spagna (excellent); M. ungarese (large and netted); Zucche marine.

Some of the melon seeds in the above list we have given to one gentleman, an amateur cultivator of melons; and we will give some of the remaining seeds to any person who will engage to devote a light to each kind, and to send us one of the fruit when ripe.

We have occupied so large a space with the above lists of seeds, as well to evince our gratitude to the friends who have sent them, as for the sake of recording the varieties of so valuable a grain as wheat, and of indicating that seeds of all the kinds we have enumerated may be procured from Mr. Lawson of Edinburgh, and M. Vilmorin of Paris.

Art. II. *Retrospective Criticism.*

Erratum. Page 98., line 9. from the bottom, for "the house," read "water."

Mr. Mearns's Method of coiling Vines. (Vol. XI. p. 603.)—An anxiety to avoid unprofitable discussion alone prevents me from criticising Mr. Marnock's remarks in detail. In answer to the only question which he asks, I scarcely think it necessary to inform him of that with which he must be perfectly conversant; namely, that there is, in my opinion, a great difference in the principles of action of two distinct parties, when one party, possessing grounds for distrust, calls for proofs of the truth of a published statement of success, while the other party, without giving so much as a reason for what has been asserted, finds fault because proofs did not accompany the statement that impugns it; and there is a still greater difference when one party offers to give proofs to repletion as soon as they may be demanded, while the other party, after proofs of a specified nature have been required, returns only reiterated asseveration for proof, and empty declamation for argument. Mr. Marnock plainly asserts that Mr.

Mearns did not exaggerate his statements, so far as his own success was concerned. Now, my opinion is that he has done so, so far as success the first season is concerned; and, with all due respect to Mr. Marnock, I beg leave to say, that, sick and tired as I am of this subject, both he and the public shall have my reasons for forming such an opinion when he chooses to ask for them. Surely, Mr. Marnock must see that assertion will go for nothing in an inquiry like this. If he is confident in Mr. Mearns's success, why hesitate for a moment to give a clear and definite answer to the questions which I put in my first paper upon this subject? If by such means the claims of the system to utility, during the first season, be fully established, I shall then feel a satisfaction that I have been instrumental in removing a stain from the character of one who, after all, is a worthy man, and shall not hesitate for a moment to give every necessary satisfaction to him for the part I have taken. If these claims are not supported, I shall then congratulate myself as having been the means of exposing a case of exaggeration, which, I doubt not, will operate as a check upon a system (which has been but too long in operation, without means being taken to detect its fallacy, or arrest its career) of broaching, as new and valuable discoveries, schemes which will not bear the test of examination. — *Robert Fish. Hyde Park Corner, Nov.* 5. 1836.

White Scale on Pines. (Vol. XI. p. 433. 548. and 604.) — Observing a discussion between L. O. Z. and J. B. W., respecting the best means of destroying this insect, without at all interfering with any of their observations, I wish merely to state a fact. In the spring of the present year, I had about twenty large plants very much infested with the white scale. Fearful of their spreading, after rubbing off a number where they were thickest, I put a temporary partition between the infested plants and others in the same pit, which I supposed were perfectly clean. The pit was principally heated with dung linings; and, when I had placed my board of separation, I applied fresh dung to the part which contained the infested plants, admitting the steam into the pit. My idea was, that, by admitting the steam of fresh dung into the pit, the evolution of ammoniacal gas which would take place would destroy the insects, and yet at the same time be a benefit to the plants. The result is, that the experiment was quite successful, and that I have not seen an insect for six months past. I am acquainted with a gardener who cleaned a very extensive collection by the same process. Nothing can be simpler than this mode of destroying the insect: but the simplest method is often the best. Some gardeners, however, are very successful in cleaning a stock, without the aid of dung heat, by washing, &c. A striking proof of this I have witnessed in a stock of plants under the superintendence of Mr. Pullar, gardener to —— Goldsmid, Esq., Champion Hill, Camberwell. I have often seen plants bad enough, but those which Mr. Pullar received charge of were decidedly the worst I ever saw: and yet, from that dirty stock, in the space of two years he has obtained as beautiful a collection as one could ever wish to see. Perhaps you could induce Mr. Pullar to give a detailed account of his system of treatment. I am fully convinced, along with Agronomes's Nephew, that the bashfulness and timidity of gardeners operate as a means of causing much useful information to be lost to the profession at large. — *Id.*

Destroying the White Scale on the Pine-apple, &c. (Vol. XI. p. 604.) — As in J. B. W.'s reply to my strictures on his paper on destroying the white scale it appears that he still continues sceptical, the subject at issue resolves itself into the following question:—Can the white scale which infests the pine plant be destroyed without previous removal of the plant, or can it not? I unhesitatingly affirm it can: J. B. W. asserts it cannot. In this conflict of opinion, it remains for evidence to be adduced on both sides, and for that evidence to be published, in order that the public may draw their own conclusion. As J. B. W. questions my veracity, I shall not add any more to what I before advanced (Vol. XI. p. 433.), but merely content myself with transcribing a few lines from a letter which I received from an esteemed friend and a first-rate practical gardener, now residing in the county of Bedford, to whom, by the

way, I am indebted for a knowledge of the recipe before recommended. It is this:—"In answer to your question respecting my pines, I am happy to inform you, that all my succession plants are now quite clean, and are growing as well as I could wish them. In destroying the insects, I was obliged (from the want of pit room) to deviate a little from what was my practice when you were with me, inasmuch as I was obliged to attempt their destruction in the pine-stove; and in that I have succeeded as well as I could wish. The following was the plan taken. I syringed the plants three times a week with soap-water heated as usual. I kept the axils of the leaves filled, and the front path of the stove flooded with soap-water; and I kept the house as warm as I could consistently with the proper management of the vine. This treatment was continued for upwards of a month; and I now believe there is not a living insect on any of the plants." I shall not add any thing to this corroborative statement, further than to say, that the plants, when I saw them in August last, bore as extensive marks of the insect as I ever saw: in fact, the leaves resembled those of *Aúcuba* japónica, so far as regards spots, more than pine leaves. I am sorry I have not the leave of my friend to make his name public; I, however, for the satisfaction of yourself, give his address, and you can inquire whether my statements are correct. With reference to J. B. W. knowing an instance of more than one published remedy failing, I do not doubt it; neither do I question the correctness of his statement, of four different gardeners in succession, for forty years, vainly endeavouring to extirpate this insect: but these failures, probably, were not the fault of the recipes, but arose from some error in the application of them; or, if they were bad, J. B. W. must not thence infer that *all* recipes are the same. I know an instance myself of a gardener, in one of the midland counties, who has failed for upwards of twenty years in his attempts to extirpate this insect; and to a question that was put to him by an acquaintance of mine, he answered, that he had grown as good pines as his neighbours with dirty plants, and he did not think it worth his while to trouble himself any more about cleaning them; and, perhaps, added he, "some other person will get them by and by, and then he can clean them."

As respects the rather invidious thrust which J. B. W. makes at my having sojourned in a country "prolific in the white scale," however sarcastic it may appear in the eyes of its author, it is, perhaps, beneath notice. I may, however, just observe, that the fortunes of all men are not alike. Some young men, in acquiring a knowledge of their profession, have to plod as journeymen for many years, and in that time may pass through six, eight, or even more gardens, in all of which they may possibly see more or less of the white scale; while others, more fortunate, after having served their apprenticeship (or even before that is expired), may, through the patronage of some influential friend, be recommended to a nursery, or to horticultural or botanical gardens, and, after remaining there for a short time, then, as if by magic, be wafted across the country into a master's situation.

In taking leave of J. B. W., I wish it to be understood, that I am actuated by no personal motives in continuing the discussion. I am as open to conviction, and as anxious for the truth, and nothing but the truth, to be stated, as he possibly can be. I do not, however, fancy fighting with a shadow. I shall, therefore, expect J. B. W., in his next letter, to come from behind the pale of an anonymous signature, and, fully and fairly before the public, to give his name and address, and then I will do the same, and, at the same time, inform him of other *recipes that will destroy the scale;* but, should he not think proper to do this, here my labour on this subject will cease, and I shall remain *L. O. L. Chiswick Gardens, Nov.* 2. 1835.

Art. III. *Queries and Answers.*

The inherent Power of Soils to convert Foreign Substances into their own Nature. — I do not recollect reading in your Magazine any thing upon the

inherent power there is in soils in converting foreign substances into their own nature. It is a subject of some importance; and a paper upon it by one of your philosophical correspondents would, I think, prove useful to many of the readers of your Magazine. Has the subject been treated upon by M. de Candolle, or any other person of deep research? If so, an extract might suffice. I have long been convinced, from experience, that this is not merely an imaginary theory, and, accordingly, gave my advice some time since as to the mode a friend of mine might take, in making a peach border, to prevent it; and it is singular that, almost immediately afterwards, there was a paragraph in one of the daily prints in confirmation of my opinion on the subject. In treating upon it, I should propose the question as to which of the natural soils has the greatest inherent power of conversion; viz. whether that of the calcareous, argillaceous, siliceous, &c., and to what extent either of them has this property; to be stated, as far as experience has gone, by way of proof. A few hints, also, would be useful upon the kinds of manure, as well as of other ingredients, which might prove the most useful to counteract, as far as may be, the effect of this inherent power in the different kinds of soil that the horticulturist has to compete with. — *T. Rutger. Portland Place*, 1835.

Destruction of the Thrips. — Could any of your numerous readers supply me with anything approaching to a safe and effectual remedy for that destructive jumping insect the thrips? I have been terribly annoyed with whole shoals of them this last summer; and, as yet, I have found out no remedy. Tobacco smoke will destroy the green fly, and plenty of syringing, or a moist atmosphere, will chase away the red spider; but neither of these methods have much influence upon the hardier constitution of the thrips. I once gave some plants such a fumigation with tobacco, mixed with a little sulphur, that in the morning there was not one of them possessed of a green leaf; and yet, luxuriating in the general wreck, the thrips with which they were infested appeared gay and sprightly as ever. What I have found best for their ravages, was syringing the plants with soap-water, and keeping them growing in an atmosphere saturated with moisture, and of a high temperature. I hope this will meet the eye of some experimentalist. — *R. Fish. Hyde Park Corner, November* 7. 1835.

Destruction of Insects. — Weston, writing about the middle of the last century, says, "If any insects attack the trees, immediately apply quicksilver, by the method directed in the *Museum Rusticum*, of boring a hole with a smooth awl, in two or three of the branches, but sloping so as not to touch the pith, and about an inch deep; fill it almost full with quicksilver, and then stop it with a bit of wax. I have tried it on thirty cherry trees; and the insects disappeared in three days. It were proper, also, to apply the fumigating bellows with tobacco." (Weston's *Tracts on Agriculture and Gardening*, p. 28.) Have any of your readers proved the effect of mercury in this way? This ought to be done, as the statement has lately been running the round of the newspapers as a new thing. — *John Brown. Kent, February*, 1835.

A Machine for discharging Bullets has been invented by Mr. Toplis, of the Museum of National Manufactures, Leicester Square, London. It can be removed into any situation where horses or men can go, and can be made at will to pour out, for any desired time, a continued stream of bullets, which can be directed with the same facility as a stream of water from a fire-engine. If so, might not such a machine be so modified as to distribute soil over the surface of a bog, powdered manure over a field, or water or liquid manure over sown crops or grass lands? — *J. D. S. Birmingham, November*, 1834.

Serpentine Garden Walls. (Vol. XI. p. 554.)—"The wall that surrounds the garden is of stone, lined inside with brick: it is wavy, or serpentine; but Mr. Bane says it is not so good as a straight wall, as it causes currents of air." Perhaps the relater of this singular fact, or he who observed it, will favour us with some explanation of this remark. Having hitherto held that irregular or uneven surfaces impeded, diverted, or considerably lessened the force of air when impelled by natural causes, I was surprised to hear, not only that this law did not apply to serpentine walls, but that they acted in a contrary manner.

This appears a singular phenomenon, and, to me at least, a very interesting one; I should, therefore, much like to hear more on the subject. — *R. Glendinning. Bicton, November* 12. 1835.

Smoke Stains on Flues. — D. R., of Alton Towers, complains of smoke stains on his sandstone flues. May I ask him if his flues are heated by Witty's patent furnace? If so, I would recommend him to substitute another mode of heating as soon as possible, as I find that, when these furnaces are used with me, my brick flues are not only horribly discoloured, but the houses smell so unpleasantly, as to be disagreeble to be in. I fear that, to get rid of this evil, D. R. will have to build new flues, as well as a new furnace. Most flues, when the soot is allowed to remain long in them, and to become very damp, are liable to the same unpleasant effect. I fear that no chemical preparation consistent with a due regard to economy, or the safety of the flue, will k e out the stains. — *Ye ken wha. London, December*, 1835.

Removing Shrubs, &c. from a Garden. — At the last York assizes, an action was brought against a party for removing shrubs, &c. from a garden he had recently occupied; and a verdict, under the judge's direction, was given against him. The judge laid it down as law, in the nineteenth century, that shrubs, when once planted, "became part of the freehold; and, therefore, could not be removed." Would you admit the discussion of this point, not legally, but morally, into your Magazine? It is, in the present state of the country, where there exist so many tenancies, during which immense improvements are made in gardens, a very important one. I deny that this is law, because I deny that the trees are part of the freehold; for, if they are, then are carrots, thistles, and, much more, docks, also part of the freehold, and ought not to be removed. But, if it is law, it is fit that all parties knew it, that, if dissatisfied, they may set about getting it altered. — *T. W. Banks, near Barnsley.*

[Yes; and we regret that this query has, with many others, been so long at the printer's, that we fear our correspondent will think we have forgotten it.— *Cond.*]

Art. IV. *The London Horticultural Society and Garden.*

February 2. 1836.—*Read.* A communication on the cultivation of alstrœmerias, by Mr. William Scott, gardener to C. Barclay, Esq., M.P.

Exhibited. Aspàsia epidendròides, a newly ascertained species of orchideous plant, from Mr. Knight, Exotic Nursery, Chelsea. Oncídium Cebollèti, from Mr. Low, Clapton. Corræ'a Mílneri, from Mr. Glenny. Solànum sp., from Demerara, from J. Batemann, Esq. The following varieties of Camélli*a* japónica, from J. Allnutt, Esq.: — old double white, buff, various-flowered, Wellbánki, imbricàta, ranunculiflòra, althææflòra, Allnútta alba, and another one. A collection of flowers from the Hon. W. H. F. Strangways. Fruit of the cockle pippin apple, from H. Hollist, Esq.

From the Garden of the Society. Flowers. — Gárrya ellíptica, Chimonánthus fràgrans, and f. grandiflòrus; Echevèria gibbiflòra, and the following varieties of Camélli*a* japónica: anemoneflòra álba, althææflòra, various-flowered, variegàta plèna. *Fruit.* — Pears: Easter bergamot, from a wall; Dowler's seedling, from a standard tree. Apples: russet-coated nonpareil, Hubbard's pearmain, Braddick's nonpareil, golden russet nonpareil, Wareham's russet, St. Julien, court pendu plat, winter queening, tulip, true old golden pippin, male carle. This exceedingly delicate and beautiful apple, in Finale, near Genoa, is only here a vapid, pale, and a very poor-flavoured apple: such is the effect of climate!

Articles for Distribution. Cuttings of kinds of cherries: late duke: and bigarreau Napoleon. Kinds of pears: monarch, and beurré Bosc. The late duke

cherry is a fine, large, late, and very abundant bearing sort, with watery flesh: the fruit may be had as late as the middle of August, or, netted on a wall, even later. The bigarreau Napoleon cherry is allowed to be the largest of the bigarreau tribe: it is a very fertile bearer. The monarch pear is a very hardy sort, seemingly as hardy as the hawthorn: the tree has a wild and thorny appearance, but the fruit is excellent. The beurré Bosc pear is as large as the Marie Louise, and in flavour excels it: it ripens rather later than that sort. Seeds of *P*inus nígricans.

Read. A communication on making a selection of kinds of apples for cultivation; by Sir G. S. Mackenzie, Bart. The Meteorological Journal for 1835, kept at the Society's Garden.

Exhibited. Apples of the kinds: Hunt's royal nonpareil, Hunt's Duke of Gloucester, and Newtown pippin, from Thomas Hunt, Esq. Grapes of the kind Escholàta supérba, from G. H. Ward, Esq. Specimens of metallic wire for gardens; also a new sort of wall-nail for the above, from Mr. W. A. Rowland, 20. Prince's Street, Chester. A miscellaneous collection of flowers, from the Hon. T. H. F. Strangways. Strelítz*ia* sp., *C*rìnum amábile, and three kinds of *C*yclamen, from Mrs. Marryat. E*p*acris variábilis and campanulàta, and the Caméll*ia* japónica var. the eclipse, from Mrs. Lawrence.

From the Society's Garden. Chimonánthus fràgrans, and f. grandiflòrus; *H*elléborus odòrus, *C*rìnum amábile, and the following varieties of Caméll*ia* japónica: *a*nemoneflòra álba, *aucubæfòlia*, various-flowered, variegàta plèna, *a*lthææflòra, and Wiltòn*i*. Apples of the kinds Boston russet, table; white Easter, kitchen; French crab, kitchen; green apple: this has considerable resemblance to the preceding, but is different, and has less acidity. Gros Bohn, kitchen; Rhode Island greening, table, kitchen; northern reinette; St. Julien, table; Norfolk beaufin; grey queening; russet nonpareil, table. Pears of the kinds Easter bergamot, poire d'Austrassie, and la fortunée de Parmentier. The last is one of more than a hundred new sorts of pears, which a favourable season would render it possible to judge of the merits of most of. This sort was first noticed in the Revue Horticole, in *Le Bon Jardinier*, 1829, "as having a buttery, melting, delicious flesh, and as keeping until July." It is a great bearer, and may, perhaps, be found, in a different season, to possess merit nearer to that originally announced of it. There is a pear, called the merveille d'hiver, which will, perhaps, be found to be the same.

Cuttings for Distribution, of the Downton cherry, reine Claude, violette plum, nelis d'hiver pear, and Comte de Lamy pear. The Downton cherry is an excellent bearer as a standard, and attains a good size as such. The Comte de Lamy pear is hardy, and, as a standard autumn pear, is to be recommended for its exceedingly rich sugary quality. The fruit of the nelis d'hiver is a handsome middle-sized pear, not so desirable, on acount of this last quality, to the general fruit-grower; but, in private collections, it ought always to be included, as it is richer than even most of the new kinds.

Art. V. *Obituary.*

Died, on October 16. 1835, at Liverpool, in the 30th year of his age, *Mr. Joseph Picken*, of the firm of Caldwell and Picken, Nursery and Seedsmen, Knutsford, Cheshire; a good man, of business habits, and a scientific practical botanist. — *J. G. Greenbank, near Liverpool, January* 26. 1836.

Died lately, at Paris, in the 82d year of his age, *M. Deleuze*, Honorary Librarian at the Garden of Plants. He was well known in the learned world as the translator of Darwin's *Loves of the Plants* and Thomson's *Seasons*, as well as for some original works; and he was the author of a *History of the Introduction of Ornamental Plants into European Gardens*, published in the *Annales du Musée*, from which we have derived some interesting facts, noticed in the historical part of our *Encyclopædias of Gardening*, and *of Arboriculture*.

THE

GARDENER'S MAGAZINE,

APRIL, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Some Account of the Gardens, and State of Gardening, in the North Riding of Yorkshire.* By J. B. W.

I ENTIRELY agree with your highly intelligent correspondent, Scientiæ et Justitiæ Amator (Vol. X. p. 365.), that much valuable information might be acquired by gardeners, if they were occasionally to inspect the gentlemen's gardens in their neighbourhood. Few gardens are so poor that they will not repay the trouble of a visit, by supplying some useful hint, or improved practice, to an acute observer; or making him acquainted with a new or superior variety of fruit, flower, or vegetable; or bringing under his notice one or other of the remarkable variations so often produced on plants by the difference of soil and situation; or, what is, perhaps, of equal importance to a gardener of the present day, by exhibiting something either advisable to follow, or necessary to avoid, in the higher department of his art, landscape-gardening.

The gardener who is confined within his own walls, whether by the illiberality of his employer or his own apathy, generally overrates his own horticultural skill; and, instead of "growing wiser as he grows older," becomes bigoted in his erroneous notions, and prejudiced against any deviation from the beaten track which he has so long followed. It is to freedom of intercourse that we are chiefly indebted for the vast extension of knowledge in the last century; compared with which, its most rapid progress in former ages appears only a snail's pace. In gardening, especially, the modern improvements must, in a great measure, be attributed to this cause, acting through the media of horticultural societies and books. But, in the practical part of the art, seeing, and reflecting upon what we see, are better than reading, and reflecting upon what we read; therefore, so far as it can be done without neglect of duty, a gardener ought to visit, with a view of acquiring knowledge, all the gardens accessible to him.

I do not wish, however, to undervalue the advantages of reading; without it, a gardener must necessarily remain far in the rear of the spirit of the age; and, in the choice of subjects, it is my opinion, that descriptions of, and critical remarks upon, places, such as those occasionally given in this Magazine, are quite as instructive to a learner, as a detailed method of cultivating a particular kind of flower or vegetable. I have derived much gratification and instruction from these descriptions; and, believing that they are alike interesting to other readers, I purpose giving, as opportunity permits, short notices of the gentlemen's residences in my immediate vicinity. But these notices will be almost exclusively confined to the kitchen and flower gardens; for I do not consider myself competent to discuss the more elevated subject of architecture, or to point out, except in a very casual manner, the beauties and defects in the laying out of the grounds.

Perhaps a general view of the leading features of the surrounding district may not be unacceptable, before entering upon the subject of its gardens.

The place where I reside (in the North Riding of Yorkshire) is within a few miles of extensive tracts of hilly and barren ground, called the Moors and, accordingly, the temperature is materially affected, in early spring, by the proximity of the high and bleak lands which bound us on the north and east. Richmond (a most picturesque town on the banks of the river Swale, in the neighbourhood of which are beautiful and very extensive views) stands on the very edge of the Moors; and, although only eight miles north-west of us, is described by a resident as being "a great coat colder in winter." It has been truly remarked, that tourists run from one end of the Continent to the other in search of beauties, which seldom surpass, and, in many cases, do not equal, those contained in our own island. The taste of the present day is too highly refined for the enjoyment of homely beauties; but, should it ever again become fashionable for British gentry to admire British scenery, Richmond and its environs will not be overlooked.

When viewed from a rising ground, the aspect of the country is fertile, because it is well wooded; yet it contains a considerable extent of unproductive land, which, at the present low prices of produce, barely pays the expenses of labour, seed, and taxes. This poor land is distinguished here by the appellation of clay land; which term, however, includes soils of very different textures and qualities, varying from clay so stiff that it is scarcely permeable to water, to a comparatively fertile strong loam. Gravel land is a light sandy loam, upon a substratum of sandy gravel: this land, when plentifully supplied with moisture, is exceedingly productive, and it suffers in a corresponding degree

from drought. The ash is the principal forest tree of the district, except in plantations, and it shows a striking difference in growth in the clay and gravel lands: in the former it generally has a stunted starved look, while in the latter it attains a considerable size. The oak grows best in the deeper soils; but we cannot boast of many fine specimens. The wych elm is much more common than any of the other species; it, however, does not thrive remarkably well. Wood, as an article of fuel, is of very little value here, in consequence of the low price of coals; and, from the same cause, forcing is practised to a greater extent here than in the south, few gentlemen's gardens, however small, being without one or two hot-houses.

The North Riding of Yorkshire abounds in gentlemen's seats, to many of which first-rate gardens are attached: my visits, however, have necessarily been restricted to places within a few miles of me; and of these I may first notice Brough, the residence of William Wright Lawson, Esq.

According to my judgment, the house is worthy of the situation, and the situation of the house; one being badly chosen, and the other as badly designed. Neither is there any redeeming quality in the pleasure-grounds, which are limited in extent, and contain nothing worthy of remark. The flower-garden is merely a long narrow strip on the south side of the kitchen-garden, contiguous to the boundary wall of the latter. An old-fashioned conservatory, and two peach-houses, stand against this wall, the remaining part of which is covered by fruit trees. If a good flower-garden should ever be formed at this place, that now existing would be useful as a reserve-garden; or it is well suited for the cultivation of florists' flowers.

The kitchen-garden is in form a parallelogram, the longest direction of which is from east to west, and it slopes gently from both those points to the middle. A broad gravel walk having a circular basin of water in the centre, and a flower-border with dwarf apple trees on each side, divide the garden into two equal parts. Another main walk runs parallel to the walls quite round the garden, having a border 10 ft. or 12 ft. wide between it and the wall. The inner side of this walk is bordered with a row of dwarf apple trees, pruned and trained like those in the Horticultural Society's Garden; on the north side of the garden, however, where the succession pine-stoves are placed, the walk is bordered on the inside with flowers, and a substantial railing for espaliers. The two great divisions of the garden are again variously subdivided by alleys, and by rows of gooseberry and currant trees, with here and there a young standard apple or pear tree.

At each end of the garden, outside the walls, is a slip: that on the west is under grass, and planted with different sorts of filbert

and nut trees: that on the east is now used partly as a nursery, and partly for growing potatoes; but it is intended to plant there the rhubarb and sea-kale for forcing, that no unsightly litter might disfigure the principal garden. The melon-ground, which also contains the fruiting pine-stove, is on the north side of the garden, close to the stable-yard, and to another yard for the reception of dung, leaves, and rubbish.

I have been somewhat diffuse in describing this garden, because I consider that its form and general arrangements are, with a few exceptions, excellently adapted to convenience of working, and well deserving of imitation where practicable. As to management and cleanliness, I have not seen any kitchen-garden equal to that at Brough: scarcely a weed can be found at any time; and the crops, so far as they depend upon the skill and industry of the gardener (Mr. Burrow), are invariably good. Leaves are used in the pineries as a substitute for bark, and with the best results. As a fermenting material, leaves are much superior to bark, not being liable to those almost ungovernable extremes to which bark is subject. Oak leaves are best, because they resist decomposition longer, perhaps, than any others; but, as oak leaves can seldom be procured alone, a mixture of sorts in which they predominate may be used. Leaves require no sweating, or other preparation; they may be gathered and conveyed directly to the pits: care should be taken, however, that the pit be well drained, and that the leaves are not very wet, or they will soon decay. They should also be trodden firmly and regularly, to prevent uneven settling. Eight or ten inches of bark, according to the depth of the pine-pots, should be spread over the top, which will prevent the too rapid escape of heat from the leaves, and likewise be much better to plunge the pots into. A bed thus formed will retain a nearly uniform temperature for months.

The plan upon which the peach-houses are constructed is superior, in regard to economy of space, to any of those described in the *Encyclopædia of Gardening*, or, so far as I know, in any other work on horticulture. The following description and dimensions are taken from a peach-house on the same general plan as those at Brough, but differing in several details. Length, 32 ft.; width, 16 ft.; height at the back, 12 ft.; height at the front, 4 ft. 6 in. The upright front sashes are hung by hinges to the upper wall-plate, and open outwards at the bottom for the purpose of admitting air. Every alternate upper light is likewise movable in the usual way. The flue enters the house at one end, beneath the back walk, and passes along the front and the other end, 1 ft. from the glass, returning along the house, 3 ft. 6 in. from the back wall, to the place where it entered; it then dips again under the walk, and enters the back wall. The

flue thus encloses a pit 27 ft. long, and 8 ft. 6 in. wide, in which the trees are planted. Between the back flue and the back wall there is another border, in which standard trees are planted: these are trained to a trellis against the back wall. The trellis to which the other trees are trained is nearly horizontal; and it extends over the whole of the house, except 3 ft. of the back border (which, being covered by a framing of boards, serves for a walk), and that part of the flue which passes along the front of the house. This trellis is 3 ft. 6 in. high at the back, and it declines to 2 ft. 6 in. in front.

A vine, pruned on the spur system, is trained beneath each rafter; the shoots are confined within a breadth of 18 in. or 20 in.; consequently, the obstruction of light is not so great as to be very detrimental to the peach trees. A great extent of surface is thus obtained for the training of peach trees, with the advantage of having a crop of grapes without any additional expense. Such houses, however, are ill adapted for very early forcing: when peaches are required earlier than the end of July, one of the houses described in the *Encyclopædia of Gardening* will be much preferable. Another disadvantage is, that, about the time the grapes are setting, and, consequently, require a close warm atmosphere, the peaches will be about stoning, when a free circulation of air is indispensable to them; but this difficulty might be in a great measure overcome by care and attention. It should never be attempted to have very late grapes in a house of this sort.

An orange apricot tree, growing against a building in the kitchen-garden, deserves to be mentioned on account of its great size. Its branches cover a space of 42 ft. by 18 ft.; and, being still full of vigour, it most likely will extend many feet further.

A large chapel is now in the course of erection near the mansion, under the direction of Bonomi.

North Riding, Yorkshire, Dec. 1. 1835.

ART. II. *On the Necessity of young Gardeners studying the Natural System of Botany, and Vegetable Physiology.* By A YOUNG GARDENER.

THOUGH I perfectly agree with the opinion you have so often expressed, as to the utility of gardeners making themselves acquainted with all the different arts and sciences, yet I think you will allow that the first they should study should be those immediately connected with their own profession, and that botany is at least one of the most important, if not of the very greatest importance, of these.

Notwithstanding this, it is a fact, that many young gardeners, who have abundance of time on their hands, rest contented with a partial knowledge of the artificial system of Linnæus; while the natural arrangement of Jussieu is almost, if not entirely, unknown to them. I do not wish to undervalue the Linnæan system, nor have I any desire to take from it one of those many laurels it has so justly won; but it must be acknowledged, that, by following it, we may acquire the names of a great number of plants, and at the same time be entire strangers to their properties. A notion that there is so much difficulty connected with a natural arrangement of plants, appears to deter many from giving the subject anything like due consideration. That the classification of Linnæus is more simple, and much easier understood, than the natural orders, no one will deny; but the latter are by no means so difficult as to deter any from becoming acquainted with them. I think, however, that the student, before he attempts the study of the natural arrangement of plants, ought, if possible, to make himself acquainted with vegetable physiology, as he would then have a knowledge of the fundamental principles on which such arrangements are founded.

Without such knowledge, many, on the very outset, being puzzled with such words as Vasculàres and Cellulàres, or acotyledonous, monocotyledonous, and dicotyledonous, give up the study, and can never afterwards be induced to return to it. To remove some of the difficulties which discourage young botanists at the commencement of their study, is certainly an object worthy of some attention; for, if it were not for the first obstacles, they would prosecute the study with pleasure; and if you, or any of your correspondents, would introduce the subject in the form of a few plain remarks in your Magazine, from its wide circulation, and the number of young gardeners who peruse it, I have no doubt it would be more useful than all the expensive volumes which have been written on the subject. The most superficial observer must notice the striking resemblance which certain plants bear to others of a different kind; and that they have a tendency to unite and form groups, or families; but no such grouping can be considered as truly natural, any farther than the true species of a genus. Nature has not chosen to mark so distinctly the different classes or orders of her works. In the *Filices* we see a connecting link between the Acotylédones and Monocotylédones; and these, again, are gradually united by many other genera to the Dicotylédones. Even in the different orders of these divisions we behold a union pervading the whole, like the different counties in a kingdom: they are not only united by one particular part, but all around. In short, from the majestic tree of the forest, down to the humble moss or lichen which grows upon its surface; throughout the whole of nature, not only in the vegetable,

but in the animal kingdom, from the dead and inorganised substance, to the most perfect of beings; we see a continued chain, which reaches from the earth to the skies: the only place where we can with certainty draw a line of division, is between the creature and his great Creator.

Mid-Lothian, March 6. 1835.

In Dr. Lindley's *Ladies' Botany*, and Mr. Main's *Vegetable Physiology*, and, when these have been thoroughly mastered, in Lindley's *Introduction and Key*, our correspondent will find every thing which he requires. To treat of the natural system of botany at length, in the *Gardener's Magazine*, would occupy far too much space; and, given, as it must necessarily be, in detached portions through many Numbers, would only be of real use after the whole was finished; by which time, probably, the "Young Gardener" would be engaged to fill a place, and no longer possessed of sufficient leisure to be able to devote that degree of attention to the subject which it requires. — *Cond.*

Art. III. *A new Method of grafting, or rather budding, Vines.* By Mr. George M'Leish.

I beg to submit to your readers a method of grafting, or rather of budding, vines, which I was led to adopt merely from my own ideas of vegetable physiology, and which, I feel confident, will always be attended with success. I am not aware that the method is at all known; at least, I have never heard of it, and to me, at least, it is quite original. The well-known method of detatched grafting I had tried repeatedly, but without success; and, in endeavouring to trace the cause of this failure, I remembered having seen two new vine-houses, which, under the management of several most distinguished gardeners, had for a series of years been partially accelerated, for the important purpose of furnishing abundance of bearing wood; and such was the failure in both these instances, that, as a last resource, the vines in one of the houses were cut down to the parapet every second year. In this place, the gardener was changed five times in as many years; but, when the fifth made his *entrée*, he was accompanied by a most auspicious companion, *success*. In the other place, the gardeners were not more successful: the buds broke so irregularly, that only two, or at most three, eyes at the top of the vines appeared with sufficient strength to render their retention tolerable; while the rest of the shoots downwards were as bare as a barber's pole. In both the instances alluded to, I readily perceived that there was a great want of humidity in the atmosphere, and, also, that

there was a very rich deep border. Although, in my endeavours to graft with detached scions, I had taken care to keep up a very damp atmosphere, still my attempts proved abortive: to a gardener who knows that a single bud, when immersed an inch in any tolerable soil, will not fail, under ordinary care, to become a plant; or, that a cutting of young wood, when in full leaf, put in a heap of fermenting tan, and shaded, will also root freely; the failure of detached scions, even when grafted in a masterly manner, will certainly appear paradoxical. Knowing that the same kind of sap which, when put in motion, causes the emission of roots in the cutting, produces also the union between the stock and scion in grafting, I was led to put the question to myself, whether a single bud, inserted in the stock, and enveloped with any light mould that may keep moderately moist, would not effect the desired union? To enable myself to give a decisive answer to this question, I took a small black Hamburgh vine, which had grown for a year or two in a pot, the stem of which did not exceed $\frac{4}{10}$ of an inch in diameter, from which I excised two pieces of the extent of half their diameters (see *fig.* 15.). I then took two shoots from vines growing out of doors, from which I selected the buds (*a* and *b*); first cutting quite across the shoots, and afterwards slipping them longitudinally, reserving nearly all the pith to the part containing the bud; except the two extremities, which I cut away till the bark of the stock and scion came nicely in contact. I then bandaged them tightly together in the usual manner, only leaving the buds uncovered by the ligature. I next fitted a small flower-pot (size No. 60.) round the grafts, which I filled with the mould of an old cucumber bed: this was done about the beginning of November, and about a month afterwards the vine was plunged in a mild heat. The buds of the vine soon broke; and, in about three weeks afterwards, the buds from the scions were seen emerging from the mould in the pots. The bud *a* is now about 4 in. above the mould; and the other, as might be expected about half that distance. I may mention that I have suffered strong shoots to issue from the stock above the scions; so that, if

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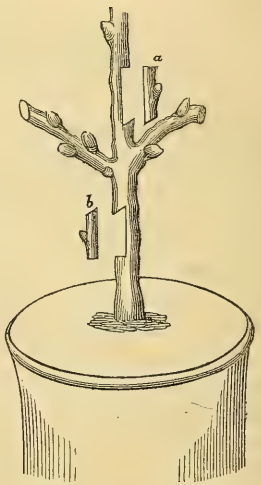


the scions had been suffered to draw the nourishment furnished by the stock, they would probably have extended upwards of 1 ft. in length. Should you think the above hints worth your notice, I have no doubt they may prove acceptable to some of your readers; and, if so, they are voluntarily, though hastily, tendered.

Ville parmi les Collines, Jan. 21. 1836.

ART. IV. *On the Use of Slate for horticultural Purposes.* By W. B.

THE introduction of slate for horticultural uses well deserves the encouragement it meets with. It can, indeed, scarcely be too highly recommended, from its almost imperishable nature, the facility afforded by the sawing machinery of cutting it into plates suitable for nearly all the various purposes to which wood is generally applied, and its cheapness, arising from the increased quantity now sent into the market, through the enlargement of the quarries which has taken place since the repeal of the duty.

The slate tubs for orangeries, conservatories, and the decoration of lawns and walks, lately exhibited at the gardens of the London Horticultural Society at Chiswick, by Messrs. North and Co. of Palace New Road, Lambeth, (the introducers and manufacturers of the slate billiard tables,) led me to examine into their merits. The appearance of their shape and colour, when seen upon a lawn, or amongst foliage, is very pleasing and ornamental; and a decided improvement has been made in their form, each side being now made to take off, instead of to slide up, which is much less likely to injure the fibrils of the roots. These slate tubs have been seen and approved of by Mr. Aiton and Mr. Munro; and they can now be sold much cheaper than when they were exhibited last summer at Chiswick; Messrs. North and Co. having discovered, since that period, a much quicker method of manufacturing them. One of the first employers of slate for horticultural purposes, since the repeal of the duty, was William Harrison, Esq., F.R.S., H.S., &c., who has fitted up his conservatory at Cheshunt with it: the pavement, shelves, and stages are all of slate, and have a very neat and elegant appearance. Mr. Low of Clapton, and Messrs Rollison of Tooting, have also used it in their houses, and much approve of it.

A terrace, with steps, coping, and balconies, has been made of slate, under the direction of Lady Farnborough, at Bromley Hill, which keeps perfectly free from moss or stains without any

cleaning, although it is situated under the drip of trees. In this instance, the slate was rubbed down with coarse grit, to give it a porous face, and was afterwards painted of a stone colour; which, when flatted (that is, the last coat of paint given, mixed with turpentine alone, without oil, to avoid the shining appearance of oil paint), strongly resembles stone.

For the lining of reservoirs, fish-ponds, and canals, slate might be advantageously used, as, from experiments now in progress, it appears to answer satisfactorily; and does not exceed the cost of other materials in use, that are not so well adapted for such purposes as slate.

The repeal of the duty on slate has caused a great increase of the supply afforded; thereby assisting the shipping interests, giving increased employment at the quarries, and affording the manufacturers of slate occupation, during the winter months, at such works as may be made within doors.

Tables for public-houses, tea-gardens, bowling-greens, &c.; and shelves in bars, kitchens, and pantries, and even book-shelves, might be made of slate; more especially where the object is to render the building, as far as practicable, fire-proof.

The engraving (*fig.* 16.) represents two orange tubs made of slate; and a variety of designs, for other objects, may be seen at the manufactory of Messrs. North.

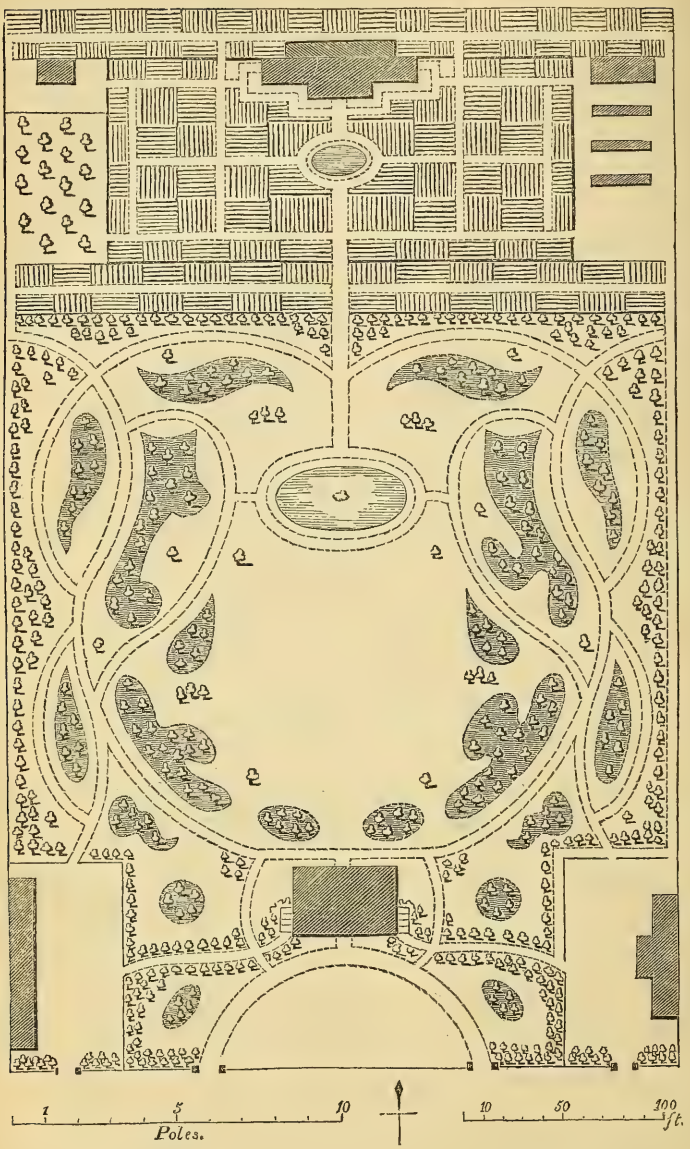
London, March 2. 1836.

ART. V. *Design for laying out the Grounds of a Villa of Four Acres in Extent.* By Mr. T. RUTGER.

THE design (*fig.* 17.) is for a villa and pleasure-grounds, comprised in about four acres of land. It consists of the house and its approach, with the stables and yard on the right, and on the left a yard to be appropriated for laundry, poultry court, &c., as may be required; a shrubbery-garden on the north, with a pond and fountain; beyond which is the kitchen-garden, with slips on the north and south, and a small range of forcing-houses: on the left is the gardener's house, and a small orchard; and, on the right, the melon-ground, with a shed at the back. There is a walk, or road, behind the shrubbery, from the stables to the melon-ground, which may serve, also, as a back way from the garden to the house; and an arbour or two, with garden-seats and vases, &c., for embellishment, may be introduced in the garden or pleasure-grounds, according to the taste of the person employed to lay it out.

63. *Portland Place, April* 30. 1835.

17



ART. VI. *A Series of Designs for laying out and planting Flower-Gardens, with Remarks on each by the* CONDUCTOR. Design 5. By A COUNTRY-BRED GARDENER.

OUR readers, by turning to Vol. XI. p. 449., or to Vol. VII. p. 726. 727., will be reminded of the intention of this series of designs, for correcting a bad plan of a flower-garden. The one now before us (*fig.* 18.) was accompanied by the following remarks:—

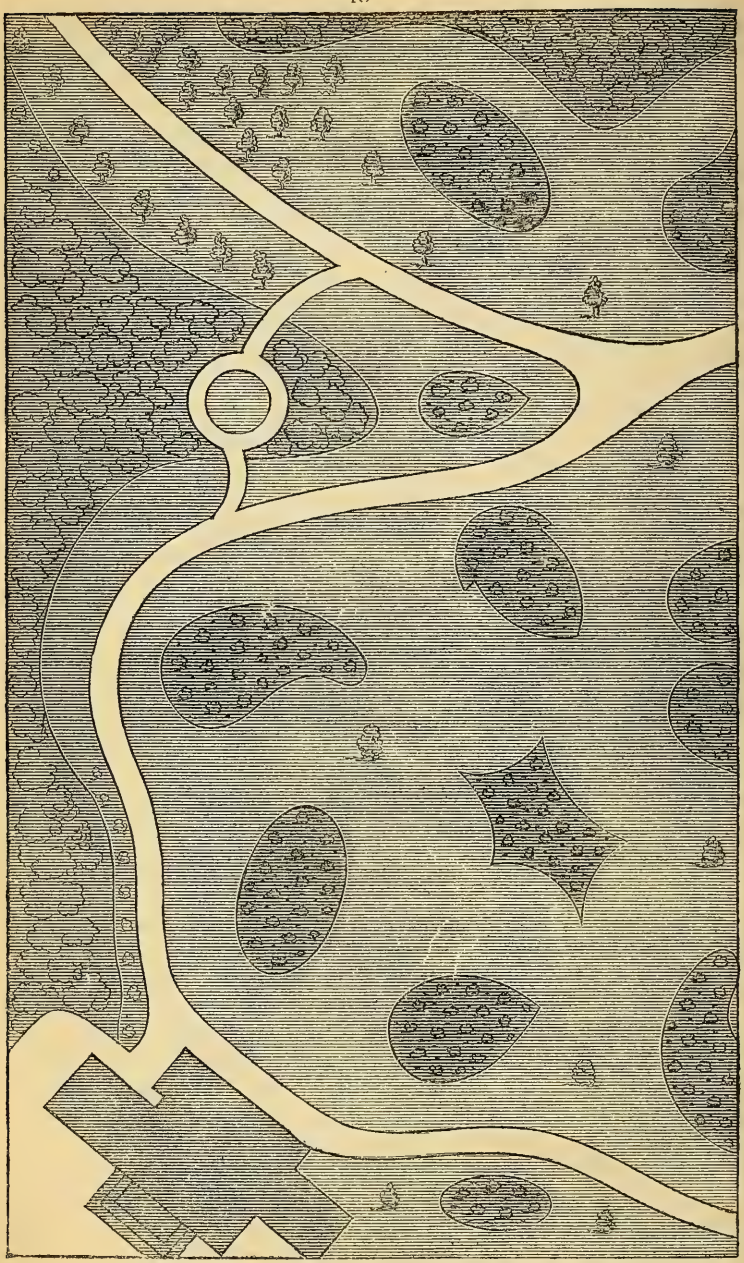
"Sir, Having seen your plan of a flower-garden, published in Vol. VII. p. 726. and 727., as an exercise for the talents of young gardeners in laying out grounds, I beg leave to submit the design (*fig.* 18.) for your inspection; but I am rather doubtful whether it will meet your approbation, as I have seen, in one of your former Numbers, objections made by you as to dispersing the beds regularly over the surface; though that, I think, depends a great deal on the taste of the gentleman or lady that may be going to make a garden. Towards the upper left-hand corner, I have introduced a narrower walk, to go in at one side, and round what seems to be an ornamental tree or shrub, and out at the other side: this walk may be admitted, or not, as may be thought most agreeable. My humble opinion of the original is, that the walks are very well; but the beds next the house, and, again, at the farther end from the house, are too much in a line; some of them too close together, and too many of them of one shape.

"A COUNTRY-BRED GARDENER.

"*April* 28. 1832."

The plan of A Country-bred Gardener, we regret to say, has many faults, and but few beauties. As the plan has been in our possession four years, if the author of it has been a reader of the *Gardener's Magazine* during that period, we have no doubt the faults will now appear almost as obvious to him as they do to us. To point them out in detail would be to repeat much of what we have said on former occasions: suffice it to say, that there is a total want of connexion in the position of the beds relatively to one another, and to the walks; a total want of expression and character, because the beds are in no degree grouped; and a want of harmony in the forms of the beds, because some of them are of the most artificial, or, in other words, geometrical, shapes, and others of shapes which may be called natural or accidental: the whole shows a want of artist-like feeling, and of knowledge of composition.—*Cond.*

18



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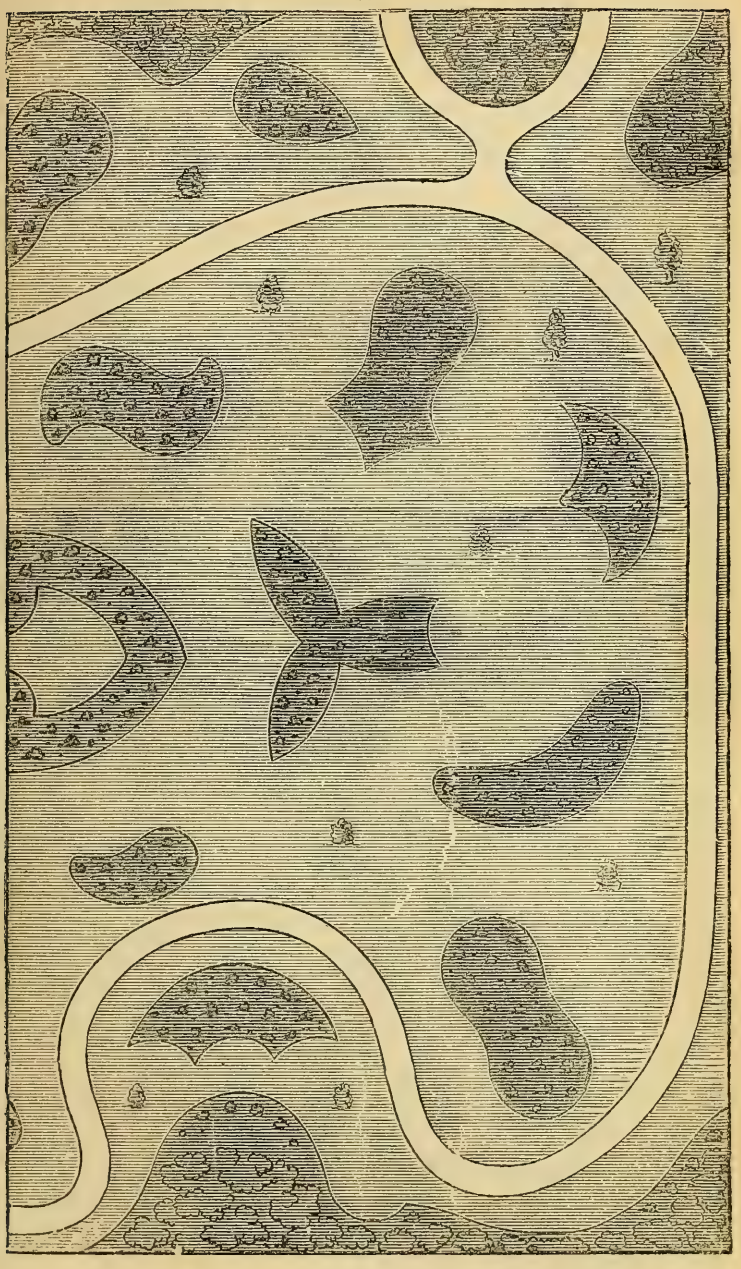
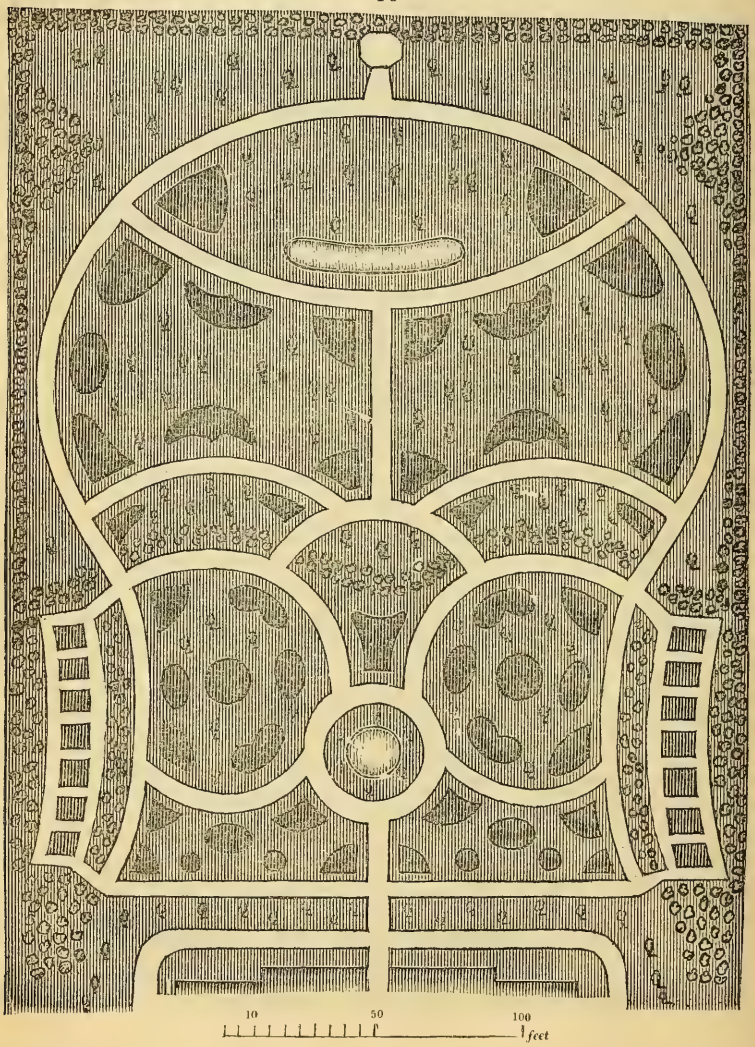


ART. VII. *A Design for laying out a Piece of Ground in Front of a Villa Residence, as a Flower-Garden and Arboretum.* By Mr. T. RUTGER.

THE accompanying plan (*fig.* 19.) is intended to be placed at the south of a villa residence, the principal front of which may be supposed to look to the east; with a conservatory on the south of about 80 ft. in length, projecting from the building, from the centre of which you enter the flower-garden, which is sepa-

19



rated by a thick hedge, or by shrubs closely planted, from the shrubbery or arboretum. If an arboretum, the water at the end of the straight walk is intended for an aquarium; if a shrubbery, it may be turned into a pond. The side wings of the flower-garden are intended for children's gardens; or they may be appropriated for florist's flowers.

ART. VIII. *On a Method of making elastic Walks for Gardens.* By Mr. PETER MACKENZIE.

MANY things have been invented to render the body of man easy and comfortable; and, of these, the improvements which derive their advantages from elasticity appear to be preferred: the Indian-rubber shoes, and the water-proof elastic hats, I think, are proofs of this. The object of this paper is to carry the employment of elasticity a little farther, and to introduce it into gardening, if it is not already in use. Among the various methods of making walks pointed out in your *Encyclopædia of Gardening*, I can find none that accord exactly with those that I would recommend in this paper; namely, *elastic walks*. Their object is to add pleasure to the flower-garden; for in many gardens the walks are of such a nature, that one would almost think they were intended to make the persons walking on them do penance in the temple of Flora, instead of affording ease and pleasure while contemplating the cultivated beauties of the vegetable kingdom; but, I believe, if the plan be adopted which I shall presently recommend, the fairest flowers of creation will linger with delight among the ambrosial sweets of the flower-garden, and walk with as much softness and comfort as if on a Brussels carpet.

The method I would recommend to make elastic walks is this:— Remove the earth 1 ft. deep; and, if found necessary to have a drain, make it in the centre or side of the walk. After the drain is finished, fill the bottom of the walk with small stones to the depth of 3 in. or 4 in.; then fill up the remaining 8 in. with flow-peat, or decomposed moss (*Sphágnum*). This kind of peat is light and spongy, it resists putrefaction, and remains longer unimpaired in its form, than any other kind of peat. After it is put into the cradle of the walk, it must be levelled with the spade, and trodden upon with the feet, so that no inequalities may appear on the surface: afterwards the roller should be brought over it. After this treatment, it will become more compact, and will have sunk a little: this will allow room for 2 in. or 3 in. of fine engine ashes to be laid above it. The ashes that have undergone two burnings are the best for colour, having a close resemblance to gravel. After distributing the ashes

equally over the surface of the peat with a rake, they must be rolled over and over, until they form a kind of cake above the peat, and then the walk is finished. It may be thought that walks of this nature will be damp, but I have always found them as dry as those that are made with stones and gravel; and they are strong enough for all the ordinary wheeling that is required in the flower-garden. I have no doubt that the valetudinarian would derive great comfort from such walks; and if they tend to make the flower-garden a greater source of pleasure, I shall have gained my object.

West Plean, Jan. 1. 1835.

ART. IX. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Maund's Botanic Garden, or Magazine of Hardy Flower Plants cultivated in Great Britain; in monthly numbers, each containing four coloured figures; large paper 1*s.* 6*d.*, small 1*s.* Edited by B. Maund, F.L.S.

Rosàceæ.

1522. *RO'SA L.* 13429 centifòlia *L.* [1833? L B r.m Bot. mag. t. 3475
var. ? *muscòsa Mil.* subvar.* *cristàta Hook.* crested-*calyxed* ✿ or 3 jn.jl Pk France

A subvariety of the moss rose, obtained from France, and curious from the manner in which the moss springs in tufts from the edges of its sepals. In a note by Mr. Curtis, he says, "Its beauty and variety will, I hope, plead an excuse for a departure from the rule against figuring varieties in this work." (*Bot. Mag.*)

Myrtàceæ.

2180. TRISTA'NIA *R. Br.*
†19647 macrophýlla *All. Cunn. MSS.*
Synonyme: Tristània *laúrina R. Br., Hort. Brit.* 19647., Bot. reg. t. 1839.

In its native country (the sandy southern shores of Moreton Bay, New South Wales (S. lat. 27° 30′), Mr. Cunningham states that it becomes a tree 50 ft. or 60 ft. high. The plant figured

had been kept in a green-house for some years, and flowered when it was 4 ft. high. (*Bot. Reg.*, t. 1839.)

Compósitæ, suborder *Heliánthcæ*.

2415. COREO'PSIS [mag. t. 3474
*22001*a* diversifòlia *Hook.* various-leaved ○ or 2 jl Br O Br Texas 1825 S co Bot.
Synonyme : C. auriculàta var. diversifòlia *Elliott, Carol.* vol. ii. p. 437.

"Sent from Texas by the late Mr. Drummond, who was much struck with its beauty, and who gathered it not only upon the coast of Brazosia, but in the interior of the country round San Felipe. It promises to be a hardy and most desirable annual. Its nearest affinity, as a species, is, undoubtedly, with *C. auriculàta*, with which Mr. Elliott appears, though doubtfully, to have united it. It differs from that plant in its much smaller size; thinner and usually more divided leaves, with broader and blunter segments; in its much larger flowers; and, above all, in the truly annual duration of the root." (*Bot. Mag.*, t. 3474.)

2418. CALLIO'PSIS *Rchb.*
†22016. tinctòria *Nut.* [gard. t. 533
var. 2 *atrosanguínea *Maund* ○ or 3 jl.o Dk Bd N. America 1823 s co Maund's bot.

This is a very distinct variety, and much better entitled to be considered a species than many varieties that are so designated. When we consider how different this plant is from C. tinctòria, as it was when introduced in 1823, how different the dark-flowered variety of the common nasturtium is from the species; and also that white foxgloves (Digitàlis purpùrea var. álba) and white wood hyacinths (*Scílla* non scrípta var. álba) are frequent in a wild state, we cannot help thinking that nine tenths of what are now recorded as species by botanists are, probably, nothing more than varieties. We shall be told, perhaps, that there is a wide difference between plants in a wild state, and plants in culture, and also between the nature of herbaceous plants, and that of ligneous plants; but we think we are entitled to deny this: the nature of all plants is essentially the same, and the question between an annual, a perennial, or a tree that does not flower, perhaps, till it has attained the age of a quarter of a century, as to sporting into varieties, is merely one of time. As to culture, the difference, at first sight, appears greater; and we admit it to be great in plants of a very limited range of latitude and altitude: but take a plant of a very extensive range, whether an herb or a tree, and we shall find it in something analogous to a state of culture in those localities where there is a maximum of favourable circumstances. We should say, for example, that the *Quércus Róbur* was nearly equivalent to being in a state of culture in Sussex, and the Robín*ia* Pseùd-*Acàcia* in Limestone Valley in Virginia; and both these species to be in a comparatively uncultivated state, the one on the mountains in the Highlands of Scotland, and the other in Pennsylvania in lat. 40° 20′. Accordingly, we find a very great difference, both in the appear-

ance of the trees, and in the quality of the timber, in these two habitats; and hence the varieties *Q. Róbur* sessiliflòra and Robínia Pseùd-*Acàcia* macrophýlla. In like manner, in the case of herbaceous plants, on the alluvial banks of rivers, many are found comparatively in a state of cultivation; and, consequently, so luxuriant as to appear like different species. We throw out these ideas chiefly to direct the attention of our readers to the subject of species and varieties; not that we by any means undervalue the latter, and would not wish them kept distinct whenever they are truly so, as in the case before us.

To return to this very beautiful variety of Coreópsis, Mr. Maund judiciously observes, that, if plants of it, and of the common variety, be mingled together, and seeds gathered from them, their distinctions will soon be lost: so will seeds of the golden pippin apple if the tree has been grown in a garden along with other apple trees; but let it be grown alone, and we will venture to assert that plants raised from seeds will come as true as in the case of the plant before us.

Scrophulariàceæ.

1717. PENTSTE'MON
* Murrayànus Hook. (In honour of the skilful curator of the Glasgow Botanic Garden, who has been the means of rearing so many of Mr. Drummond's plants, and to whose undeviating kindness and friendship that naturalist was greatly indebted for much of the success that attended his exertions.) Murray's *scarlet* ♃ △ or 3 aut. S San Felipe 1835 S D p.l Bot. mag. 3472

"A native of San Felipe, in Texas: discovered by Mr. Drummond, in 1834, and by him sent to our gardens, where it promises to be a very great acquisition, being remarkable for its stately growth, its singularly glaucous and large foliage, and the number, and size, and" scarlet colour "of the flowers. The seeds arrived rather late in the spring of 1835; so that, in the Glasgow Botanic Garden, the autumn advanced rapidly upon us before the blossoms were generally expanded.... It will probably prove a quite hardy herbaceous perennial." (*Bot. Mag.*, t. 3472.)

Amaryllàceæ.

974. ZEPHYRA'NTHES *Herb.* [Sw. fl.-gard. 2 s. t. 328
*8022*a* Drummóndi D. Don Drummond's ☿ △| or 1½ jl W tinged with Pk Texas 1835 O. r.m

An elegant bulbous plant, found in the Texas by the late Mr. Thomas Drummond, to whose memory it has been dedicated by Professor Don. It is said to be nearly related to Z. verecúnda, but to be "essentially distinguished from it by its larger size, much larger tube of its perianthium, and broader leaves." (*Swt. Flow.-Gard.*, t. 328.)

933. *NARCI'SSUS* § Corbulària
*7583*a* conspícuus *D. Don* conspicuous-*flowered* ☿ △ or ½ my Y ... ... O. Sw. fl.-gar. 2 s. t. 236.
Synonyme: Corbulària conspícua *Haworth, Monog. Narciss.* p. i.

This species, or variety, for we believe it to be nothing else, which comes near to *N.* túrgidus (*Swt. Flow.-Gard.*, t. 164.), is the most showy of the hoop petticoat division of the *N*arcíssi. Professor Don says, "We cannot take upon ourselves to say that these forms are entitled to be ranked as distinct species; but

they were so regarded by our late valued friends Mr. Haworth and Mr. Sweet, who had both devoted much attention to the subject of this difficult genus, and to whose opinions we willingly submit in such matters." (*Swt. Flow.-Gard.*, 2 s. t. 326.) In our opinion, both Mr. Haworth and Mr. Sweet carried the making of species to a most absurd extreme; and we need only refer in proof of this to the *Narciss. Monog.* of the former, and the *Geraniaceæ* of the latter. It is, we should think, the duty of professors like Mr. Don and Dr. Lindley, not to "willingly submit" to such authorities, but to examine into the merits of the case, and then to form an independent opinion of their own. Unless this be done by every succeeding botanist, the science of systematic botany, instead of making progress, will become little better than a useless assemblage of names.

REVIEWS.

ART. I. *Royle's Illustrations of the Botany and other Branches of the Natural History of the Himalayan Mountains, and of the Flora of Cashmere, &c.* Part V., containing from p. 137. to 176. of the Illustrations of the Natural Orders; with nine beautifully coloured plates of plants, and one plate of fossil bones, teeth, and shells. Folio. London, 1835. 20*s*.

(*Continued from* Vol. XI. p. 202.)

THERE are doubtless numerous species of *Vitis* and Ampelópsis, not yet introduced into Britain, which would stand the open air as well as the species which we already have, and thus add to the variety of our climbers.

Geraniàceæ. — Several species of Gerànium and Eròdium are found in the Himalayas. Mr. Royle has named a very beautiful species of Gerànium, *G.* Lindley*ànum*, after his friend Dr. Lindley, from whom he acknowledges having received great assistance during the progress of his work.

Balsamineæ. — This is an Indian order, there being no fewer than forty-seven species of the Impàtiens enumerated by Dr. Wallich. I. glandulífera is a gigantic plant, which is cultivated in Nepal, in the botanic garden at Saharunpore, and in the Mussooree Experimental Nursery. As all the species of Impàtiens are annuals, there can be no doubt that the tender kinds would flower in the open air in Britain, as well as the common balsam.

Oxalideæ. — Four genera are indigenous in India. *O*'xalis corniculàta is found in Europe, North America, Mexico, Japan, the plains of India, the Himalayas, and some of the African islands.

" The different species of Oxalis are well known to contain oxalic acid, combined with potass. O. Acetosella, called in England wood sorrel, well

known for its acid leaves, and as a substitute for Rumex Acetosella, is represented in India by O. corniculata, which is there called *chooka tipputtee*, or three-leaved sorrel, and prescribed as a cooling medicine. The roots of Oxalis tuberosa are eaten in Chili, when cooked. Those of O. crenata, a plant of Columbia, bearing tubers like small potatoes, is one of those called arracacha, and has been introduced into England as a substitute for that invaluable root. It might be so into India, and be useful wherever the soil and climate are better suited to it than to the potato."

Zygophýlleæ. — The most important species of this family is *Guaíacum* officinàle, celebrated for its sudorific properties; it is found in the West Indies, and might be cultivated in Bengal.

Rutàceæ. — *Rùta* albiflòra is common in the Himalayas, at elevations of from 5000 ft. to 8000 ft., and would possibly stand the open air in Britain as well as the common rue. This last plant, in dry calcareous soils which are somewhat rich, forms one of the most beautiful of evergreen shrubs, attaining a height of 6 ft. or 8 ft.; as may be seen in the gardens in some of the old chalk pits in the neighbourhood of Greenhithe in Kent.

Diósmeæ. — Diósma altàica is found in the Himalayas, and also *D*ictámnus himalayànus.

Xanthoxýleæ. — The genus Xanthóxylum is overspread in different parts of its substance with vesicles of essential oil, which cover the leaves with transparent dots. This oil is the cause of the aromatic pungency of the different species of this genus; and hence, in India, the capsules and seeds of X. hóstile are employed for intoxicating fish, and are chewed as a remedy for the toothach. Different species of Xanthóxylum, *Teddàlia*, and Brûce*a* are found in the Himalayas, and would probably stand in the open air in Britain.

Simarubàceæ. — In the Himalayas this order is represented by *Nima* quass*iöìdes;* but, as it grows only in moderate elevations, it may probably not stand the open air in Britain. The Himalayas support an Indian flora at their base and within their valleys: European as we ascend; and "almost polar on the summits of their lofty mountains, which only for a few months in the year are freed from their covering of snow." Under this order Mr. Royle has introduced an interesting comparison of the flora of the north of India with that of Egypt; pointing out what useful plants might be supplied by the former country to the latter, and what from Europe to both. He observes, in a note, that "the present intelligent ruler of Egypt, when lately sending an unlimited order for plants to be sent to him from England, particularly specified the useful plants of India." (p. 162.) Our friend, the Bey Galloway, the pacha of Egypt's chief engineer, who is now (Feb. 1835) in London, informs us that the teak tree grows vigorously in the government garden at Grand Cairo, under the direction of Mr. Trail, an Englishman, with whom we expect soon to be in cor-

respondence. In concluding the remarks referred to, Mr. Royle observes: —

"The extent to which the acclimatation of plants may be carried, or the benefit which may be derived, it is at present difficult to conceive; for not many years have elapsed since true principles have, even in England, been applied to the subject, where, as my friend Dr. Graham expresses it, 'every rare plant was supposed to require heat;' and now the gardens and shrubberies are adorned with the richest varieties, and all intelligent cultivators seek for plants from congenial climates. India, open by sea to the productions of South America, has already possessed herself of such as the guava, custard-apple, pine-apple, tobacco, maize, capsicum, and others, which appear as much at home as its native productions: but the difficulty of communication on the north, and the nature of the countries and people which intervene, are sufficient to account for the few productions of the Oriental region which have travelled southward. It is fortunate that the Honourable Company's Botanic Garden at Saharunpore, with a nursery in the hills, is so favourably situated for carrying on the experiments necessary for the acclimatation of the useful plants of this region; which, no doubt, the present zealous superintendant, Dr. Falconer, will carry into execution, as the means are afforded or opportunities offer. Such experiments, though they can be extensively or beneficially carried on only when the climate and natural products of a country have been ascertained, are well calculated to convince those who, unacquainted with a subject, are yet inclined to question its utility; and, though incapable of appreciating the worth of the information obtained, or the truth or error of the inferences deduced, yet consider themselves fully qualified to pronounce upon their value. But the botanist, contemplating his science in all the bearings with which modern improvements have invested it, in examining the peculiarities of a new vegetation, ascertains also what it is capable of yielding useful to man, either as diet, in medicine, or in the arts; and, connecting structure with the climate in which it is found, infers, with almost unerring certainty, for what useful productions of other countries it is particularly adapted; and has thus the gratification of contributing at once towards the perfecting of his science, and pointing to the means for improving the resources of the country for the benefit of which his investigations are, in the first instance, especially intended."

Coriarièæ. — There are some species of *Coriarièæ* found at from 5000 ft. to 7000 ft. of elevation, which would probably endure the open air in England. The fruit of the Indian species is eaten on the hills, while that of the European is considered poisonous, fifteen French soldiers having died by eating this fruit in Catalonia. *C. myrtifòlia*, rich in tannin, is used in Europe for staining black; and the leaves, in France, have been employed to adulterate senna leaves, and have produced fatal consequences.

All the orders hitherto treated of by Mr. Royle belong to the subclass Thalamiflòræ; the next subclass is Calyciflòræ.

Celastríneæ. — A number of species of *Euónymus* are found in the Himalayas; some, as *E. Hamiltoniànus*, have already been introduced into England, and stand the open air, as will, doubtless, all the others. It may be laid down, we think, as a general principle, that when we find one or two species of a genus decidedly hardy, all the other species that truly belong to that genus will be hardy also. There are, doubtless, at present

many apparent, and, perhaps, some real, exceptions; but most of these, we think, arise from species being assigned to genera which ought to be separated from them, and form genera of themselves. Time, and the vigorous prosecution of the study of the affinities of plants, which is now going on among botanists, will determine this. If unity of organic structure be necessary to constitute unity of family, it is difficult to conceive how there should be any great diversity of constitution in that family.

There is a species of *I*lex (*I*lex dipyrèna), common in the Himalayas, which bears a very great resemblance to the British holly, especially when covered with its clusters of scarlet berries in November and December. Mr. Royle also mentions *I.* excélsior and *I.* serràta, both "lofty species." Would that we had them here!

"Of the Ilicineæ, the holly is well known to be employed for making bird-lime, as some of the figs are in India; and the genus is remarkable for containing the Ilex paraguaiensis, or maté tree, which produces the famous Paraguay tea, now an article of considerable South American commerce, for which, if it were thought desirable, a suitable locality might no doubt be found within the Indian territories. The Ilex vomitoria is considered to be tonic, inebriating, and, in larger doses, emetic; while Prinos verticillatus is accounted, in North America, a powerful febrifuge."

R*hámneæ* "are found in almost every part of the globe within the temperate and equinoctial zones; and the different genera affect respectively cool and warm situations." Zizyphus is a tender genus. Ceanòthus formerly contained tender and hardy plants; but the former have lately been separated from it. Of this genus there are two Nepal species. Hovè*nia* dúlcis is found at 6500 ft. of elevation. Several species of *R*hámnus and of *P*aliùrus are natives of the Himalayas, and there can be no doubt but they would bear the open air in Britain.

T*erebinthàceæ*. — The mango thrives as high as 4000 ft. on the Himalaya range; but does not ripen its fruit. *Sàbia*, a new genus found in Nepal, grows at a considerable elevation in the mountains; and there are severals pecies of *R*hús which are very common there. All of these, no doubt, would grow in the open air in England.

The plates which accompany this work are most beautifully engraved and coloured. We cannot close the book without expressing our ardent wish that botanic gardens were formed in all countries, for the mutual exchange of seeds and plants. As the mass of society becomes more and more enlightened, the people will force this subject on the attention of their respective governments. Half the money now thrown away on *pro forma* ambassadors would establish and support botanic gardens all over the world; and the other half would be quite sufficient to pay working ambassadors, who would do the duties required of the office much better than the present ones, with very few exceptions.

ART. II. *A Tour through North America, together with a Comprehensive View of the Canadas and the United States, as adapted for Agricultural Emigration.* By Patrick Shirreff, Farmer, Mungoswells, East Lothian. 8vo. Edinburgh, 1835.

(*Continued from* Vol. XI. p. 199.)

THE following remarks will account for the state in which Hyde Park is kept, and for the general inattention to neatness throughout America: —

"The progress of a people in refinement and taste, manifested in a combination of nature and art, is commonly the work of time, and the decoration of grounds an unproductive investment of capital. Thus, the residences of England, having descended for ages in the same line, without the power of possessors changing their destination, may be said to represent the accumulated savings, labours, and tastes of many generations. In America the country has not been long possessed by the present owners, and property does not necessarily descend in the same line; and if to these causes be added the high price of labour and the scarcity of capital, the state of the residences will be sufficiently accounted for. Dr. Hosack has great merit in what he has accomplished, but it is mockery to compare his grounds, in point of embellishments, with the fine places in Britain, which have originated in circumstances which America is not likely soon to experience.

"Throughout the whole of my transatlantic tour, the inhabitants of the country manifested perfect indifference to the beauties of nature. It was rarely I could learn the name of a plant, with the exception of trees. Nurserymen, seedsmen, and farmers were, generally, unacquainted with varieties, and, with the exception of two or three individuals, no one seemed interested in the matter. Rhododendrons grow as plentifully in many parts of the eastern states as furze in Britain; yet I saw vast numbers of this plant shipping at Liverpool for Philadelphia, although millions of the same variety could have been obtained for the trouble of lifting, at no great distance from the city. Gardens and nurseries were overrun with weeds, and did not display beauty either in decoration or arrangement.

"The French Canadians, of the ordinary classes, almost invariably live in block houses, with large windows, that seem ill constructed, externally and internally, for economising heat, which the nature of the climate and scarcity of fuel render so desirable. They have a clean appearance, being often white-washed with lime; and the window-boards and roofs are occasionally painted of different colours, and seldom harmonise with the house. A tree or shrub is never found in their gardens, and an orchard, except in the neighbourhood of the mountains, is almost unknown.

"Colonel Talbot's residence, near St. Thomas, on Lake Erie, in Canada, may be described as a cluster of mean wooden buildings, consisting of dwelling-houses, stables, barns, pigsties, and cattle sheds, constructed and placed seemingly without regard either to convenience or effect, commanding a view of Lake Erie, from which it is distant about 200 yards, and at the mouth of Otter Creek, a small brook, with clay banks of considerable height. The clay banks behind the colonel's house have a barren and naked appearance, while the lake in front is too near. The situation, nevertheless, has capabilities to make a fine place, when taste shall build a habitation. The garden, which was badly kept, contained some fine apple and pear trees, which we viewed from the outside of the fence. There were a few weeping willows, the first I saw in Canada, and which raised the colonel considerably in my estimation, as they are not, I believe, indigenous to the country.

"After dining at Columbus, I strolled into the woods north of the village in search of the pawpaw fruit, which I had heard much extolled by some of

my fellow-travellers. This plant grows plentifully as underwood on most of the rich soils in this part of the country. I found the fruit growing on slender trees or shrubs 15 ft. or 20 ft. high; it resembles, in size, shape, and colour, the jargonelle pear of Britain. I found them variable in quality, and the best might rank with a third-rate pear of Scotland. The forests were now clothed in the splendour of autumn, and the richness and variety of their tints was of the most pleasing description. The oak, maple, beech, and dogwood seemed to vie in brilliancy; and I often observed many leaves on the same lateral branch, exhibiting every shade from vivid green to the darkest purple."

We shall conclude with a long extract from the first chapter of the second part of the work, which places Mr. Shirreff in the highest rank as a scientific agricultural writer. This passage deserves to be thoroughly studied by every young gardener and farmer: —

"From whatever sources arise the materials which compose and sustain organised bodies, no symptoms of decline can be discovered in them. Nature seems to be a system of continued reproduction, and, when aided by man, of progressive increase.

"The quantity of matter which has been organised since the beginning of time must be immense. But, whether the world is viewed in whole or in portions, nature has no appearance of decay, but seems a manufactory producing new fabrics, which are again reduced to their elements, in endless succession. Generation succeeds generation, and year after year furnishes sustenance. In the operations of nature there is no loss of materials, and when they are aided by human industry, she generously rewards man with an increase of her returns, and continues to reproduce the increase. The bounties of nature seem inexhaustible, and, in some measure, proportioned to man's industry.

"The system of nature, such as I have ventured to describe, may be illustrated by the details of the farm. Pastures which have continued under the influence of nature annually yield herbage without decrease. When they are stocked with sheep, man is rewarded with the increase of the animals, and the herbage is reproduced as before. If the pasturage is improved by draining and top-dressing, there will be an increase in the returns from sheep, and the improvement in the pasturage continues from year to year. When an improvement in the sheep is effected, there will be an additional return from them, which, by continued attention, becomes permanent.

"When pasturage is superseded by grains and roots, their increased returns above pasturage are the reward of cultivation; and drainage, manures, and labour greatly increase the returns. In such a system of farming man acts a prominent part with nature, and skilful industry is required to continue the increase. Without skill and industry the returns from cultivation yearly diminish, and ultimately fall short of those from pasturage or undisturbed nature. In this case it is not nature but man which fails to do his part; and the decrease may be considered a just retribution.

"A reflecting mind will discover much evidence of nature's economy throughout the universe; and the farm supplies familiar illustrations. Cows and sheep, by consuming grass, yield butcher meat, milk, butter, cheese, and leather. These varied fabrics emanate from the same source, and, when reduced to their elements, may again enter into the composition of grass. The straw of grain crops, and other vegetable matter, after being eaten by or trampled under the feet of animals, decomposes, and enters into wheat, barley, and turnip, or any other plant. In this manner the vegetable and animal kingdoms assist each other; and so perfect is the economy of nature, that none of her materials are lost in the intercourse.

"By judicious management, the fertility of a farm may be maintained, or

its productions reproduced year after year; the produce usually disposed of being the reward of cultivation. If such produce were to be consumed on the farm, its fertility would be augmented, and the reproductive and progressive increase of nature, when assisted by man, exemplified. But the progression in fertility is checked by excessive luxuriance, which diminishes the returns. Thus lavish and niggardly cultivation is both punished, and illustrative of the maxim to use the things of this life without abusing them.

"Man seems to have been endowed with rational powers for supplying himself with the means of subsistence, which he accomplishes chiefly through the vegetable and animal kingdoms. Vegetables directly minister to his wants in various ways, and indirectly, through domestic animals, which are altogether dependent on them. The farm illustrates the direct supply in the production of wheat, potatoes, and flax; the indirect supply, in butcher meat and wool. In farm economy, vegetables and animals may be viewed as manufacturing machines, assisting man and each other, and the united results of which are necessary to the formation of certain fabrics, such as milk. From this source man is supplied with many of the luxuries as well as the necessaries of life. The results of the mulberry tree, silkworm, and cochineal insect are united in some of the lustrous clothing of the fair sex.

"The materials entering into organised life may be varied, and partly unknown to man. The most important elements of them, however, are to be found in air and water, and may, therefore, be said to pervade the universe. Should a difference of opinion exist regarding them, it is encouraging for the farmer to know that they abound everywhere within the sphere of his operations.

"The localities for manufacturing sustenance are almost as varied as the machinery or plants. The sea, air, and exterior of every organised body are stations, but the surface of the earth or soil is the chief. The localities may be considered workshops, differing in merit, without generally contributing materials towards the manufactures. Sustenance manufactured in the sea, and on the surface of the earth, equally sustains human life, and, in both cases, contains the same elements.

"Soil is not often regarded simply as a workshop, although no other view of it accords with the operations of nature and of man. It does not in any case appear to contribute materially to the formation of plants, and is only useful to them by affording support to their roots, and holding their sustenance; being a receptable of air, water, decomposing organised bodies, and mineral substances. Soil may be rendered fertile or unfertile by imparting or withdrawing whatever promotes vegetation.

"In the preparation of human sustenance, then, soil is a workshop; air, moisture, light, heat, and decomposing organised bodies, raw materials; plants and animals, machinery; certain minerals and labours, oil for the machinery. In manufacturing produce, nature supplies air, light, heat, and moisture; man furnishes organised bodies, machinery, and oil, which may generally all be obtained by capital. The parts performed by nature and man vary according to the fabric produced. In the case of pasturage, nature contributes the greatest share; in cultivation, the capital, skill, and industry of man are conspicuous. The neglected farm, incapable of producing turnip with a visible bulb, yields a full crop with a judicious application of labour and manure. The united exertions of nature and man insure success. She accomplishes much when unaided by man, but he cannot obtain any thing without the assistance of nature. When she withholds heat or moisture, the manufacture is suspended, and she possesses the power of arresting or altogether destroying the machinery. Farmers combine nature's agency under the term climate; and they are familiar with the general effects of heat, frost, drought, and moisture. If given quantities of manure and labour were bestowed on equal portions of soil, similar in quality, situated in Scotland, on a level with the ocean, and the top of a mountain, the difference of produce would be the effect of climate.

"Man has been doomed to earn his bread by the sweat of his brow. Experience confirms that the industry of an individual, closely applied to the cultivation of the soil in the temperate climes of the world, is more than adequate to supply sustenance to himself. It is a beautiful feature in farming, that agricultural improvements furnish additional food, increase almost every comfort, and ameliorate climate. The goodness of God to man is thus manifested, in providing him with the means of subsistence, and a reward according to his industry."

ART. III. *The Annual Dahlia Register for* 1836: *containing Particulars of the Introduction of the Dahlia into this Country, Mode of Cultivation and Management, the Properties of a good Flower, Arrangement of Stands for Shows, Show Flowers, &c. &c.; upwards of Fifty highly coloured Figures of dissimilar Dahlias, consisting chiefly of very superior new Flowers, with Catalogues of Growers, also, Specimens of several old Flowers, with an Alphabetical Index of* 700 *Varieties of the Dahlias; and an Account of Exhibitions held in England and Jersey in* 1835. By an Amateur. Royal 8vo. London, 1836. Price 1*l.* 10*s.*

THE titlepage so fully explains the nature of this work, that little remains for us to do, except to describe the manner in which it is executed. The engravings are from drawings by Woodroff of Bath, and Wakling of Walworth. They are printed from stone, and very well coloured. The letterpress consists of 14 pages of introductory matter, almost entirely extracted from gardening periodicals, and from an article on the dahlia, published in Baxter's *Library of Agriculture and Horticulture*, and written by J. Mantell, F.L.S. The remainder of the work consists of the enumeration of the dahlias that were exhibited at 45 different shows during the year 1835, with their prices, and the height to which the plants grow. It thus appears to be for the dahlia-grower, what the *Gooseberry Book* is for the gooseberry-grower; and to those cultivators who speculate in this popular flower, it will doubtless be found a very useful work.

ART. IV. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the more interesting.*

De CANDOLLE, M. *Aug. Pyr.*: Notice sur les Graines de l'Ananas. (Extrait de tome vii. des "Mémoires de la Société de Physique et d'Histoire Naturelle de Genève.)

It appears not to be commonly known at Geneva, that the circumstance of the pine-apple ripening seeds in Europe is by no means uncommon, and that, in consequence, a number of new varieties from seed have been procured in England. The rarity of the appearance of seeds at Geneva induced M. Aug.

Pyr. de Candolle to have drawings made of the seeds in a fruit which was sent to him for that purpose by a successful cultivator at Preguy, near Geneva; and these are here engraved, and scientifically described. The references to the plates are not so correct as they should be, in particular those to plate ii.

Bridgeman, T., Gardener, Seedsman, and Florist, New York: The Young Gardener's Assistant; containing a Catalogue of Garden and Flower Seeds, with Practical Directions under each head for the Cultivation of Culinary Vegetables and Flowers; with Directions for cultivating Fruit Trees, the Grape Vine, &c. 8vo. New York, 1835.

This appears to be a very judicious compilation, chiefly from European works; and it is gratifying to observe that, since 1829, it has gone through six editions.

Art. V. *Literary Notices.*

Flora Hibernica is preparing for publication, and will appear about the middle of April. Part I., comprising the Flowering Plants and the Ferns of Ireland, by J. T. Mackay, M.R.I.A. A.L.S., &c.: and Part II., comprising the *Musci*, Hepáticæ, and *Lichènes*, by Thomas Taylor, M.D., M.R.I.A.; and the *Algæ*, by W. H. Harvey. In one royal 8vo volume of about 600 pages.

Geraniaceæ.—A new work on this subject is projected by Messrs. Ridgway, to appear in 4to numbers on the first day of every alternate month, price 7*s*. The flowers will be painted in oil, by the first artists in flower-painting, from which the engravings will be taken, and coloured to imitate the originals. In the execution of the flower, it has been attempted to surpass any works that have preceded it, so that any individual flower might form a copy, that ladies fond of flower-painting might use, preparatory to their painting from nature.

The History, Classification, and Culture of the Dahlia is now publishing in Leipsic, in large 8vo numbers, at one dollar each. The German title of the work is *Zur Geschichte, Kultur, und Klassifikation der Georginen und Dahlien.* Von M. Gerhard.

Within the last two years we have had various applications for a Gardener's Calendar; and, in consequence of having announced some years ago a Gardening Annual, applications have also been made to us for such a gardening book as would be suitable for persons who had very small gardens, and did not wish to go to the expense of a work that treated of arboriculture, landscape-gardening, forcing, and various matters of that sort, which are only applicable to large places. In consequence of these

applications, thinking that there may be a demand for such a book, and feeling that we could produce such a one as would answer the end in view, and would be truly useful, we have planned, and begun to carry into execution

The Suburban Gardener, containing: — 1. Directions for choosing a House and Garden in a town or its suburbs, with some Plans for Street Houses, and Suburban Cottages and Villas. — 2. Designs for Laying out Small Gardens, Cottage, and Villa Grounds of from 1 perch to 10 acres or more in extent; including plans of some of the more interesting small gardens in the suburbs of London, Edinburgh, Dublin, Paris, Berlin, Munich, and Vienna. — 3. Directions for their Planting, Culture, and General Management. — 4. Directions for the Cultivation of all the Culinary Plants, Fruits, Flowers, Shrubs, and Trees usually grown in small Gardens. — 5. Directions for Building and Furnishing small Green-houses, Pits, and Frames; for the Culture of such Plants as are usually grown in them in small Gardens, and for the Management of Plants in Pots, in Balconies, on House tops, and in Rooms.— 6. A Monthly Calendar of Work to be done, including Directions respecting Poultry, Pigs, Cows, Grass Fields, &c. — 7. A priced List of the Trees, Shrubs, Plants, Tools, &c., usually required for small Gardens. The whole intended as a complete gardening book for such as are not professed gardeners. Illustrated by numerous engravings on wood.

Any of our readers who can suggest any improvement on the above plan, or who will furnish us with any details for filling it up, will greatly oblige us by doing so with as little delay as possible, as we are determined to have the work published in December next, if not before. We shall be happy to receive from gardeners in different parts of the country, ground plans for laying out small places of a perch or more in extent, up to ten acres, together with directions and lists for planting them, &c.; provided always that we are allowed either to make such alterations in the plans before sending them to the engraver, as we shall think fit, or to criticise them in the manner in which we have done the designs published in our *Encyclopædia of Cottage Architecture*. Every hint, paragraph, or design, used will be duly acknowledged in the work.

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

The Use and Abuse of Hybridisation. — In the *Botanical Register* for February, 1835, Dr. Lindley has, in an article appended to his description of Calceolària longiflòra, cast a very unjustifiable reflection upon gardeners, which is no

less than that, in their "haste and unskilfulness," they have converted the fairest races of the vegetable world into unhealthy, mongrel, and debased varieties; and that calceolarias are already sinking in estimation in consequence of the ruin they have brought on them by hybridisation. We were previously aware that calceolarias do not hold the same place now as formerly in the estimation of some, with whom pounds, shillings, and pence weigh heavier in the balance than either beauty or deformity. But the calceolaria is not altogether the point at issue; Dr. Lindley only makes use of it as the peg on which to hang his charge against us of converting the "fairest races" into mongrel and debased forms. To this charge we should at once plead guilty, promising in future to adhere more strictly to "wild and genuine" forms, and to "abandon a pursuit which has as yet led to few results which good taste can approve;" but we have the evidence of our senses, and that of the horticultural world, coupled with Dr. Lindley's previous opinions, to bring against this charge. We may at once advert to a few instances, *ex pluribus*, of Dr. Lindley's previous opinions on cross-breeding and its results. Who said, "The power which man has over nature holds out to us prospects of the most gratifying kind, in regard to the future gayness of our gardens?" Who asserted that "improvements of the most remarkable kind are yearly occurring in consequence of hybridisation?" and that "hybrid productions are undoubted cases of improvements resulting from skill?" Who said, "The industry and skill of modern gardeners have been creating intermixtures which greatly add to the beauty of the flower-garden?" And who even went as far as to say, "The constant dropping of water will not more surely wear away the hardest stone, than will the reason of man in time compel all nature to become subservient to his wants and wishes?" Who, indeed, but Dr. Lindley? And yet he now turns round, at the eleventh hour, and proclaims to all the world that gardeners, through their ignorance, have brought ruin on the "fairest races of the vegetable world." The doctor ought at least to have been impartial in this charge. It is well known that gardeners are not alone guilty of these acts. The late Earl of Carnarvon converted some of the "fairest races" into mongrel and debased varieties: witness *Rhododéndron* alta-clerénse, and Azàlea thyrsiflòra, &c. The present Earl of Mount Norris brought ruin on the *Pæònia Moútan*. Mr. Knight, Dr. van Mons, and others, have done more injury among our best fruits than gardeners; to say nothing of that king of hybridisers the Rev. and Hon. William Herbert, who has, perhaps, brought more ruin on the "fairest races," than all the gardeners put together. Dr. Lindley says, if we must have hybridising, let us have it by those rules by which alone it is possible to arrive at a really desirable result: but Dr. Lindley knows, or ought to know, that the power which prescribed the exact limits to which certain genera can change their natures, has given unbounded limits to others, which set at defiance the best rules of the most consummate philosophy, and, in their progressive stations to a "desirable result," thousands must necessarily be discarded. Here lies the whole secret. If we trace the history of our best fruits and vegetables (to say nothing of the tulip, the dahlia, &c.), we shall find the same effects following the same causes, ever since the discovery of the sexual system in plants. With these facts staring us in the face, are we to give up a practice by which we are sure of ultimate success, because certain "races" are falling into disrepute with those who cannot take a comprehensive view of the subject? Certainly not. Dr. Lindley, with the candour of the true man of science, renounced some of his former opinions on conviction of their untenableness; and, that he may reconsider his opinions respecting cross-breeding in the vegetable world, these facts are, with the utmost respect, submitted to his notice. — *D. B. March*, 1835.

We have to apologise to our correspondent for the long delay of this paper, which has been in type nearly a year. We shall be happy to receive the other articles proffered by him. — *Cond.*

Heating Stoves by Steam not a new Invention. — The following extract is

taken from Sir Hugh Platt's *Garden of Eden*, edit. 1675., which was first published in 1600, under the title of *Flora's Paradise:* —

"*A Stove for all Vegetables, good and cheap.* And for the keeping of any flowers or plants abroad, as, also, of these seeds thus sown within doors, or any other pots of flowers, or dwarf trees in a temperate heat, with small charge, you may perform the same by hanging a cover of tin or other metal over the vessel wherein you boil your beef, or drive your buck, which, having a pipe in the top, and being made in the fashion of a funnel, may be conveyed into what place of your orchard or garden you shall think meet; which room, if it were so made as that, at your pleasure, it may become either close or open, you may keep it in the nature of a stove in the night season, or in any other cold weather; and in the summer time, you may use the benefit of the sunbeams, to comfort and cherish your plants or seeds. And this way, if I be not deceived, you may have both orange, lemon, pomgranet trees, yea, peradventure, coloquintida and pepper trees, and such like. The sides of this room, if you think good, may be plastered, and the top thereof may be covered with some strained canvas to take away at your pleasure. *Quære*, if it be best to let the pipe of lead to breath out at the end only, or else at divers small vents which may be made in that part of the pipe which passeth alongst the stove. I fear that this is but a meer conceit, because the steam of water will not extend far; but if the cover to your pot be of mettel, and made so close that no air can breath out saving at the pipe, which is sodred or well closed in some part of the cover, then it seemeth probable, this cover may be put on after the pot is scummed." (*Garden of Eden*, part ii. p. 17.) — *R. F. J. London, August*, 1835.

Transplanting. — Plant not deep, nor trench deep; but tempt the roots by baiting the surface with dungs to make them run ebb within the reach of the sun and shoures. (*Reid's Scots Gardener*, edit. 1683, p. 91.)

Symmetry. — Make all the buildings and plantings ly so about the house, as that the house may be the centre; all the walks, trees, and hedges running to the house.

As the sun is the centre of this world; as the heart of the man is the centre of the man; as the nose the centre of the face; and as it is unseemly to see a man wanting a leg, one arme, &c., or his nose standing at one side of his face, or not streight, or wanting a cheek, ane eye, ane eare, or with one (or all of them) great at one side and small on the other; just so with the house-courts, avenues, gardens, orchards, &c., where regularity or uniformity is not observed.

Therefore, whatever you have on the one hand, make as much and of the same forme, and in the same place as the other. (*Ibid.* p. 2.)

The Influence of Lightning Conductors on Vegetation has by many been considered as beneficial, and by some as injurious. Mr. Matthew, the author of a *Treatise on Naval Timber*, relates in *Jameson's Journal*, October, 1831, four experiments which he has made, from which it appears to produce neither good nor evil. — *Cond.*

Plants were grown in Moss by Charles Bonnet of Geneva, as related by Du Hamel to the Royal Academy of Sciences at Paris, April 16. 1749. (*Gent. Mag.*, xix. 259.)

Potash cannot be made advantageously from resiniferous, or odoriferous woods; such as pines, firs, cedar, cypresses, sassafras, liquidambar, &c.; though more or less of this salt can be obtained from all vegetables whatever. (*Phil. Trans., abridged*, vol. p. 777.)

Tulip Roots. — In the very cold part of the winter of 1833, M. Tongard, found that his tulip roots, in the ground, had been devoured by some animal which had scratched up the soil in order to get at them; and, putting a snare with a tulip root in it, close to the spot, he, the next morning, found the root gone, and a dead field mouse close to it. A second morning the same thing occurred; a third was caught in the trap, and, when discovered, was completely benumbed. It was carefully warmed, but very soon died. Dr. Bouchet ex-

amined the body, and found that the tulip had poisoned it: when the thaw came, these animals ceased to attack the tulip roots. (*Athenæum*, July 25. 1835.)

The Genus Bambùsa. — The disappointment created by the mutilated article on the genus *Bambùsa* in the twenty-fifth monthly part of the *Penny Cyclopædia*, has induced me to trouble you with a few observations upon that useful genus of plants, some of the species of which appear capable of cultivation in the milder parts of our own island, and are therefore entitled to notice in your excellent depository of horticultural knowledge. The article *Bambùsa*, in the *Penny Cyclopædia*, appears to have been drawn up with a view to comprehend all the information that the most recent discoveries could furnish on the subject, in the most compendious and methodical form; but I find it reduced to one only, out of the three sections of which it ought to have consisted; and confined wholly to an account of eighteen Asiatic species of bamboo, without even an indication of one of those found by Humboldt and others in the New World, although there appears little doubt that some of these will be found as suitable for European, and even British, cultivation as the Asiatic. It has been remarked by Humboldt, as a circumstance of peculiar good fortune, that he and his companion Bonpland met the bamboo twice in flower, once on the banks of the Cassiquiare, and a second time near the village of Muerto, between Buga and Quilichao, in the province of Popayan. (*Humb. de Distributione Geographica Plantarum*, p. 205. Paris, 1817.) Now, in the Island of Nevis, one of the Lesser Antilles, I have seen it regularly blossoming, in a dry volcanic soil, every year, about the period of Christmas; and the circumstance was there regarded as one of ordinary occurrence. I am aware that, in the East Indies, the flowering of the bamboo is by no means regarded as a rare occurrence; but, as the reverse appears to be the case in America, I have been induced to notice the fact of my personal observation at Nevis, for the purpose of calling attention to the possible influence which the dry volcanic tufa (called in that island terras, and employed for the same purposes, and with the same effect, as the terra puzzolana brought from Italy) may have in the production of this phenomenon. Humboldt says, "These arundinaceous trees, although they spread widely over the marshy soil, and frequently attain an altitude of from 50ft. to 60ft., rarely blossom in the New World. Neither the illustrious Mutis, who examined so many *guadales* (as those marshy spots covered with bamboos are termed by the inhabitants) in the kingdom of New Granada, nor Tafalla, who accompanied Ruiz and Pavon in their travels through Peru, was ever able to obtain either the flowers or the fruit of the bamboo."

Humboldt further observes, at p. 208. of the same work, that the bamboo is by no means so frequent in the marshy situations of the New World as is generally supposed, being rare in the province of Caraccas and New Andalusia (with the exception of the valleys between the villages of Cumanacoà and San Fernando), in the humid forests of Guayana, which overhang the streams of the Cassiquiare and Atabapo, and almost wholly wanting at the mouth of the Apure, which traverses the province of Varinas, and on the banks of the Rio Negro. They are most abundant, he observes, on the western side of the Andes, and form vast forests in the kingdom of New Granada, not only in the hottest situations, between Turbaco and Mahates, but in the more elevated and temperate valleys, between the village of Guaduas and the town of Bogotà; on the western slope of the Andes of Quindiu, near Buenavista and Carthago; on the banks of the Cauca (between Buga and Quilichao of Popayan); and on the opposite side of the volcano of Rucu-Pichinca, near the city of Quito.

Of these bamboos, that species which, from its principal locality, Humboldt has described under the name of *Bambùsa Guàduas*, flourishes indifferently at all varieties of elevation, from the level of the ocean to a height of 860 hexapodes and upwards (about 5374 English feet); and grows equally in marshy and in dry alpine situations. This bamboo, flourishing at heights when the mean annual temperature does not exceed 61° or 62° of Fahrenheit's thermometer, and the ordinary temperature by day varies from 57° 20′ to 66° 20′,

and by night from 50° to 53° 60′ of Fahrenheit, might possibly, by care, be habituated to bear the ordinary severity of the winters of our southern and western coasts, and add at once to the ornament and utility of our pleasure-grounds. Could it, and its Asiatic congeners, be successfully acclimatised, their hollow and durable stems would form an invaluable substitute for the lead and iron employed for the distribution of water through our towns, besides answering many other useful purposes in which great strength and durability are required in combination with great levity. Even the frames of the sashes for covering our stoves and conservatories might, possibly, be advantageously and economically formed of this substance, and its cultivation thus rendered at once useful and ornamental. — *William Hamilton. Oxford Place, Plymouth, Feb.* 23. 1835.

Lobélia spléndens and fúlgens, two beautiful varieties, apparently belonging to one species, were introduced to Europe by rather a singular circumstance. Specimens of these plants were gathered in flower in Mexico, by the celebrated botanists Humboldt and Bonpland, and put into their herbariums in the usual manner. When these botanists arrived in France, they found ripe seeds on their dried specimens; and these seeds being given to M. Thouin of the Jardin des Plantes, were the origin of all these showy lobelias now common in British and Continental gardens. This is stated on the authority of Dr. Lippold, an eminent German botanist and horticulturist, now in London, and the author of the *Volständige Gärtner*, 2 vols. 8vo, &c.

Art. II. *Foreign Notices.*

FRANCE.

The Deciduous Cypress (Cỳpres chauve, *Fr.*; Taxòdium dístichum *Rich.*), in the park of Rambouillet, has attained the height of from 65 ft. to 70 ft.; and the circumference of the trunk, at 1 ft. from the ground, of different trees, varies from 5 ft. 3 in. to 9 ft. 9 in.; while, at 3 ft. from the ground, it varies from 4 ft. to 8 ft. 6 in. These trees have borne seeds for many years; but we have never succeeded in raising plants from them. — *M. Bourgeois, Director of the Royal Farm of Rambouillet, in a letter to M. Vilmorin, of Nov.* 1834.

The Red Oak (Chêne rouge, *Fr.*; Quércus rùbra *Michx.*), in the same forest, has attained the height of from 80 ft. to 90 ft., with trunks, the diameter of which, at 1 ft. from the ground, varies from 4 ft. 2 in. to 4 ft. 9 in.; and at 3 ft. from the ground, from 3 ft. 8 in. to 4 ft. 3 in. The trunks of these oaks are straight, and clear of branches to a great height. The plantation where they stand has lately been thinned by cutting down half the trees. The wood appears to be of excellent quality, and is hard, though somewhat porous; the grain, or texture, having altogether the appearance of the common oak; but it is finer, and the wood appears to be more united (*liant*). These trees have produced acorns for many years: all those of this year (1834) were sent to the government nurseries at Versailles. — *Id.*

L'Institut Horticole de Fromont is very well known by name both in France and England; but in the latter country the difference of language prevents young gardeners from knowing much about it; and in the former country there is a general prejudice amongst the ordinary cultivators of the soil against science and novelty. The *Annales* published monthly at this institution, and of which five volumes have appeared, abound in proofs that the science of culture, whether in the garden or in the field, is perfectly understood by the professors and gardening authors of France; and by none better than M. Soulange-Bodin himself. Every person, at all attached to gardening, who visits Paris, ought not to leave it without devoting a day to Fromont, where they will be gratified, not merely by seeing the different modes of propagation, and particularly some modes (such as herbaceous grafting) little known in this country, and the results; but also a very agreeable park; and some good speci-

mens of trees and shrubs. Among the latter is a Magnòlia macrophýlla, which is said to be as large as, or larger than, that of the Duke of Devonshire at Chiswick. — *Cond.*

Cultivation of the Bamboo in France. — A piece of bamboo, about 12 in. in height, was planted, on the 1st of April, 1833, in a garden at Hières, in the department of Var. It has already produced several shoots, from 20 ft. to 26 ft. long. The ground in which it was set was constantly irrigated during the summer. One of the shoots, which only came out of the ground on the 3d of last September, had obtained 25 ft. of elevation on the 29th of October. Its circumference at the base was 9 in., and at the height of a man about 7½ in. (*Athenæum*, Sept. 19. 1835.)

Seeds. — Several tombs were discovered last year at Monzie, St. Martin Dordogne, the most remarkable circumstance attending which is, that the head, of the skeletons were placed on a heap of seeds, contained in a cavity left in the cement, large enough to contain the occiput. These seeds have been sown, and from them have been raised the *H*eliotròpium europæ`um, Medicàgo lupùlina, and *C*entaurèa *C*yanus. This circumstance confirms the opinion lately advanced by several physiologists, that certain vegetables preserve their germinating power for an indefinite period, if kept out of the reach of the agents necessary to germination. Some of these vegetables are birch, aspen, groundsel, rushes, broom, digitalis, heaths, &c. (*Athenæum*, July 25. 1835, p. 572.)

BELGIUM.

Ghent, Oct. 19. 1835. — I enclose an engraving of a new building for the Ghent Horticultural Society : it is intended partly as a cassino, or concert room, and as an exhibition for plants, either of which names it has as much right to as the one it bears : in fact it is a compound of all three. Hereafter a garden is intended to be laid out. The building and ground have cost a great sum of money, and there appears to be much room lost. The building appears heavy, and out of proportion to its breadth ; but, till finished, it is unfair to give an opinion. I certainly do not approve of the compound association, and should have preferred seeing a smaller building, *built expressly* and solely for our Society ; and, also, that part of the money expended on the present structure should have been set aside for the purpose of giving encouragement to gardeners and to horticulture, by increasing the number, value, and utility of the prizes ; which, at present, consist solely of medals ; whereas books and small pieces of plate ought to be substituted ; and any surplus funds might be employed to enable the Society to send out to South America an able collector of plants. In the mean time, the present building will do no harm ; and, though it might have been arranged much better for the purposes of horticulture than it is at present, it is very likely to increase the number of members, and may, in a few years, be the means of benefiting the Society. At present our Society requires many reforms ; and, until such reforms take place, the rules of the Society cannot be called beneficial to horticulture. But, from the present state of society, and from the opinions of some of our most influential members, I am led to believe that the period of reform is not distant. I hope, also, to see a botanical work established by the Society ; for, until the gardeners in this country become perusers of botanical works, there will never be one who is capable of taking care of, or superintending, a valuable collection of plants, in the way they ought to be cultivated. I send you the first number of a new work, called the *Le Cultivateur, &c.*, though it relates more to agriculture than horticulture. — *W. T. C.*

GERMANY.

The Lake Zirknitz, in Carniola. — " This lake is about six miles in length by three broad. Towards the middle of summer, if the season be dry, its surface rapidly falls, and in a few weeks it is completely dry. The openings by which the waters retire beneath the soil may then be distinctly perceived, sometimes quite vertical, and in other places bearing a lateral direction towards the ca-

verns which abound in the surrounding mountains. Immediately after the retreat of the waters, all the extent of the surface which they covered is put under cultivation, and at the end of a couple of months, the peasants are mowing hay, or reaping millet and rye, in the very spot where, some time before, they were fishing for tench and pike. Towards the end of autumn, and after the rains of that season, the waters return by the same natural channels which had opened a passage for them at the time of their departure." (*Jameson's Edinburgh New Philosophical Journal*, January—April, p. 220.)

Notes on the Trees, Gardens, Gardeners, Garden Artists, and Garden Authors of Germany.—The oldest palms are in Vienna and Dresden. The Córypha umbraculífera has a head with an enormous circumference. One in Schönbrunn is nearly as large. There are here, also, Chamæ'rops hùmilis, Zàmia, and Eutérpe *p*isifórmis, which belong to Prince Antoine, and which have grown so high, that they have been obliged to make the house higher.

It is worthy of remark, that a Baron Dietrich, in Vienna, sent out ships, at his own expense, to Brazil to collect palms, &c., for the emperor; and such wonderful discoveries were made, that several palms were found from 30 ft. to 40 ft. in height, which are now exhibited in the Brazil Museum at Vienna; by which the age of the trees can easily be ascertained, and an idea of tropical vegetation given.

The oldest orange trees in Germany are at Dresden, and have been there since the time of King Augustus the Great. He was very fond of turnery, and sent for orange trees with very thick stems from Asia; and, in order to keep them fresh, they were laid in a cellar: after a short time they began to grow; and they were removed and planted, and grew extremely well.

The largest and best green-houses in Germany are in the Burg at Vienna: they are 80 ft. high, and 300 ft. long. [According to other accounts these dimensions are much exaggerated; but they will no doubt be corrected for us by Baron Jacquin, or M. Charles Rauch.] In the middle there is a space for flowers, in which, in winter, there are several thousand bulbs in flower sent every year from Holland. Once every year there is a fête in this garden, which is called the rose feast. After breakfast the company retire to a ball, where the nobility are seen waltzing surrounded by flowers.

The best imitation of nature is seen at Schönbrunn, where, in the new hot-houses, you might fancy yourself in a Brazilian forest. The *Calàdia* and other *A*röídeæ, Cymbídia, Scitamíneæ, and Tillándsiæ, grow hanging down from old trees. The ferns grow in deep shade among rocks. This arrangement was made by M. Schott, court gardener, who was several years in Brazil, and who has succeeded in giving these plants such a natural appearance.

Amongst the most remarkable gardens in Germany are those of Laxenburg, Bruck, Cassel, Munich, the new garden at Potzdam, the gardens at Manheim, at Frankfort and the new gardens at Stuttgard which contain 400 acres, and have cost, perhaps, already more than a million of florins.

Amongst the Hungarian gardens, those that belong to Princess Chrasalkowitz in Getelo, the Count of Brunswick in Corompa, and Prince Esterhazy at Eisenstadt, Count Szandor, Count Festetits, and several others, are the most worthy of notice.

In Bohemia, the most remarkable are those of Prince Kinsky, Prince Taxis near Leitmeritz, Count Tuff near Brün, and Count Sternberg near Praeg, Schönborn, Szinnen at Tchonhoff near Toeplitz, Prince Clari at Toeplitz, and Count Wallis and Count Canal in Prague.

Amongst the most considerable landscape-gardeners at present in Germany may be reckoned the following:—

M. Zeyher in Schweitzengen. He has laid out the gardens at Schweitzengen, Manheim, Carlsruhe, and Baden.

Riedel. He laid out the park at Laxenburg, and several private gardens about Vienna.

Lenne at Berlin. He has laid out the gardens at Potsdam and Magdeburg; and we have great expectation from his improvements now making in the park at Berlin, known as the Thier Garten.

Sckell. He laid out the gardens about Munich.
Claus. He has improved the gardens at Cassel.
Otto. He laid out the botanic garden at Berlin.
Lübeck. He laid out the park at Brück on the Leytha.
Schoch. He laid out the park at Worlitz.
Ritter. He laid out the parks at Presburg, at Königshaiden, Gambo, Mayerhoff, St. Miholy, Zurz, and several others.

The following dilettanti architects, and nurserymen, have laid out gardens :—

Prince Pückler Muskau. He laid out his own garden in Muskau.
Carlowitz. He laid out some gardens in Dresden.
Derseik. He laid out the botanic garden, and some others, in Dresden.
Koch, Architect in Vienna. He laid out the garden of Prince Kinsky in Prague, the gardens of the Counts Caroly and Crdady, in Hungary.
Rosenthal. He laid out Petzlersdorf near Vienna, and several others.
Bosch. He laid the garden at Stuttgard, and the botanic garden at Rosenstein.
Kins. He laid out the gardens at Leipzig.
Rinz, Nurseryman. He laid out several places about Frankfort, and the public garden on the ramparts.

Authors who have written on gardening : —

Pückler Fürst von Moskau. Andeutungen der Landschafts Gartenkunst. Folio. 10*l.*
Zeyher, Garten Director. He is preparing a work on Perspective, and Light and Shade. He has written a work called Beschreibung des Schwezingen Gartens, mit kupfer. 8vo.
Otto. Glashaüser-bau, Die Cacteen, &c. &c.
Antoine. Monographie der Pfirschen.
Schott. Filices.
Boch. Hortus Schönbrunnensis.
Bouchée. Blumen Treibereyen.
Sckell. He has written some articles in the Prussian Transactions.
Kins. Baumzucht.
Ritter. Künstliche Treibereyen. 8vo.
Schoch. Kleine Schrift über Anlagen.

The above notes were furnished by M. J. Ritter, Garden Director in Austria and Hungary whilst in London, in July, 1835. Though we have spared no pains to get the names of places given above properly spelled, yet we fear we have not in every case succeeded. M. Ritter saw one proof before he left London, and we sent another to the office of the Austrian Embassy.

SPAIN.

Some valuable information, respecting the state of rural improvement in Spain, will be found in a very interesting work lately published by Captain S. E. Cook, F. G. S., &c., of Newton, Northumberland. The perusal of this work has given us more distinct ideas of Spain and the Spanish people, than any work with which we had been previously acquainted. We feel grateful to Captain Cook for having enabled us to love and esteem a people, of whom, in several respects, we had entertained very erroneous ideas; and for satisfying us that Spain is fast participating in the general march of improvement. It is fortunate for us, at this time, when we are collecting information respecting trees, from every source, for our *Arboretum Britannicum*, that Captain Cook is as enthusiastic an arboriculturist as ourselves. He has a chapter on forests, from which we shall make large extracts; and we shall also extract several incidental remarks on this topic, and on various others suitable for this Magazine, from different parts of the two volumes before us; for all which Captain Cook has kindly given us his permission.

Physical Divisions of Spain. — Spain is divided geologically into three grand divisions, the productions of which amalgamate with each other. " The first

is the northern zone, which includes Galicia, Asturias, the Free or Basque Provinces, Upper Navarre, and the maritime part of Old Castile. This is the region of humidity and moisture, and possesses, especially the parts which adjoin the coasts, a remarkable equality of temperature throughout the year. It is the only dairy country in Spain; which branch of industry, as well as that of breeding horses and other domestic animals, is as yet in its infancy, although capable of almost indefinite extension. The natural limits to this region, inland, are the ranges which separate it from Castile, and bear up the great table land which forms the centre of Spain; and the termination of the Western Pyrenees, in the uplands of Lower Navarre and Old Castile.

" The vegetation of this division is characterised by the *Quércus Ròbur; Quércus I*`lex, the true ilex; the Menziès*ia* Daboèc*i*, Irish heath; common fern; *U*`lex strícta and europæ`a; and other plants of a northern and moist climate. The forests are now not extensive, but it contains more valuable and available timber than any other part of Spain. It produces little or no oil, and wine only in small quantity and of inferior quality.

" The second is much the more extensive division, as it includes the Castiles, Estremadura, Aragon, and part of Catalonia, with the upper parts of Valencia, Murcia, and Andalusia; thus embracing a large portion of all Spain. The peculiar characteristic of this region is, the dryness of the atmosphere during the greater part of the year. Copious winter and vernal rains, acting on a soil generally tenacious of moisture, impart a fertility peculiarly suited to the cerealia, leguminosæ, and the vine, which are the finest in the world, with the least skill and attention bestowed on them. This wide range extends over the varied climates, elevations, and soils, which maintain the *mesta*, or flocks of merinos, in their wandering life. The olive is abundantly grown in some parts, but less so than in the southern region. The silk-worm, which now can hardly be said to exist, ought to enrich the greater part of what is now one of the poorest countries in Europe.

" Upper Aragon and Catalonia are referred to this division. The situation of these countries, at the foot of the Pyrenees, would seem to insure them humidity; but it is by no means the case. On their western side the high Pyrenees break the flow of vapour from the Atlantic, and cause it to be precipitated on the northern division, leaving nearly the whole region included in these provinces comparatively dry.

" This region contains the vast pine forests of Aragon, of the Sierras de Cuenca, Segura, and the Guadarrama, and of the central range of Castile. It is characterised by the Spanish ilex; the *Quércus Tòza*; and *Quércus prásina*, or a species presumed to be this, which is widely spread over its middle elevation; by the white cistus, which grows in prodigious quantities in some of the middle parts; and by the absence of those which are enumerated as marking the divisions on each side of it.

" The third region is that which lies along the coast of the Mediterranean, at the foot of the ranges which extend in a parallel direction to it, and protect it from the piercing cold of winter, to which the middle division is exposed. The coast of Western Andalusia, and the valley of the Guadalquivir, as far as Cordova, or Andujar, must be referred to this division. It is characterised by a dry and burning atmosphere, during part of the year, and a temperate winter which succeeds it; a portion of it having abundant rains, whilst others depend on irrigation for the produce of their culture. The productions are, sugar, cotton, rice; the *batata* (sweet potato), and other fruits of southern climes; and it is the favoured country of the lemon, orange, and palm. In it, at present, is almost exclusively found the scanty production of the mulberry. It is difficult to assign arbitrary lines to the vegetation, or to affix the limits of it, as some species, properly belonging to it, spread into the upland region above it, the aloe and cactus, for instance; and the palm will, in sheltered situations, resist the cold of Madrid, although its fruit only matures in this region: but the *C*eratònia *S*iliquástrum (algarroba), which is a delicate tree, nearly all those in Catalonia being killed to the ground in the winter of

1829–30, or the beautiful oleander, might serve as general boundary marks. The Salsòlæ, which produce the barilla, and the liquorice root, are the exclusive produce of its soil. This division now contains no extensive forests, and timber is but scantily spread over its surface. It produces wine and oil in the greatest abundance, and of the best qualities. This region may be appropriately named after one similarly situated in another hemisphere, the Tierra Caliente.

"These divisions, which are founded on the arrangements of nature, will be occasionally referred to in these sketches, in which the botanical department is omitted, excepting the important and neglected branch of the forests.

"The southern and middle districts contain the most interesting botany of Spain: they realise what an eloquent modern writer said of Italy, which is naturally far inferior to it, that "her waste is more than the fertility of other countries." This is literally true of Spain, where, in the most wild and uncultivated parts, the air is perfumed with delicious scents; the ovens are lighted, and the ores are smelted, with the most aromatic shrubs; and in cases of epidemic, in many districts, they would send out to the Sierras for brushwood to burn in the streets, confident that the aroma would ward off or disperse the pestilence. The syngenesious plants alone would reward a botanist for a toilsome journey. No country in Europe can compete with them in this class of vegetable production. The *I*ridàceæ and the *C*istàceæ are equally varied and abundant. It is very much to be regretted that some use should not be made of a station so conveniently situated as Gibraltar, to forward the views of science in that most interesting locality, where, with comparative ease, and at a trifling expense, most valuable information might be obtained." (vol. ii. p. 216—223.)

Forests. — The forests of Spain have suffered much from the destruction of the trees by the peasantry; and though there is an excellent code of forest laws, they are inoperative from the general habit which prevails of evading their execution. Some of the most magnificent forests in the Castiles, in Andalusia, and Estremadura have been passed by nearly unnoticed, both by native and foreign botanists, though the herbaceous plants have, in most parts of the country, been carefully examined by Cavanilles, Roxas de San-Clemente, and others. In the maritime district there are few forests naturally; and a law, by which the king is proprietor of every tree in these districts fit for naval purposes, completely prevents them from being planted.

"Nothing can be done until the government resolutely puts an end to this system, by sweeping away every impediment, and enforces the execution of the laws, and the appropriation of common and waste lands to the purpose of planting. In many districts they may be said to be entirely without wood for any purpose, whilst the country around is in a state of wild and unproductive waste. This is the case in various parts of the Castiles, of Aragon, and of Andalusia and Estremadura. In the mining districts they are compelled, in many places, to burn the aromatic shrubs of the country, which are rapidly consumed, and even now are becoming scarce, and are only suited for certain purposes; whilst the more solid fuel must be brought coastwise from distant parts. In the cities, the fuel is becoming more and more scarce, and must generally be fetched from great distances. The increase of population is retarded by a system which deprives the tender child, or the sickly adult, of the means of resisting the severe winter cold which prevails over the greater part of Spain, and is the more felt after their burning summer. The destructive habit that has bared those plains, which, more than any other, require shelter from the ardent sun, is confined to no part or race in the country. Immediately after the conquest of the southern provinces from the Moors, who were careful protectors and cultivators of trees, the work of destruction commenced, and their extensive woods are now scarcely to be traced. The feeble remains of former habits are to be seen in some villages of the kingdom of Granada, where an ancient tree of large dimensions, which has

stood for centuries, may be observed, as in the villages in England, the object of respect and veneration to the people. The French invasion has fearfully increased the destruction, by the wanton havoc always made by soldiers in time of war. The only people who are exempt from it, in some degree, are the people of the northern provinces, and the Catalans and Valencians; but in those provinces it is little better, and the mode of pruning or polling them, especially the pines, is ruinous to the growth of these trees. In Biscay they now cultivate scarcely any other than the beech, the worst and most unprofitable of trees, under whose shade no vegetation thrives. In the maritime part of the free provinces, their building timber is the miserable pin de Landes, bought from the French, which is valueless, whilst their mountains would produce the finest timber.

" To give the most clear idea of the forest vegetation, especially in the important bearings of the successive elevations, or zones, two sections will be given : one (*fig.* 20.) extending across the Pyrenees to the west, and following the line of the Sierra de Cuenca, Sierra de Segura, Sierra Nevada, and Serrania de Ronda, to Gibraltar; the other [which will appear in a subsequent extract] from Valencia, by the Sierra de Cuenca, the Sierra de Guadarrama, across Old Castile, by the Puerto de Pajares in the elevated range of Asturias, to the Bay of Biscay. These two lines intersect each other, and, by filling up the parts which they do not touch, will give a general idea of the natural forest system through the country.

" The northern side of the High Pyrenees affords a complete example of successive zones, or lines, of superposed vegetation, which can be traced along the flank of the higher range, by threading the mountains between Bagneres de Bigorre and de Luchon, and the country east and west of these places. In the ascending series, the vine, chestnut, and oak of various species, are succeeded by the beech, the silver fir, and a few of the *P*ìnus sylvéstris, or Scotch pine; and the highest and most inclement range, up to the limits of congelation, and the habitat of lichens and other Siberian plants, exclusively by the *P*ìnus uncinàta, the most interesting tree of these regions. In descending, on the southern side, the *P*ìnus sylvéstris is again met with amongst the uncinàta; and, considerably lower, another species, first described by La Peyrouse, as the *P.* Larício, but, in the supplement to his flora of the range, as *P.* pyrenàica, a name most improperly applied to a tree which scarcely belongs to it, but is placed on its southern foot. This species is first met with below the Peña de Ventimilla, a magnificent gorge, about three leagues lower down than Venasque, in Aragon, and extends to the neighbourhood of Campo, where it forms extensive forests, covering the district between the Cinca and the Essera, which are the main streams of the south side of the High Pyrenees, and are fed from the glaciers of Mont Perdu and the Maladetta. This habitat is a temperate and dry region, at a moderate elevation above the plains of Lower Aragon.

" This section must be understood to be carried over the *flanks*, or sides, of the chain, and not as following the gorges or sinuosities of the water courses, which afford a regular but somewhat different succession, including the lime, elm, beech, oaks, alder, birch, mountain ash, various salices, and other shrubs, amongst which is the beautiful *S*ambùcus racemòsa, an elder with clusters of bright scarlet berries, like bunches of grapes; the yew and holly, which are found in the beech region near Bagneres de Luchon; and the box, which occurs in tolerable quantity in ascending to Gavarnie. In the high valleys, the last trees and shrubs correspond with those of the north of England, and above them, where it has not been destroyed, is invariably found the *P*ìnus uncinàta. The once magnificent beech forests of Bagneres de Luchon, the destruction of which commenced before the revolution, and was deplored by Arthur Young, no longer exist but in the form of copse, in which that tree is of no value.

" The principal forests of the silver fir (*P*ícea pectinàta) now remaining are in the country between the two Bagneres, in the Spanish valley of Aran, and

in the Western Pyrenees, where it ranges on both sides of the chain. The *P.* sylvéstris grows above it, but now in small quantity, and may be seen in the Lake of Gaube, where a scrap of native forest yet exists, owing to its having remained in possession of the government. In it the three species of pine, some of them of great antiquity, may be seen growing together, the uncinàta gradually taking the higher place.

" P. *uncinàta*.—The upper zone of this chain is formed entirely of the *P.* uncinàta, which is a species hitherto almost unknown, or unattended to, and which is certainly one of the most valuable trees in the European flora. The name was given in consequence of a peculiarly hooked form of the scales, which is extremely marked, especially just before maturity. This character has been disputed; but a very little practice and observation will enable any one to pronounce without hesitation, on seeing the different colour and character of the tree from those of its congener the sylvéstris. The cone is rougher, and of a different and more rugged texture, than that of the sylvéstris, or any other I am acquainted with. An additional proof of the hardiness of the tree is afforded by the early ripening of the cones. I gathered some in the Valley of Andorre in July, which were full formed, at a season when those of southern climates are yet far behind in vegetation. The reason of this admirable arrangement is evident. In these elevated regions the season of vegetation is so short, that the operations of fructification must be proportionably accelerated, to insure their completion. The seed from these cones vegetated; and it is of great importance to be aware of this fact, because the collecting the seed of this species is difficult, in many seasons, from the early falling of the snow. The rule I followed was, to select the cones when they had assumed a brown green, and cut dry to the knife. On opening them in this state, the seeds will be found quite formed, in the state of a green almond when it is eaten. It is of the last importance that they should not be taken out of the cones until the planting season, and that they should be kept dry. I had a quantity spoiled by some wet moss, from other plants being imprudently packed with them, in my absence. The port and bearing, as well as colour, are quite different from those of any other species. The form, where the tree is fairly developed, is round and massy, frequently resembling that of some of the deciduous trees, the long arms sweeping the ground. The foliage is longer, and much more tangled, than that of the Scotch pine, and the green much more intense. It is so dark, that the Spanish woodmen distinguish it by the name of *pino negro*, the two varieties of the sylvéstris being called *blanco* and *roxo*. The growth, as far as I could judge, appeared to be about the same, or of rather greater, rapidity than that of the Scotch pine. The wood is highly resinous, so much so that it serves for torches; and it is reputed in the Pyrenees to be of very great duration. A peculiar quality, which, if it succeed in other respects, will make it invaluable in some parts of England, is that of resisting the wind. In the most elevated and inclement regions, where I have observed the tree in every form and situation, I never saw an instance where the wind appeared to affect it, nor where it showed a weather side. At the upper limits of its habitat, where it is compelled to yield to the law of nature, and lower its ' diminished head,' the same rule is observed, and, instead of the stunted and starveling appearance of the rest of the tribe in similar situations, it assumes the shape of a furze bush, presenting an impenetrable and bristling front of dark spicula on every side, the stem or branches being quite undiscoverable. This is the species to which the name of pyrenàica ought to have been given, it being, as far as observations have yet been made, peculiar to that chain. It may be expected to form a valuable addition to our forest trees; and it is singular that it should have hitherto been nearly unnoticed. It is mentioned in Sweet's catalogue as introduced in 1820; but, in the botanical garden at Glasnevin, near Dublin, is an individual of much longer standing. I have not seen that tree since I visited the Pyrenees, but I have little doubt, from the recollection of it, that it is the right sort. I

could obtain no certain information of its history: most probably it came from Paris.

"The republic of Andorre occupies a wild and alpine valley opposite to that of the Arriège, the waters falling to the side of Catalonia, and joining those of the Sègre. The lofty ranges which bound this valley are clothed with *P.* uncinàta, and, alone in the Pyrenees, it resembles those of Switzerland, the lower part being covered with walnuts and other deciduous trees, and the upper parts with continuous masses of dark pine of this species.

"*The* Rhododéndron *ferrugíneum* grows in the valley in prodigious quantities, attesting its elevated situation; and in the high pastures, above the trees, is the habitat of the beautiful *Gentiàna* pyrenàica, and other rare plants. These are the sites where this species is now found; and I conceive it has never been much extended beyond the Arriège to the east, and the Lac de Gaube and its district to the west, being replaced by the silver fir and Scotch pine, as the chain respectively declines in height to its flanks. It is found both on the primary and secondary formations; and I am not aware of any difference in its growth, in these different soils.

"Pìnus *pyrenàica*.—We now proceed to the *P.* pyrenàica of La Peyrouse, which grows at the foot of the chain, immediately opposite the highest range, and at an elevation, probably, from 2000 ft. to 4000 ft. La Peyrouse had never seen these trees; but described them, as I have been informed, from the reports of others, who brought the cones and branches to him, consequently the original description in the work is quite erroneous. That in the supplement is, however, extremely accurate. I believe M. la Peyrouse was indebted for his information respecting this tree, and many plants of the southern side of the Pyrenees, to M. Paul Boileau, now maire of Bagneres de Luchon. The foliage is of a light grass green, quite unlike any other European species. The spicula are very long, and of free growth. The tree is of elegant and noble form, and more resembles those of southern climates than most of the European sorts. The cones are of a light reddish green, and the seed is enclosed in a thin shell. The wood is not bad, but is of much inferior value to the other kinds which grow above it. I visited the place where these trees commence to appear, in the autumn of 1829, and procured some cones, as well as some from the trees in the garden of M. la Peyrouse, near Toulouse (now in the possession of his son, to whom I was indebted for them), where the trees planted about thirty years since are now of large size. On observing the real habitat of this tree, the impropriety of the name is evident; but subsequent observations will show that it has a much wider range, and ought to have a different denomination. There are other species mentioned in the list of La Peyrouse; but, in the various tours I made in the Pyrenees, I never met with any other than the three species above mentioned.

"*The* P. *pumílio* I believe to be only the stunted uncinàta at a great elevation.

"A\'*bies commùnis and* Làrix *europæ\'a*. — Neither the spruce nor larch (*A*bies commùnis and *L*àrix europæ\'a) exists in the Pyrenees, nor, I firmly believe, in any part of Spain. A contrary opinion is held in the country respecting the larch; but, after much enquiry and observation, I am quite satisfied that the real larch neither exists, nor has existed, in Spain. The word *alerce* certainly would appear to be connected with *L*àrix; but even if the Arab derivation, mentioned as traced by Mr. Drummond in the account of Cordova, were incorrect, which there is no reason to suppose, words do not prove the existence or identity of species. The practice of Spain alone, where the same words are applied to different trees in almost every province, would prove the fallacy of depending on etymology to solve questions of natural history.

"*The Oaks* on the north side of the Pyrenees are, the *R*òbur, of both kinds; the *Tòza*, or *Taúzin*, and its variety the pubéscens; the curious variety, the fastigiàta, or cypress oak, which is found in the route to Gavarnie; and another variety of which I am ignorant of the name, the acorns having failed. It

has peculiarly large buds and shoots, and an ill-shapen leaf, and grows also in Asturias. Below towards Bayonne, and, I believe, on the opposite flank, in Languedoc and Roussillon, the *Q. Sùber* (cork tree) abounds, but no evergreen oak is seen on the northern side of the High Pyrenees. On the Spanish side, high up, in the Peña de Ventimilla, and at the village of Andorre, are found the first evergreen oaks. In Aragon they are termed the alcina, and are of the species which will be more particularly described hereafter as the Spanish oak. The elm described by La Peyrouse as a variety of montàna, under the name of m. pyrenàica, if it be a variety, grows on the Malvern Hills, where are two *Sálices* which are also common in the Pyrenees.

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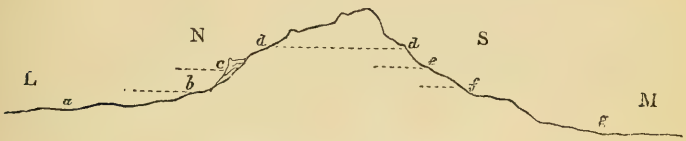

Forest Section across the High Pyrenees.

L, Plain of Languedoc. M, Mediterranean. N, North side. S, South side. *a*, Lower region, oak, chestnut, lime, &c. *b*, Beech and yew, holly, elder, &c. *c*, Silver fir and Scotch pine. *d*, *d*, *P*inus uncinàta. *e*, Scotch pine. *f*, *P.* pyrenàica of Lapeyrouse, supposed to be identical with *P.* hispánica of the Sierra de Segura. *g*, *P.* halepénsis.

" *Sierra de Cuenca.* — The section is now carried across the Ebro, and the treeless plains of Aragon, to the Sierra de Cuenca. The lower zone of that range, on the south side, is the *P.* halepénsis; above which, and mingled with it, but now nearly extinct, is found the *P. Pináster*; and above that, occupying the highest part of the range, I found the *P.* sylvéstris. I have every reason to believe that there is no species at a higher level than this, which supplies Madrid with building timber, floated down by the Tagus to Aranjuez. This species is named by the woodmen alvar, and I saw it in the Val de Cabras, about three leagues from the city of Cuenca; the whole intervening pines, on the route from the city, being now exclusively the *P.* halepénsis. Travelling to the west from this, we again cross the plains of La Mancha, and reach the Sierra de Segura, which is described in a visit to it. The upper zone of this vast district is covered by a tree, undescribed by any Spanish or other author, to my knowledge, unless it be the same as that noticed by Roxas de San-Clemente, as growing on the Sierra de Baza, which is a detached fragment of this range at its southern end, and called by him *P*ináster hispánicus.

" The description of this tree is so exactly identical with that of Aragon, that I am quite convinced they are the same, and they grow at similar elevations. The cones of both these species are now in England; and, as they have vegetated at the garden of the Horticultural Society, and other places, it will be known certainly whether they are identical, of which I have not the smallest doubt, from ample examination and opportunity of judging. The height of range of this species, in the localities mentioned, may be taken at from 2000 ft. to 4000 ft., and in the Sierra de Segura somewhat more. One peculiarity is to be observed in the cones of this species. A quantity I brought from the spot were packed amongst geological specimens, and opened at Somerset House during the heat of summer, when a delicious perfume, a perfect " Sabæan odour " exhaled from them, but was quickly lost in the gases of an atmosphere very unlike that of its native Sierra.

From a variety of concurrent and cross testimony, I have no doubt whatever that this same species exists in the Sierra de Cuenca, in that part of it to the south, where are the sources of the Gabriel, the chief subsidiary of the Xucar. This district is called the Marquesado de Moya, and the timber of it is floated down to Valencia, where it is known in the timber-yards by the same of pino blanco. As the species is peculiar to the country, and is thus

widely spread, it ought to be denominated *P.* hispánica. The tree would be a noble addition to our park or ornamental kinds, from the differences of its foliage from the common kinds, and the beauty of the form. It is essential to observe that its native habitats are entirely on limestone. The timber cannot be called good, but is of middling quality, probably a little better than that of the silver fir. It is white and dry, without much turpentine, and by the navy was used for decks and similar purposes. The lower zone of the Sierra de Segura is of halepénsis. There is said to be *P. Pínea* ; but it never occurred in the wide range I took through those forests. This forest supplies the building timber of Granada, at least the best quality, the forests of *P. Pínea*, which probably supplied the Moors, being now extinct. South of the Sierra de Segura is the Sierra Nevada, on the north side of which are now no pine forests, or even remains of them. In the neighbourhood of Loxa are remnants of halepénsis, which supply their scanty stock of fuel. On the southern side, the forest of Macael, which is in an elevated situation of the Sierra de Filabres, is of halepénsis. The woodwork of the Alhambra appeared to me to be of the *P. Pínea*, or stone pine; and I have no doubt forests of it existed in the time of the Moors. It is still called, in that district, pino real, probably from the use made of the wood. Pinos del Rey, and Pinos del Valle, villages in sites, no doubt, named from local causes, are now without them, as is Pinos del Puente, on the outskirts of the Vega.

" The Serrania de Ronda terminates the southern section of the forests. In the barrancos and river courses is *P. Pináster*, which is used at Marbella for smelting the iron ore. Mixed with it, but lower down, is *P.* halepénsis, and to the western side, I believe, the *Pínea*. High up, on the most elevated ridges of the Serrania, is a species I have not been able to classify, and know only by the vague descriptions of the natives, obtained too late to enable me to visit the place. It grows on S. Cristobal, and the Sierra de la Nieve, and is not improbably, from the description, *P.* sylvéstris.

(*To be continued.*)

SYRIA.

The following is an extract from a letter lately received from J. W. Farren, Esq., the British consul at Damascus, by Wm. Wingfield, jun., Esq., son of Wm. Wingfield, Esq., of Theobald's, Cheshunt, whose lady, Mrs. Wingfield, being possessed of an excellent taste for ornamental gardening, and being, at the same time, an ardent admirer of the beauties of Flora, has had the honour of first introducing the dahlia into that part of the world; and who, in order to meet the wishes of the consul, has again very lately forwarded a package, containing a variety of articles both in seeds and plants, such as will, no doubt, be received with much pleasure. The extract is as follows : — " I have often intended to write you a few lines of acknowledgment and thanks for the very beautiful dahlias you sent us; and you will be gratified to learn, that they have flourished in perfection; and that, while you are the first to introduce that beautiful flower into Syria, it has ornamented the fair foreheads of all the Circassians in the richest harems of Damascus; has decked the bridal garment, and publicly ornamented the tomb. Indeed, you have no idea of the enjoyment your kind attention has been the cause of. The house in which we reside is really an Oriental palace; courts, gardens, terraces, marble pavements, fountains, and jets-d'eau, &c.: and you can scarcely have an idea of the luxury of these mansions. We are having one of the gardens laid out in the English style: the dahlias have been taken up; and, in replanting them, we shall follow the directions given by you. You must not think me inconsiderate in saying that we look forward with pleasure for the pelargoniums, and other seeds and roots, which we hear you had intended for us. You know what a scarcity of choice flowers and plants there is in Syria, and what a treasure they are here, and how admired by the natives. I have just had some bulbous

roots from France of the double orange lilies, tulips, &c., which I hope to cultivate. You recollect our pelargoniums (those sent over by Mrs. Wingfield): there is no other sort in the country; nor is there such a flower as the moss rose in Asiatic Turkey."

While it appears that the splendour of the Orientals at Damascus is not inferior to many other places in the East, and that the gardens, in point of extent and scenery, may be imposing, yet it is evident that floriculture is at a low ebb; while, at the same time, the soil and climate in Syria are such as to induce us to believe that no country in the world can offer greater facilities for the growth and perfection of a vast number of the most splendid flowers now known, which may be inferred from what the country in other respects produces; as it is said that "it abounds in oil, corn, and several sorts of fruits, and peas, beans, and all kinds of pulse and garden stuff," and that there are to be seen "the finest plains and pastures in the world." Should, therefore, this spirit for floriculture at Damascus continue to be indulged, and be fostered by the kind liberality of individuals in Europe, even Syria may shortly become possessed of the beauties of Flora in many of her richest varieties.—*T. Rutger. Portland Place, March*, 1836.

INDIA.

Botanic Garden, Calcutta, Feb. 16. 1835. (Extract of a letter from Dr. Wallich to Messrs. Loddiges.)—The plants you sent me by the Asia arrived in the most beautiful condition. Your plan has therefore succeeded admirably; viz. that of sending plants rooted in peat moss [live plants of *Sphágnum*], enclosed in almost hermetically sealed boxes. I opened the box in the presence of several friends, who were almost as much delighted as myself on the occasion. The moss was, with very little exception, as fresh almost as the day you put it into the box, and as wet as if it had just been taken out of its native place of growth. I should say that double the quantity of light, indeed as much light as could possibly be given, would have added to the success of this most ingenious plan. The fuchsias and alstrœmerias were very much drawn up and blanched. It would be desirable to have many small panes fixed into the lead on future occasions, taking care to secure them well with iron cross-bars. If you could employ some panes of very thick glass, I would take care to use these panes again when I send you similar collections. I subjoin a list of the plants that were alive: —Calàthea (Maránt*a*) zebrìna, *C*ánna *i*ridiflòra; Alstrœmèr*ia* pulchélla, psittacìna, trícolor, oculàta [Loddiges's *Bot. Cab.*, 1851.; the *Salsílla* L.; but not the *Salsílla* of some of the botanists of Britain, which is edùlis *Tussac.* (*Mr. D. Don*, in *Brit. Flow.-Gard.*, and quoted in *G. M.*, xi. 77.)]; Fúchs*ia* bacillàris, strícta, globòsa, virgàta; *C*áctus chilénsis, Phycélla glaúca, Habránthus robústus, *S*isyrínchium chilénse, Duvaú*a* (*S*chìnus) dentàta, *Sophòra* macrocárpa, Stemòdia chilénsis, Pernétti*a* (*A*rbutus) mucronàta [See *G. M.*, x. 286.], Lobèl*ia* mucronàta, Billbérgi*a* bícolor, Tillándsi*a* (Billbérgi*a*) amœ̀na, hùmilis.

NORTH AMERICA.

Lemon Hill, Philadelphia, Aug. 18. 1835. I have now been more than three years in this country, and continue to like it well. I should have written much sooner; but, as I was in no settled situation till now, I postponed it. I have great pleasure in saying that we are here making rapid strides in the science of horticulture, and the time is not far distant when we shall be able to compete with our brethren over the water. A number of houses entirely for the forcing of foreign grapes are now building round Philadelphia, one 520 ft. in length; and in the city, green-houses, hot-houses, camellia-houses, and propagating-houses are being erected. There is more glass going to be put up this season than on any former occasion. A magazine similar to your own is now established, conducted by Messrs. Hovey of Boston [see Vol. XI. p. 530.]. There is a *E*uphórbi*a* here, that was introduced in 1828, from

Mexico, by Mr. Poinsette. It went under the name of *E.* heterophýlla for a few years, until its true character became more conspicuous. It was then named Poinsétti*i*, in honour of Mr. Poinsette, by Mr. Robert Buist, nurseryman and florist, Philadelphia. Last winter it was surprisingly grand with me in the stove. The bracteæ were 18in., and on some plants 20in., in diameter, and of the most brilliant scarlet, remaining in the greatest perfection from the first of December to the latter end of March, and forming, during the solitary months of winter, a most magnificent ornament to our collections. It is easy of cultivation, and certain of flowering regularly, if kept in the warmest situation of the house. I treat it in every respect the same as a geranium, except keeping it in the hot-house during winter. About the middle of May, I cut down the last year's wood, which is commonly from 3 ft. to 4 ft. in length, leaving one or two eyes according to the strength of the plant. The wood that is cut off will be found to make the finest plants from cuttings, making the cuttings three or four days previous to their being planted, so as to dry the milky substance that comes from them. After the plants are struck, they ought to be put out of the pots into the open ground, and taken up, with the greatest of care, with large balls of earth. You have no idea what a fine addition this is to the stove. Every collection about London, or in Europe, should procure a plant of it, if it is not with you already. I never saw this plant either in Scotland or England, and can with confidence say it is the finest thing I have ever seen: some call it the Dutchman's parasol. You seem to doubt (Vol XI. p. 530.) about there being a male and female Maclùr*a* aurantìaca, or Osage orange, in the nursery of Mrs. M'Mahon, near Philadelphia. There are four old trees in that nursery, three females and one male. Only the female that stands alongside of the male produces perfect seeds. The other females are about 30 yards from the male, and their fruit is abortive, and is not near so large as the fruit from the productive tree. The above facts became publicly known in 1832, while the nursery was in the possession of the late firm of Hibbert and Buist. I have not the smallest doubt but the Maclùr*a* would produce fruit in the south of England by planting a male and female close together. It is generally supposed that the wood will make an excellent yellow dye. Should you deem these remarks worthy of a place in your Magazine, I think it will be the means of our nurserymen exporting euphorbias. I shall continue with pleasure to inform you of anything that may come under my own observation. — *Peter Mackenzie, Gardener to Henry Pratt, Esq., Lemon Hill, Philadelphia.*

Our correspondent is so kind as to offer to send us certain dried specimens and native plants. We should prefer to them seeds of trees and shrubs, if it would not give him too much trouble to collect them. We particularly wish acorns and nuts, and these should be packed in moist *S*phágnum, as soon as convenient after they are gathered, in order to preserve the vital principle. If they vegetate during the voyage it will be of no bad consequence. — *Cond.*

SOUTH AMERICA.

The Timber Trees which grow in the Neighbourhood of Caraccas. — I have just received from Sir Robert Ker Porter a valuable box of specimens of the various timber trees which grow in the neighbourhood of Caraccas, most of which promise to become of great commercial importance, when the state of society admits of the formation of roads and other conveniences for felling, transporting, and shipping them. At present they are of no commercial or other earthly value. I regret that among them I have no specimen of the aguatire (*Sichíngia* Erythróxylon *Humb.*), which abounds on the mountains of Higuerote, and furnishes a timber of the most beautiful blood-red hue, and compact grain: of this I have been labouring in vain for years to obtain a specimen. Sir Robert gives me only the local names of specimens he has sent, which prevents my learning anything farther about them; nor has he accompanied them, as I requested, by specimens of their leaves, flowers, or fruit.

Among them are two specimens of cedar; one inscribed Cedro amargo, or Bitter cedar, and the other Cedro dulce, or Sweet cedar; both of the colour of new mahogany, and both exhaling the cedar odour strongly: their resemblance is such, that, but for the difference of name, I should have concluded them to be taken from the same tree. Whether the specimens are the produce of a *Pinus Juniperus*, or what, I cannot say. They do not appear to me to resemble the timber of any of the bignonias, several of which are vulgarly denominated cedars; as the B. leucóxylon, or white wood, and B. pentaphýlla; both of which are called white cedar in our English islands; but the timber of which is white, and of a totally different grain and texture, as well as destitute of smell; while the specimens sent have not only the red colour, but the grain and peculiar odour, of the Bermuda cedar. One of the other specimens resembles satin wood; and one or two others, which probably come from some of the species of Brówn*ia*, the timber of which is known in this country under the name of zebra wood, appear as handsome as rose wood, and are close grained and heavy. Should an opportunity of private conveyance offer, I shall cut off a piece from each specimen, and send it to you, accompanied by its local name. Upon referring again to the specimens, I find a considerable difference in colour and grain between the Cedro dulce and the Cedro amargo; and neither are so red as the Bermuda cedar: the smell of the former, also, is fainter, and its colour paler, than those of the latter. The wood resembling rose wood is labelled Chacarandan; and, from its weight, its specific gravity must be considerable.

Besides these, Sir Robert has sent me six seeds of the wax tree of Guayana, accompanied by nearly six inches of a candle made from the wax. Enclosed you will find two of these seeds accompanied by some of the wax (as it is called, although evidently a resinous substance, and not sebaceous), which I took off the upper part of the candle. Should you desire more, I shall gladly send it to you. Sir Robert says the tree producing it is called by the Indians Cuajo; the j aspirated, like ho. He says it is a large and shady tree, but professes himself ignorant as to the manner in which the wax is obtained. I hope you will be able to make the seeds vegetate, and that you will succeed in determining what the tree is. Party spirit runs so high here, that I fear I shall be unable to execute your commission. I have tried two different quarters, but, as yet, without effect. — *W. Hamilton. Plymouth, April* 15. 1835.

WEST INDIES.

The Practicability of cultivating Wheat, and other Articles of Agricultural Produce, at certain Elevations, in the West Indies. — The problem of the practicability of cultivating wheat at certain elevations in the West Indies, which vulgar opinion absolutely denied, and which the remarks of Humboldt rendered at least questionable, is now solved, as far, at least, as Jamaica is concerned, in the most satisfactory manner; and I think I may be allowed to anticipate the day when wheat will be added to our other imports from that fine colony, and tend materially to the advantage both of the parent state and the inhabitants of the island. Dr. Bancroft's information on this subject is as follows: —

"*Victoria Wheat.* The Jamaica Society have received samples, from three or four different places, of the wheat produced there, all of which appear to be of a favourable sort. First, from the mountains of St. Ann's, where the seed had been sown in the latter end of January, and the corn was ripe the latter end of April. In another part of the same district, the dates of sowing differed from the above, but the wheat ripened in nearly the same period. Secondly, from the mountains of St. Andrew's: on one property (Fair Hill), the sowing and the ripening happened at the same dates as in the first-mentioned case. Of this corn, one grain produced 28 ears, containing 1500 grains. Notwithstanding this apparent success, the proprietor of the place thinks it unlikely that planters would grow Victoria wheat in preference to the great corn, as it is called here

(i. e. *Zèa Màys*). On another plantation, again, Charlottenberg, the seed was sown early in March, and received a top dressing in the course of a few days: it had already sprung three inches above ground; and, as favourable moderate rains continued to fall subsequently, the corn throve well, and ripened in the early part of June, producing abundantly grain of a larger size than the parent seed; the ears being, in general, large and full. Six of these, for instance, yielded 336 grains, weighing three ounces; making an average of 56 grains, weighing half an ounce, to each ear. The owner of this plantation, Mr. W. B. King, an assistant judge of assize, and member of assembly, has since sent me two bundles of the ears of his wheat; and I intend to enclose one or two of them as a specimen of the produce of the Victoria wheat here. From a trial just made, Mr. King has no doubt that this grain could be cultivated in many parts of this island, and that it might become a profitable resource."

I have no time to comment upon this, farther than to observe, that, besides furnishing a practical refutation of a vulgar and pernicious error, it opens a field to much curious and valuable speculation. From the similarity of climate, I conceive that, if any wheat was likely to succeed, the Victoria held out the best chance, and, accordingly, sent an ample supply by different channels. The experiment having so far triumphantly succeeded, and Humboldt's period, of from 70 to 74 days between seed time and harvest, having been in every instance verified, it will be worth while to try other varieties of wheat; and, if any of your correspondents will supply me (post free) with samples of the most approved sorts of wheat, I shall gladly transmit them to Jamaica. I regret that Dr. Bancroft has omitted the dates of sowing and ripening, the elevation above the sea, and the mean temperature of the months during which the wheat was growing.

The Trifòlium incarnàtum, of which I sent out several supplies of seed, has succeeded admirably at Charlottenberg, at an elevation of 4000 ft., where it has grown and flourished luxuriantly, and has since produced seed. At Fair Hill, in the mountains of St. Andrew's, a considerable patch, which was planted at an elevation of about 2000 ft. above the sea, after flourishing well for a few weeks, was destroyed by the occurrence of a long drought. In an island where fodder is so scarce as in Jamaica, this plant promises to be of much importance.

Oxalis crenàta. The climate appears to be too hot and dry for the *O*xalis crenàta: further experiments, however, may exhibit more favourable results.

The Pita does not appears to realise my expectations, either from the unsuitableness of the soil, or the want of humidity, or other causes, which, at this distance, I am unable to ascertain. Could I personally visit that part of the province of Carthagena in which it grows spontaneously, I should be able to determine the circumstances essential to its culture; in point of climate, that of Jamaica must correspond closely with its own. On this point, however, I anticipate favourable reports. Dr. Bancroft has sent me a few seeds of the Chenopòdium *Quinòa* from Quito; and of a plant called *Tomata de Arbal*, said to be a native of the equator, but the seeds of which he received from the alpine regions of Antioquia, where its fruit is used in cookery, like the true tomata (Lycopérsicum edùle), and is also considered as a very palatable food when eaten by itself.

Dr. Bancroft says the name of tree tomata (*Tomata de Arbal*) is given to it, not from any affinity it bears (as far as he could learn) to the genus *S*olànum, but from the analogous use of its fruit: from the appearance of the seed, however, and a leaf which he sent me, I suspect it will prove to be a *S*olànum, and, possibly, the *S.* quitènse; only that the leaf sent (nearly 8 in. long by 4 in. broad) is oblong-ovate, acuminated, very entire, hearted at the base, with the lobes unequal, and overlapping the midrib; contrary to what is usual, waved, together with the primary veins. This, however, may be the effect of bad drying; Dr. Bancroft saying "it was not properly pressed when first gathered, and it has, consequently, shriveled in length and breadth, being at least one inch shorter than at first." The leaves of the *S.* quitènse are, I believe, lobed. Dr. Bancroft says, "To what genus or order it may belong, I cannot at present tell. I am informed

that it grows to the height of 10 ft., 12 ft., or 15 ft.; but I should be disposed at present to consider it, at most, rather as a shrubby tree than as a tree proper: perhaps it will prove to be only a tall herbaceous plant. Some of the seeds I distributed have been sown in the mountains, and have already grown to the height of about 15 in., and produced leaves which are comparatively of an enormous size." This plant will probably be a conservatory one, if not a hardy annual in this country. — *W. Hamilton. Oxford Place, Plymouth, Aug.* 20. 1835.

Art. III. *Domestic Notices.*

ENGLAND.

A Plant of Brugmánsia suavèolens, grown in the garden of Richard Durant, Esq., Putney Hill, and now in flower there, was propagated from a cutting in August, 1833. It is in a pot 12 in. deep, by 13 in. over; its height is 5 ft.; and it has a single stem 2 ft. high, with a spreading top, the circumference of which is 19 ft. It shows at the present time 102 flowers and flower buds, 80 of which are expanded. Each of its pure white trumpet-like flowers measures 53 square inches; so that it will, in about four weeks from its first beginning to flower, produce 8586 square inches of flower, and all from less than one solid foot of mould. We have another Brugmánsia, that was exhibited at Chiswick last year, three years old, which had upon it, thirteen weeks before the exhibition, 228 flowers and flower buds. Another, now in flower, one year old, growing in a pot, size 16, has 40 flowers upon it. — *J. Spence. Putney Hill, Oct.* 14. 1835.

We shall be glad to receive an account of the mode in which this plant was grown.—*Cond.*

Brugmánsia suavèolens W. grown in the same sort of loam and peat as mentioned above, is 16 ft. high, and had 700 flowers on it during the year 1835. The flowers, when expanded, were, on an average, 1 ft. long, and 36 in. in circumference at the mouth. The conservatory is about 60 ft. by 30 ft., built by P. Robinson, Esq., architect; and the height of the dome is 30 ft. It is the best place in the country to grow camellias; and the worthy owner (R. Williams, Esq., M.P.) spares no expense to beautify his mansion, and extensive pleasure-grounds; and, if he continue to enlarge them (as I have no doubt he will), they will be the finest grounds in the country. — *James Harbison. Bridehead house, Feb.* 19. 1836.

The Chimonánthus frágrans has produced fruit, a specimen of which I send you: it does not often fruit here; in the neighbourhood of London it may, probably, do so more frequently. — *Id.*

Alstrœmerias in the open Air in Devonshire. — I send herewith a stem of Alstrœmèria ovàta, 14 ft. long (Loddiges); and another of A. hirtélla, 11 ft. long (Tate), to show, in proof of what I stated in a paper on acclimatising trees, which I sent you some time since [and which shall appear in an early Number], the great luxuriance with which they grow in the open air in Devon. —*R. Glendinning. Bicton Gardens, near Exeter, August* 22. 1835.

Láthyrus rotundifòlius W., though one of the very handsomest of its genus, is, I believe, in but few collections at present; yet few plants are more ornamental, or more deserving a place in the flower-garden, than this beautiful pea. It is a perennial, quite hardy, and not much of a climber, as it seldom exceeds 3 ft., or at most 4 ft., in height. It is a free flowerer, and produces its long upright racemes of delicate rose-coloured blossoms as early as the first or second week in May, a month earlier than most other species of its genus. It generally ripens its seeds, by which, and also by dividing the roots, it may be readily increased. According to all the authors that I have had an opportunity of consulting, it is stated to have been first brought to England in 1822; but this cannot be the true date of its first introduction to this country, for it is certain that it was cultivated in the Oxford garden, before the late Dr. Wil-

liams was appointed to the botanical professorship, in 1795; and I know that he considered it to have been introduced to Oxford by his predecessor, Dr. John Sibthorp, who enriched the garden by the introduction of a great number of plants from Greece, and other foreign countries. As far as I have observed, there is no specimen of this lathyrus in the Sibthorpean Herbarium; neither is it described in the *Flora Græca*. The earliest account I find of it is in the *Annals of Botany*, by König and Sims (vol. ii. p. 451.), where it is described as a newly discovered plant, in a paper entitled "Some Account of the Vegetable Productions of the Countries situated between the Terek and Kur, rivers flowing into the Caspian Sea. Extracted from a description of these parts by F. R. Marschall von Bieberstein." The work of M. Bieberstein from which the extracts were made was published, according to the *Annals of Botany*, in 1800; and, in the same year, Professor Willdenow published the name of this plant in the third volume of his edition of Linnæus's *Species Plantarum*, p. 1088.: this was six years after the death of Dr. Sibthorp; by whom, I think, there is no doubt the plant was introduced into the Oxford Garden. It appears not to have been in the Kew Garden in 1812, when the second edition of the *Hortus Kewensis* was published. It has been recently figured and described in Maund's *Botanic Garden*; but, as I have no access to that work, I am unable to refer to the plate in which it is figured. [t. 511.] — *William Baxter. Botanic Garden, Oxford, March* 7. 1836.

Ipomœ'a rùbro-cærùlea. — Many persons are deterred from cultivating this beautiful plant, from the idea that it requires a stove to bring it to perfection. This, however, is not the case, as nothing could be more splendid than the blossoms on a plant which I had last summer, in a pot in the open air. Three or four large magnificent blossoms, of a most brilliant ultramarine blue, expanded every morning for several weeks, dying off a pale pink; and in the end the plant produced several pods of ripe seeds. It was raised in heat, and trained up a slight frame, but received no farther culture, except occasional watering. — *F. Rauch. Bayswater, Oct.* 28. 1835.

Strelítzia augústa H. K. — A magnificent specimen of this plant is now in fine flower in the stove of Joseph Wilson, Esq., Clapham Common, under the care of my very esteemed friend Mr. Joseph Gunner, who is gardener there. — *W. P., jun. Wandsworth Road, March* 1. 1836.

Art. IV. *Entomological Society.*

The labours of this most useful Society, though only lately commenced, will ultimately be of immense advantage to the gardener and the farmer. We can strongly recommend these *Transactions* (in two parts, 7*s.* 6*d.* each) to all who can afford to purchase them; and, at all events, to all gardening and agricultural societies, and to all county book clubs. Mankind in general know little of the gigantic operations that are performed by insects, and of the immense influence which creatures, that could not be seen with the naked eye by our rude ancestors, have directly and indirectly on human happiness. We intend, from time to time, to notice the progress of this Society, as far as respects vegetable cultivation; and, in the mean time, we give the following extract from the *Address on the Second Anniversary*, by the Rev. F. W. Hope, President:—

"In Grenada, the *C*icàda (*D*élphax saccharívora *Westwood, Mag. of Nat. Hist.*, vol. vi. p. 407—413.; vol. vii. p. 496.) still continues its ravages on the sugar canes, and I regret to state that *two thirds* of the crop are already destroyed. A species of Cóccus, which infests our hot-houses, prevents the pine-apple from arriving at perfection. In various counties, arising, probably, from the mildness of our late winters, the wire worm, the flea beetle, and the saw fly and caterpillar have nearly annihilated the turnip crops. To find antidotes against these evils should be the unceasing object of your enquiries. Respecting the turnip beetle, there is now a better prospect of checking this

scourge, as we have lately become acquainted with its larva and pupa in a notice by Mr. Lekeux.

"A communication from Mr. Mills of Durham, respecting the corn weevil being effectually destroyed by the application of heat, deserves to be generally known. Such notices as the above will convince the public that we are not mere collectors of insects, but that we cultivate science in the sincere hope of being able to apply our knowledge beneficially." (p. 5.)

Turnip Fly.— At the ordinary Meeting of the Entomological Society held on Monday evening, a communication from Mr. Raddon, respecting the natural history and habits of the turnip fly, was read by the secretary, which was accompanied by specimens of the larvæ and pupæ. The larva is a small black caterpillar, having six legs of about the eighth of an inch in length, being extremely active, and hopping about with great agility, so as to render it extremely difficult to catch it. Towards the end of the summer, it enters the earth, and there undergoes its change of form, coming out of the pupa a beetle. [It is creditable to the Society, that they have made this subject the theme of a prize essay, and have been the means of bringing before the public even so much as is stated above on the turnip beetle; for the pamphlet of the Doncaster Agricultural Association on this insect, and the means of preventing its ravages, published in 1834, is a comprehensive proof that the attempts at preventing its ravages have been more numerous than the attempts to ascertain intimately its personal history; which last object is the one that would have most conduced to the discovery of what was to be prevented; and, hence, to the employment of the most effectual means of effecting this object.] The best essay on the habits of the insect, and the readiest and cheapest mode of preventing its ravages, is the subject of a prize to be given by the Society in the course of the present session. (*Newspaper*, Jan. 6. 1836.)

Silkworms.—At the ordinary Meeting of the Entomological Society held on Monday evening, M. Hoffman of Munich presented a series of specimens of the silkworm in its different stages. He stated that he had long had them successfully in cultivation at Munich, were he had upwards of 30,000. In the mountains of Savoy, where the cold is much more severe than in England, they flourish equally well; and he expressed himself confident that, both here and in Ireland, the production of silk in large quantities might, with moderate care, be successfully introduced. — *B. Jan.* 1836.

The Subject of the London Entomological Society's Prize Essay for 1836 *is the Cóccus of the Pine-apple Plant.* — The plan of the essay is, that it do include a description of the natural history of the insect, and of a mode or modes of preventing its ravages, founded upon actual experiments; and be accompanied by testimonials of the measure of success of the mode or modes. Every candidate is to forward his essay with a fictitious signature, and the testimonials, and a sealed letter including his real name, under cover, to the secretary, 17. Old Bond Street, on or before Jan 4. 1837. (*Mag. Nat. Hist.*, ix. 219.)

Art. V. *Retrospective Criticism.*

Arboretum Britannicum. (p. 32.) — "The asterisk before 'Cheshunt, Mr. Sanders,' should have been omitted, as the place has little or no pretensions to an arboretum. —— Harrison's, Esq., place there is entitled, at least, to the †. — *J. R.*"

This error arose from some mistake, as we fully intended to mark Mr. Harrison's place with a *; as we were perfectly aware of that gentleman's possessing an arboretum, from the comprehensive and well filled up Return Paper we have received of it. — *Cond.*

Wistària chinénsis producing Seed. (p. 75.) — Observing some observations on a plant of Wistària chinénsis having produced seed at the residence of F. Bernasconi, Esq.; and, having served that worthy gentleman in the capacity of

gardener for upwards of eight years, I am well acquainted with the plant in question, and am of opinion that it is of a different variety from any I have ever observed in any other place. I therefore hope that a short history of it will prove interesting to you, and also to your readers; and, if so, I shall feel a pleasure in having placed it at your service. I purchased the plant a seedling at the Clapton Nursery, in the autumn of 1830; and I was there informed it had been raised from some seeds imported by Mr. Loudon, conductor of the *Gard. Mag.* [We brought seeds, and also a few plants, from Carlsruhe, in the winter of 1828, and gave some of the seeds to the Clapton Nursery. We were informed by M. Hartweg, the director of the Botanic Garden at Carlsruhe, that they were produced by Glycine sinénsis; but the tree being, at that time, without leaves, we could not ascertain the fact from our own knowledge.] In the spring following, I planted it out where it is now growing. In July, 1833, it showed three clusters of flowers which produced seeds, the plant at that time being in a very vigorous state of growth. In the end of June, 1834, the plant was again in flower, and again produced seed; the greater part of which, at M. Bernasconi's particular desire, was sent to the London Horticultural Society; for which, I believe, he received a letter of thanks. In the autumn of the same year, it flowered a second time; but the season was too far advanced for the seed to ripen before the approach of winter. The above dates are only taken from memory; but, to the best of my belief, they are correct; and, taking these facts into consideration, I cannot agree with Mr. Sleigh, in supposing that the fructiferous habit of the plant is to be attributed to the nature of the soil it grows in; but am of opinion it is entirely owing to its being a variety, or, perhaps, species; and I flatter myself that the three following reasons will convince you also.

First, the plant produced seeds the third year after planting, and the fourth year from the seed, being at that time, in a very vigorous state of growth; secondly, it flowered at a much later season than the common kind; and, thirdly, I have seen many plants of Wistàr*ia* chinénsis, growing in a similar situation to that described by Mr. Sleigh, by the side of gravel walks, that never showed the least inclination to produce seed. One of these last-mentioned plants grows over the door of the mansion in Cashiobury Park, the princely residence of the Earl of Essex; and I have no doubt that my worthy friend Mr. Anderson (His Lordship's very intelligent gardener) will feel a pleasure in showing it to Mr. Sleigh. A few seeds, which ripened while I was with M. Bernasconi, which I had remaining, I gave to Mr. Young, a very respectable nurseryman at Taunton, who has now got a stock of plants. — *James Duncan, Gardener. Walford House, N. Taunton, Somerset, Feb.* 19. 1836.

The Destruction of the White Scale on the Pine Plant seems to have drawn forth the jarring elements of contention between L. O. L. and J. B. W. (p. 160.); the one affirming that these insects can be thoroughly eradicated without previous removal from the plant, and the other that they cannot. I have, unfortunately, been subject to the facetious *rub* of J. B. W., in meeting in my peregrinations with pine-apple plants inordinately "prolific in the white scale;" and yet I have succeeded, though every plant has been infested with myriads, in destroying them, without having recourse to the shampooing process. After trying various methods, I was successful, on about 600 plants, with the following mixture, which, you will observe, is little different from the recipes of old writers on gardening: — 2 lb. sulphur, 2 lb. soft soap, 1½ lb. tobacco, 2 oz. nux vomica, 1 oz. camphor dissolved in a wine-glassful of spirit of turpentine. Add 8 gallons of water, and boil the whole an hour. When the mixture has fallen to a temperature of 120°, immerse each plant separately, keeping the liquid as near as possible to that degree of heat. This I did in March, 1832, when the plants were disrooted; and I have never seen a scale on them since. I am in possession of a more simple mixture, which has proved, in other instances, equally efficacious; but to the above I can speak from my own unqualified success, without the auxiliary process of rubbing. — *R. G. Bicton, March* 8. 1836.

Art. VI. *Queries and Answers.*

The Mistletoe (*Viscum album* L.): *Facts in its Economy, and, mainly, in Relation to the Question* (*expressed in* Vol. XI. p. 318.), *whether, in any Two Plants developed from One Seed, both are of the same Sex.* — I send you specimens of a few plants of the common mistletoe (*Viscum album L.*), raised from seeds which I have, at different times, sown on the bark of some apple trees in the Oxford Botanic Garden.

No. 1. This is from a plant which, I believe, is about 18 or 20 years old: it is a large plant, and ramifies very much from the base: it is now in full flower, and the flowers on all the branches (whether they originally proceeded from 1 or 2 embryos, it is now impossible to ascertain) are *male*.

No. 2. This is from a plant of about the same age as No. 1., and, like that, it is very much branched from the base. The flowers on this plant are all *female*.

No. 3. This, also, is from a large and oldish plant, and which, like Nos. 1. and 2., produces from its very base a number of branches, all of which bear *female* flowers only.

No. 4. This specimen is from a younger plant than the three preceding ones: the stem is simple at the base, but afterwards much branched. All the flowers are *female*.

No. 5. The specimens of this number are from a young plant which has two distinct stems from the very base; and I think it is not improbable that the seed from which they were produced had a double embryo; a circumstance of common occurrence in the seeds of this plant. All the flowers on each of the two stems are *female*.

No. 6. The specimens of this number are from a very young plant, which has two distinct stems from the very base: these, like those of No. 5., were probably produced from a seed with a double embryo. The flowers produced from both stems are, like those of No. 5., *female*.

No. 7. The specimens of this number are from a younger plant than that from which the specimens No. 6. were taken: it has three distinct stems, all of which appear to have been produced from one seed; consequently, the seed must have had a triple embryo. From the appearance of the buds, I should expect that the flowers, when developed, will prove to be all of the same sex.

No. 8. The four specimens of this number are from four distinct stems, which, to all appearance, must have been the produce of one individual seed: the plant is a very young one; and I believe this is the first season of its flowering. All the flowers on the four stems are *female*.

No. 9. A young plant, with two distinct stems, from a berry sown on the bark of an apple tree, in the Oxford Garden, about three years ago.

The seeds from which the above specimens were produced were all sown at a sufficient distance to prevent their coming in contact with each other. The specimen No. 2. was growing on a crab tree, in a shady situation; which is probably the cause of its being of a greener colour than the other, and, also, of the leaves being longer and narrower, and the plant of a more slender growth. All the other specimens were exposed to the sun nearly the whole of the day. — *William Baxter. Botanic Garden, Oxford, March* 6. 1836.

The Two Plants of Mistletoe, noticed in Vol. XI. p. 318., *as deemed to have been produced from One Seed, are of distinct Sexes.* — The two plants arose from the [hawthorn tree's] bark, very near each other: both have grown remarkably quickly. They are of distinct sexes. In June, 1835, the female plant showed symptoms of decay, and is since dead. I have just gone sorrowing to the tree, to take another view of the lifeless stump; when, to my surprise and gratification, I perceived, about 1 in. from the dead stump, on the side farthest from the male plant, three young branches that had just peered out; so that I hope I may still have the gratification of showing my friends the two sexes of the mistletoe, in two plants from one seed. — *Henry Turner, Botanic Garden, Bury St. Edmund's, Suffolk, August*, 1835.

[It is admitted, in Vol. XI. p. 318., that there is a slight shadow of doubt hanging over the impression that these two plants were produced from one seed; otherwise the facts of the case would lead to a conclusion different to that from which those of the cases related by Mr. Baxter would lead. As it is, with best thanks to both correspondents for the relating of the cases, there is ground of need for additional cases before the question can be regarded as settled. Any correspondent who may feel interested in it, may assist in settling it by sowing individual seeds of mistletoe, quite distinctly from one another, and observing and stating the results. It can scarcely be practicable to discern which seeds contain more embryos than one, before they have germinated to evince them; but it is essential, and much, to be able, if more than one plant be developed in any place of sowing, to feel certain that they have proceeded from one seed.

The fact stated by Mr. Turner, that young living shoots had sprouted forth about 1 in. distant from the dead stump of an older plant, is very interesting in its apparent relation to a question first mooted by Professor Henslow, and communicated by him for the *Magazine of Natural History*, and published in that work. (Vol. VI. p. 500.) The nature of this question will be apparent from the following conclusion of Professor Henslow's: . . . . "there can be no doubt of the mistletoe being propagated [in the bark or young wood of the trees in which it is parasitically established] in the manner of those terrestrial plants, which, like the potato, possess rhizomata, or under-ground stems, from whose surface young plants are developed at intervals."

The male flowers in one of the numbered sets of which Mr. Baxter sent specimens were in bloom, and had an odour somewhat resembling that of ripe apples, perceptible on being smelled to.]

The Raisin des Carmes, and other Grapes. — If this should meet the eye of any person who knows any thing of the original plants from which Mr. Hooker's drawings of the raisin des Carmes and Black Prince grapes were taken for the *Pomona Londinensis;* and if those plants are still existing, or authenticated plants raised from them; I should be much obliged to receive an eye of each by post. Perhaps Mr. Fish would take the trouble of making the enquiry, and procuring the cuttings for me. The Black Prince was figured from some place about Highgate, and the raisin des Carmes from a plant in the possession of "J. R. Wheeler, Esq., of Gloucester Place, New Road, London, who received the plant from George Jenner, Esq., of Chiselhurst."—*D. Beaton. Haffield, Ledbury, Herefordshire.*

White Scale on Pine Plants. (Vol. XI. p. 604.) — My method of destroying the white scale on pine plants is as follows: — Take soot and sulphur, each an equal quantity, and mix them well together in a dry state; then take a small brush, or a bit of sponge tied to the end of a small stick, and apply the above mixture to the plants, causing it to run down between the leaves as much as possible. I found that one dressing cleaned a pit of pine-apple plants under my care; and I never have seen any insect on them since, though it is two years ago. This powder has been used by others, as well as myself, and it has no bad effect on the plants whatever. — *William Trotter. Flitwick Gardens, Nov.* 27. 1835.

The Canker on Cucumber Plants. (Vol. XI. p. 605.) — I find that the spreading of fine white sand, about half an inch deep, over the surface of the mould in the frames in use for early forcing, is an effectual means of keeping away the canker, and also the damp, provided a proper heat be kept up. It also keeps down the rank steam, which is often injurious to the plants. — *Id.*

The Canker on Cucumber Plants. (Vol. XI. p. 605.) — In answer to Mr. Shuttleworth's enquiries respecting the canker, to which cucumber plants are subject, I have to observe, that, when proper water is used, it is seldom that canker makes its appearance. In order to remove it, lay on the affected place fresh lime finely powdered; and repeat this every day until the disease disappears, taking care to brush off that which was laid on the preceding day. — *W. Henderson, Gardener. Crum Castle, March* 1. 1836.

Art. VII. *Covent Garden Market.*

	From £ s. d.	To £ s. d.
The Cabbage Tribe.		
Cabbage, per dozen:		
Large White	0 2 6	0 4 0
Plants, or Coleworts	0 6 0	0 8 0
Savoys	0 2 0	0 2 6
Brussels Sprouts, per sieve	0 2 0	0 2 6
German Greens, or Kale, per dozen	0 0 9	0 1 6
Broccoli, per bunch:		
White	0 2 6	0 6 0
Green	0 1 6	0 4 0
Purple	0 1 6	0 4 0
Turnip-tops { per sack	0 3 6	0 5 0
Turnip-tops { per sieve	0 1 0	0 1 6
Legumes.		
Peas, forced, per punnet	0 5 0	0 10 0
Kidneybeans, forced, per hundred	0 2 0	0 3 0
Tubers and Roots.		
Potatoes { per ton	5 0 0	7 10 0
Potatoes { per cwt.	0 5 0	0 8 0
Potatoes { per bushel	0 2 6	0 4 0
Kidney, per bushel	0 3 0	0 3 6
Scotch, per bushel	0 3 6	0 4 0
New, per pound	0 1 6	0 3 6
Jerusalem Artichokes { per ½ sieve	0 1 6	0 0 0
Jerusalem Artichokes { per dozen	0 0 6	0 0 9
Turnips, White, per bunch	0 0 3	0 0 6
Carrots, per bunch	0 0 6	0 0 8
Horn	0 0 8	0 0 9
Parsneps, per dozen	0 1 0	0 2 0
Red Beet, per dozen	0 1 0	0 1 6
Skirret, per bunch	0 1 6	0 0 0
Scorzonera, per bundle	0 1 6	0 0 0
Salsify, per bunch	0 1 6	0 0 0
Horseradish, per bundle	0 2 6	0 5 0
Radishes, Red, per dozen hands (24 to 30 each)	0 0 9	0 1 6
The Spinach Tribe.		
Spinach { per sieve	0 2 0	0 3 0
Spinach { per half sieve	0 1 0	0 1 6
Sorrel, per half sieve	0 5 0	0 7 0
The Onion Tribe.		
Onions, old, per bushel	0 3 6	0 5 0
for pickling, per half sieve	0 2 6	0 4 0
when green (Ciboules) per bunch	0 0 3	0 0 4
Leeks, per doz. bunches	0 0 9	0 2 0
Garlic, per pound	0 0 8	0 0 0
Shallots, per pound	0 0 8	0 0 0
Asparaginous Plants, Salads, &c.		
Asparagus, per hundred:		
Large	0 7 0	0 9 0
Seconds	0 5 0	0 6 0
Middling	0 2 0	0 3 0
Small	0 1 0	0 1 6
Sea-kale, per punnet	0 1 0	0 3 6
Lettuce, Cabbage, per score	0 0 6	0 0 8
Endive, per score	0 3 0	0 7 0
Celery, per bundle (12 to 15)	0 1 6	0 2 6
Small Salads, per punnet	0 0 2	0 0 3
Watercress, per dozen small bunches	0 0 4	0 0 6
Pot and Sweet Herbs.		
Parsley, per half sieve	0 3 6	0 5 0
Tarragon, per doz. bunches:		
Dried	0 2 6	0 0 0
Green	0 4 0	0 0 0
Fennel, per dozen bunches	0 2 0	0 3 0
Thyme, per dozen bunches	0 2 6	0 0 0
Sage, per dozen bunches	0 2 6	0 0 0
Mint, forced, per dozen bun.	0 6 0	0 0 0
Peppermint, dry, per doz. bun.	0 1 0	0 0 0
Marjoram, dry, per doz. bun.	0 1 0	0 0 0
Savory, dry, per dozen bun.	0 1 0	0 0 0
Basil, dry, per doz. bunches	0 1 3	0 0 0
Rosemary, per dozen bunches	0 5 0	0 0 0
Lavender, per dozen bunches	0 3 0	0 0 0
Stalks and Fruits for Tarts, Pickling, &c.		
Rhubarb Stalks, forced, per bundle	0 0 9	0 1 6
Edible Fungi and Fuci.		
Mushrooms, per pottle	0 1 0	0 1 6
Morels, dry, per pound	0 16 0	0 0 0
Truffles, dry, per pound:		
English	0 14 0	0 0 0
Foreign	0 16 0	0 0 0
Fruits.		
Apples, Dessert, per bushel:		
Nonpareils	0 15 0	1 5 0
Court pendu	0 3 6	0 5 0
Reinette grise	1 0 0	0 0 0
Baking	0 4 6	0 7 6
French, per bushel	0 3 6	0 7 0
Pears, Dessert, per dozen:		
Beurré rance	0 6 0	0 8 0
Beurré de Pentecôte	0 6 0	0 8 0
Colman's	0 4 6	0 8 0
Bonne Chrétienne	0 4 0	0 6 0
Raspberries, red, per ounce	0 2 0	0 0 0
Strawberries, forced, per oz.	0 2 6	0 3 6
Pine-apples, per pound	0 6 0	0 12 0
Grapes, hot-house, per pound	1 10 0	0 0 0
Cucumbers, frame, per brace	0 6 0	0 12 0
Oranges { per dozen	0 0 6	0 2 6
Oranges { per hundred	0 3 6	0 16 0
Bitter, per hundred	0 6 0	1 4 0
Lemons { per dozen	0 0 9	0 2 0
Lemons { per hundred	0 5 0	0 14 0
Shaddocks, per dozen	2 2 0	3 3 0
Pomeloes, or Forbidden Fruit	0 8 0	0 12 0
Olives, per dozen	0 12 0	0 0 0
Sweet Almonds, per pound	0 3 0	0 3 6
Brazil Nuts, per bushel	0 14 0	0 16 0
Spanish Nuts, per bushel	0 16 0	1 0 0
Barcelona Nuts, per peck	1 0 0	0 0 0

Observations. — From the date of the last report, until Friday last, the 18th, we have, with slight intermissions, had a series of cold and chilling winds, with much rain, which has materially retarded the progress of vegetation. This, superadded to the effect of the dry summer (which has induced, throughout the winter, a scarcity of most articles), has materially enhanced the value of the vegetables in demand at this season, as very clearly indicated by the scale of prices quoted: an exception to the rule prevails as regards the forced articles. Asparagus has been abundant, and very low in price. Sea-kale (except for a short period) has been plentiful, and at a moderate rate. Broccolis of the best description have been very scarce, and certainly dear; but, as in all previous seasons, when the value of any article, but that of immediate necessity, reaches its maximum, it is less sought after, and declines in price: so that of

broccoli is now not near so high, although much better in quality, as it was three weeks since. Celery, endive, lettuces, and saladings generally, are scarce and rather dear. Of potatoes we have had, up to the present time, a full supply; but, in consequence of the prevalence of violent winds for the last ten days, no arrivals, coastwise, have taken place. The stock on hand has been exhausted, and prices very materially enhanced; but this state will immediately yield to a material reduction on the arrival of a supply to be daily expected.

Of fruits, our supply has principally consisted of apples, which are worth more than before quoted. Of oranges, the quality is now much improved by recent arrivals: prices low. A few hot-house grapes, some raspberries and strawberries, a small parcel of peas, some new potatoes, and a good supply of French beans, were in the market this morning.— *C. G. M. March* 19. 1836.

Art. VIII. *The London Horticultural Society and Garden.*

March 1. 1836.—*Works presented.* Among these is Mémoires de la Société d'E'conomie Rurale de la Russie méridionale, presented by the President of the Society, Count Woronzow.

Exhibited. Camél*lia* japónica supérba, and a seedling and very freely growing kind, from J. Allnutt, Esq. Azàlea *l*edifòlia, sinénsis, póntica; *E*uphórb*ia* spléndens, Amarýllis sp., and camellias and rhododendrons, from Mr. G. Glenny. Winter orange apple, and a capital kind of kitchen pear, which keeps till May, and passe-Colmar pear, from A. Arcedeckne, Esq.

From the Society's Garden. Chimonánthus frà*g*rans, and f. grandiflòrus; and the following varieties of Camél*lia* japónica, élegans, Chándler*i*, *a*nemoneflòra álba, *aucubæ*fòlia, sanguínea, *R*òsa sinénsis, Dorsèt*ii*, various-flowered, double white, Rawes's waratah, Parks's striped rose; Amarýllis sp., *G*ladìolus ramosíssimus, Azàlea índica phœnícea.

Cuttings for Distribution. Pears. Althorp crassane. Broom Park: "its very peculiar flavour may be said to partake of the melon and pine-apple. Season, January." *Trans.*, 2. p. 65. Bonne Chrétienne fondante; one of the most melting of autumn pears. *Apples.* Brabant bellefleur. Figured in *Hort. Trans.*, second ser. vol. i. p. 295.

Exhibitions at the Garden during the ensuing Summer. It was announced that there are to be three; one on May 14., one on June 11., and the other on July 9.; and that tickets are now ready for delivery.

March 15.—*Exhibited.* Specimens of garden-engines from Mr. Read. Pròte*a* longiflòra, speciòsa ròsea; *A*càcia longíssima, pubéscens, affìnis, stricta; Azàlea *l*edifòlia, and *C*yclamen pérsicum, from Mrs. Marryat. A collection of various flowers from the Hon. W. F. Strangways. Cut flowers and camellias of the following kinds, seedling, Allnutt's seedling, supérba, Colvíll*ii*, and *a*nemoneflòra álba, from J. Allnutt, Esq.

From the Garden of the Society. — The following varieties of Camél*lia* japónica, élegans, corállina, prínceps, Dorsèt*ii*, Parks's striped rose, various-flowered, double-white, double-striped, Colvíll*ii*, and waratah; *C*rìnum amábile.

Cuttings for Distribution of the following kinds of fruit. Emerald pear: this is a new Flemish kind of pear, received, without a name, from Dr. van Mons: it resembles the glout morceau, and keeps as late. Thompson's pear: also received without a name: it resembles the passe-Colmar in form and flavour, and keeps well. Downton nonpareil apple: the fruit of this is a handsome middle-sized, roundish-oblate apple, and retains its briskness late in the spring, either for table or kitchen use. Hunt's Duke of Gloucester apple: this is an excellent dessert kind for winter and spring. Nanny apple, from the Rev. F. Beadon.

THE

GARDENER'S MAGAZINE,

MAY, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Gardening Notices suggested by a Tour in France, in August and September*, 1835. By T. RIVERS, Jun.

FORCING the Rose. — At Lisle, in one of the numerous small nursery gardens, I was interested with what might be called a most eligible mode of forcing the rose. In this instance, a small span-roofed house was used. A border on each side of the central path was planted with roses budded on dog rose stems of different heights; the shortest stems being put next the path, so as to make their heads form a sloping bank. The surface of these borders was covered with manure, to keep them in a constantly moist state. The common smoke flues were used for heating this house; and the owner informed me that, by beginning to force in December, roses were gathered from it plentifully for the market in March and April.

After the crop of flowers was gathered, the lights were taken off in May, and the plants exposed till the period for forcing again arrived. This method appeared so simple and economical, that I took a memorandum merely for the purpose of suggesting it to your readers; and, for growing moss and other roses for bouquets near London, it might, I think, with some little modification, be carried extensively and profitably into practice. In this way, also, with but very little trouble, a rose garden in full bloom and luxuriance might be created as early as the end of February; and, by selecting some of the ever-blooming varieties, continued nearly through the whole year. And what a delightful sheltered promenade might thus be formed by those who, regardless of expense, would build an elegant span-roofed house, with movable lights, so as to form an agreeable resort, not only in early spring, but also at the end of summer and autumn! for in September and October, and even in November, the Noisette, China, and perpetual roses, regardless of having been forced, would bloom again as luxuriantly as ever.

Mode of cultivating Pear Trees in Pots, where the Object is Economy of Space. — A Frenchman's town garden is often a model of economy of space. You will find a choice collection of roses, budded on short stems; a collection of valuable rhododendrons, azaleas, and camellias, in pots; and perhaps thirty or forty varieties of pears, all growing in so small a space, that an English gardener can scarcely believe what he sees. In the garden of M. Smedt, a distinguished amateur at Lisle, the pear trees were literally pyramids of fruit. The summer foreright shoots were tied in so as not to shade the pears, and the following winter they were removed. I suspect, also, that the roots of the trees are annually shortened, to reduce the luxuriant growth which pear trees are so liable to; but this I could not ascertain. The soil was a loose black sand, and the trees models of productiveness. Many of their stems, being too weak to support the weight of fruit, were tied to green painted stakes. Much of this extraordinary fruitfulness in such confined limits was owing, no doubt, to a more genial climate than we have here; as the summers and autumns are warmer, and the wood is always well ripened: but many of the best Flemish pears might be grown in our town gardens with quite as much economy of space as in France, if any regard were paid to culture. This culture is simply to keep them from growing too fast, by confining or reducing their roots; blossom buds will then be formed in abundance. It seems almost impossible to kill a pear tree; for, though I have opened a circular trench round a pear tree, and cut off every root to within 15 in. from the stem, yet it has not suffered, but, the following season, has been covered with blossom. In some of our rich London gardens, cutting the roots annually would have little or no effect; but I think that, if pots were manufactured expressly for the purpose, of large dimensions, we will say 2 ft. deep, and $1\frac{1}{2}$ ft. in diameter, and plunged to the rim, not deeper, a collection of the new Flemish pears might be grown in any small garden. I mention particularly that the rim of the pot ought to be above ground, on account of the lateral roots, which would otherwise make their way over it, and give the luxuriance which it is so necessary to check in order to get fine fruit. To keep the trees under control in this respect seems to be the grand object of pear tree culture; and I feel assured that this may be attained by growing the trees in pots, by keeping the surface well supplied with manure, and, in summer, by watering with liquid manure. I hope ere long to see as many amateurs of pears as there now are of dahlias and roses; and, in all the principal nurseries, specimen plants of every variety in cultivation, growing and bearing abundantly in plunged pots. One precaution must be strictly urged. Every gardener is aware of the tendency of the pear tree to make what

is called a taproot. This the plants in pots will most assuredly do, if not checked, through the hole in the bottom. I therefore recommend that, in November or December annually, a trench be dug by the side of the pot, which must then be turned on one side, and every vestige of a root which may appear through the hole cut off with a spade. In the course of a few years, a bunch of fibrous roots will be formed, that will require no other trouble than being annually disturbed; that is, the pot turned completely on one side, to prevent their giving too much luxuriance to the tree by spreading into large feeders.

At Versailles are numerous small nurserymen, who principally grow plants for the flower-markets of Paris. In these gardens I was much struck with the superiority of climate. Grapes were ripe, fastened to stakes in the open quarters, Sept. 6. The Magnòl*ia* tripétala was ripening its seeds; and pomegranates were blooming in the flower borders. Hundreds of yellow China roses, budded on short stems, were covered with flowers, and nearly ripe hips. The plants grown were principally Kálm*ia* latifòlia and glaúca, common white and pink azaleas, rhododendrons, and other showy plants, crowded in beds in immense numbers; but not sold so cheap as in our Surrey nurseries for American plants.

In the Jardin des Plantes at Paris, the inflated and brilliant seed-vessels of Kölreutèr*ia* paniculàta had a most pleasing effect. In England, this tree is very ornamental in July, with its fine panicles of yellow flowers; and, in fine seasons, it bears seed abundantly in the neighbourhood of London, particularly at Syon, Kew, Ham House, and in the Fulham Nursery, where the trees are old and of a large size. *Sophòra* japónica, of which there are many large trees, was covered with its pale straw-coloured flowers. *Sophòra* japónica péndula, that most pendulous of all trees, was originated from seed in 1816. *C*ydònia sinénsis was in fruit, which was exceedingly curious, but not edible. I should think, from memory, it was from 6 in. to 8 in. long, conical, and of a vivid green. Maclùr*a* aurantìaca was also bearing fruit, but not yet ripe; in its green state, it was much like a middle-sized green orange with a very rough rind. Virgíli*a* lùtea is here in fine perfection, forming a large tree of 3 ft. in girt, and full of seed-pods: it blooms abundantly every summer, and bears spikes of pale sulphur or yellowish white flowers.

The original plant of *Æ*sculus rubicúnda raised here from seed by Michaux, in 1812, is now a fine specimen; and, as the plants from its seeds do not vary in the least from the parent plant, M. Camuset, the *pépiniériste en chef*, thinks it a distinct species. I saw young plants with every character of the original. The double-blossomed sloe (*P*rùnus spinòsa flòre plèno) was raised from seed here by M. Camuset, in 1817.

*Mè*lia *Azedarách*, which, in our climate, will scarcely endure a slight frost, was forming fine trees. That beautiful and graceful plant, *Acà*cia *Julibríssin*, was flourishing, and making fine standards, with stems as thick as a man's arm. An avenue of catalpas, of sixty years' growth, the plants now covered with seed, with the before-mentioned instances, told a tale of a better clime than we can boast of in old England. Very few new or rare plants are, however, to be seen here, though the garden altogether is very interesting, owing to its fine specimens of hardy American trees, museums of natural history, anatomy, &c. The two new iron palm-houses now erecting are, perhaps, the most magnificent structures of the kind ever yet built, and are the boast of the Parisians. The tanks for aquatics, heated, as the houses are, by steam, are very extensive and superb. The iron rods and curtains attached to most of the green-houses in France, to protect them from hail storms, shows a prevalence of those (to gardeners) horrible visitations, from which we are, with some few partial exceptions, nearly exempt. *V*itex *A*gnus cástus, and its varieties, were now in full bloom, and formed a beautiful mass, covered with racemes of lavender-coloured flowers. One of those anomalies, so striking to a foreigner, here caught my attention; fences made of slight sticks, not larger than a man's thumb, stuck in the ground at an angle of 45°, crossing each other so as to form a kind of trellis-work with diamond-shaped openings. These fences, which are bound together with osiers, look very light and pretty, but are not calculated to last more than one year, in places where a fence must constantly be kept; and form incongruous accompaniments to the immensely heavy unwieldy copper watering-pots, with uncouth spouts, that would last half a century; the fences and the watering-pots both contrasting strongly with our own usages in such matters.

The purple laburnum, of which so much has been said lately, was growing here in great perfection. It came accidentally from seed among some common laburnums, in 1828, in the nursery of M. Adam, whence its name of *Cý*tisus Adàm*ii* in some catalogues. A fine plant was shown me by M. Camuset, which appeared to be half *Cý*tisus purpùreus, and the remainder purple laburnum. On examination, the curious fact was ascertained, that the purple laburnum, which is evidently a hybrid between *C.* purpùreus and *C. L*abúrnum, had partially returned to the habits of one of its parents, the *C.* purpùreus. This is surely a most unusual occurrence. Here was no trickery of grafting practised; for I saw nearly a similar effect produced, in July of the present year (1836), on a tree which I had sent to the Hon. C. Herbert of Ickleton, Cambridgeshire, in 1834, which presented precisely the same appearance. At the extreme end of one of its shoots there came forth a branch of the pure *Cý*tisus

purpùreus, with its small leaves and peculiar habit, appearing as if budded on the purple laburnum. Have you, in your long experience, ever seen any fact approaching to this, viz. of a tree returning from hybridisation to the state of one of its parents?

I observed one sound gardening practice in this garden; that of surface manuring every shrub or plant worth cultivation, and more particularly roses. During this last dry summer, when they constantly required water, without this, the surface of the ground would have been regularly baked and impervious; with it, the water poured down did not rapidly evaporate, but carried to the fibres a constant supply of nutriment from the manure. What an excellent hint does this give to planters on poor, stony, sandy, or chalky districts in this country! On such soils all the manure should be put on the surface, and left for the worms and the rain to force it in. In the private garden attached to the Luxembourg Palace, and open to members of the French Chambers only, are some of the finest rose trees in the world, apparently of great age (I regret not ascertaining this more correctly), and in vigorous health. Many of the stems of the standard roses in this garden are as thick as a stout man's leg. They are not budded on tall stems, their average height being, perhaps, from 4 ft. to 5 ft.; and they support themselves without stakes. Though so old and so large, they have regular annual culture, their heads being pruned every season, and the surface of the ground constantly manured. In this we have yet much to learn from our neighbours. With us, the general mode is, to plant a tree, and leave its after-growth to chance. Of course, I now allude to amateurs, and those gentlemen who amuse themselves by being their own gardeners; and, perhaps, this hint may induce them to give all their trees and shrubs some little annual notice.

Here, again, was shown a great superiority of climate in the numerous beds of seedling China roses (*Rosa indica*), and tea-scented China roses (*Rosa indica odorata*), in full luxuriance of bloom on Sept. 10. Some most superb varieties were among them; but M. Hardy is rather chary of his roses, and does not like them to be distributed hastily, patronising the old-fashioned idea of possessing what his neighbours have not. It is amusing to find very prevalent here the little jealousies and envyings that at one time were so common among our florists. If a rose that has been raised from seed by M. Hardy is praised in the presence of another celebrated amateur near Paris, it is always responded to with "Bah!" and a shrug of contempt. Reverse this, by praising the amateur's rose to another, and you will find the same effect produced. It is therefore most prudent, if you wish to remain in the sunshine of favour, to limit all your admiration to the roses present, forgetting that there are any other roses or rose amateurs in the world.

Among the seedling roses in this garden were some most curious hybrids between *Rosa* or *Lowea berberifolia* and other roses: they had not yet bloomed, but really looked very interesting, owing to their peculiar habit. A custom in France among rose-growers gives rise to many (to us) very uninteresting names. An amateur who raises roses from seed is regularly besieged by his lady friends to name one after them. He therefore keeps a book in which applications are duly registered, and this is only deviated from under very peculiar circumstances; hence we have Madame Desprez, Madame Hardy, &c. I often think that some of the fair applicants have not been in high favour when I find very bad roses honoured with their names, which are soon consigned to oblivion. On the contrary, if you find a cultivator names one after his wife, it is generally a very fine flower, as is the case with those above mentioned. I think this is generally a very safe criterion for judging of the goodness of the flower merely by the name; for, if the unfortunate grower has a termagant wife, I am quite sure (from the active part French women take in business) that she would not allow her name to be attached to a bad rose; and, if an affectionate partner, his feelings will prompt him to honour her name with a fine flower.

The Yellow Rose in Italy. — I remember, in one of your early Magazines, a correspondent enquiring the name of a yellow rose that blooms and grows freely in Italy. I received a letter from a friend at Como, a short time since, in which he says that nothing can be more superb than the yellow roses in that neighbourhood. At Genoa, Florence, and other places, there are also large trees of *Rosa* sulphurea (the common double yellow rose) covered with their brilliant yellow flowers, hanging like golden balls from the branches, in shape like our cabbage roses, and perfectly formed. How much it is to be regretted that our climate will not allow us to grow this rose in such perfection! I also ascertained from my friend in Italy the curious fact, that the yellow and copper Austrian roses (*Rosa* lutea and var.), though both growing wild in the mountains near Como, never bear a single seed-vessel.

The Vitry Nurseries. — At Vitry, near Paris, is one of the largest communities of *pépiniéristes*, or nurserymen, perhaps, in the world. A friend (also a nurseryman) with whom I took breakfast (*à la Française*) of mutton chops, eggs, peaches, grapes, wine, brandy, and coffee, served up with true country abundance and hospitality, amused me much with his description of the village, in which he said 100 nurserymen resided. On a little eminence in the road, I should think 400 or 500 acres of nursery grounds could be embraced in one view, all unenclosed, and varying from a slip of ground of half an acre,

to squares of eight or ten acres. Forest trees of large growth, for avenues, and fruit trees, with some standard roses, were the principal objects of culture. I had supposed that from this neighbourhood a great part of Germany and Italy must be supplied, but was informed by one of the principal men of business that but few trees were sent out of France.

The soil here is a soapy, tender, reddish loam, on a rocky substratum, in which most trees grow well. Dwarf peaches are raised very expeditiously. Almonds (a peculiar variety, with a very hard and close shell, and sweet kernel,) are sown in March, in rows, and budded the following August, making fine plants the following season. From the peculiar growth of this stock, I thought it was the bitter almond, but was assured it was not. I had also been previously informed that the bitter almond was the only proper stock, but found that this was wrong also; and I have this spring imported some of the almonds used in Paris, which are as above described.

In many of the nurseries here the trees were managed well, and the pears particularly so: they were all tied to stakes, and trained *en quenouille*. This is an admirable method for small gardens, if the trees can be kept from over-luxuriance. I hope to see pyramidal pear trees in large pots in every small garden in England, as this is the only method, in our moist climate, to check their growth, and make them put forth short well-ripened shoots, covered with blossom buds, so as to give abundance of fruit in a small space.

The Paris Nurseries. — There is not one respectable plant nursery at Paris. That of Cels is much reduced, and is now at a very low ebb. Noisette has retired. Fion's Nursery is excessively neat, and in good taste; but it is very small, and orange trees are almost exclusively cultivated in it. It is said that new or rare plants are not patronised, and it is only flowers and flowering plants for the market that are worth cultivating. Another cause for the slovenly and bad state of the French nurseries is, that the instant, by plodding, the proprietor accumulates 8000 or 10,000 francs, he considers himself a man of fortune; and, instead of investing it in improvements in business, as we do, he lives on the interest, and feels proud in being called a gentleman: for, however respectable we think a man in large business, the French do not; but consider an idle man of 30*l.* per annum as much his superior. I have found this from experience: as an amateur, you may command anything; but if you avow yourself *un commerçant*, ten to one but the tone is changed. When an Englishman is told the amount of property that some of these "men of fortune" possess, it is impossible to repress a smile at the extraordinary smallness of the sum which contents them: but then *soupe aux choux* (cabbage soup with-

out meat) five days out of seven is cheap living, and coffee is also cheap; and these are all a Frenchman cares about *at home;* though, if you take him to a restaurateur's, and *treat* him with a good dinner, it is amazing how he will enjoy the good things of this life.

Commercial Rose Nurseries in Paris. — Nothing can be more insignificant, both as to size and stock, than the nurseries of the commercial rose-growers near Paris: they seldom exceed one acre, and more frequently contain but half that quantity of ground; in which standard roses of all heights, and dwarfs of all sorts, are grown in the same rows; presenting to a stranger an inextricable mass of confusion. It would be difficult to execute an order for a general good collection from any one of these nurseries; but they are so numerous, that twenty may be visited, for twenty sorts of roses, with but little difficulty. I had concluded that M. Laffay, and one or two others, whom I knew to have been in our English nurseries, would have adopted, in some degree, our orderly arrangement; but they had not in the least deviated from the custom of their neighbours; and M. Laffay's little garden, of half or three quarters of an acre, was as full of roses and confusion as any that I saw.

The Cemetery of Père la Chaise. — I was much disappointed with the entrance to Père la Chaise: it seemed an overgrown nursery of Chinese arbor vitæs; and, till you make your way to the upper part, where the larger tombs show themselves, the crowd of naked-stemmed evergreens has a miserable effect. This has arisen from the injudicious mode of planting; for it appears that every person may plant as many trees as he pleases around the graves of his friends: consequently, four Chinese arbor vitæs thus : :, or six thus : : :, are planted to hundreds of tombs, forming a dreary and unpicturesque mass. Many of the tombs in the upper part are decorated in much better taste: a few pots of flowers are placed on them, and kept in order by persons paid for that purpose. Standard plants of Robín*ia* inérmis are very numerous; but they are not pendulous and graceful enough. The cypress, that appropriate tree, is not very abundant; and the weeping willow is still less so. The most pleasing tombs are those with one weeping willow at the head, and flowers, or a cypress, at the foot. In a public cemetery like this, planting ought to be restricted to one or two trees for each grave, with flowers at liberty; for, if planted capriciously, as this has been, the light and air must be soon excluded, and the tombs sought for as in a wood. I had imagined Père la Chaise to be a large picturesque expanse of turf with magnificent tombs, graced by the light shadows of the weeping willow in contrast with the funereal cypress. You may, then, guess my disappointment in finding a wood of arbor vitæs, intersected by

rugged slovenly paths, such as would disgrace our common farmer's gardens. Nothing, however, can be more beautiful than the view of Paris and its environs from the higher parts of Père la Chaise; and some of the tombs individually are exceedingly imposing and grand. How much it is to be regretted that a finish is not given to this interesting place by removing and thinning the overgrown and crowded trees, and planting others more appropriate; filling up the hollow paths, and giving some of them a fresh direction! In short, it ought to be under the management of a committee of taste, rather than left to individual caprice.

Calvert's Nursery at Rouen. — From Paris I returned by Rouen to Dieppe. This makes a pleasant variation; for the roads from the coast to Paris are all dull and uninteresting. My object in visiting Rouen was to look at the nurseries of the rose-growers there, more particularly at that of Calvert, about which some little controversy took place some months since in your Magazine. Mr. Calvert was not to be found; but one of his workmen walked round with me — not to show me roses, however, for there were none to show, and a bill was up at the gate, "To be let;" indeed, the place seemed to want a fresh tenant, for it looked desolate enough. Mr. Calvert, jun., who speaks broken English with great volubility, said that his father was going to leave for England, and that he intended commencing a nursery near London. I believe that he is now agent for the purchase of carriages in England for Louis-Philippe and the royal family of France; but has met with a great misfortune in the transit of one, which, for a time, has clouded his prospects.

Sawbridgeworth Nursery, April 4. 1836.

ART. II. *On the Excretory Functions of Plants.* By Judge BUEL.

I HAVE read with much interest an account of some experiments relative to the excretory habits of plants, and can readily believe that they throw off those portions of their sap, or those matters that are taken up by their roots, which are not suited to their wants; yet I cannot subscribe to the deductions which have been drawn from this discovery in reference to agriculture; though these opinions are sanctioned by De Candolle, and seemingly adopted by Roget, in his *Bridgewater Treatise.* The deduction is, that plants of the same species cannot be grown successively, and successfully, in the same soil, *on account of the noxious or poisonous excrementitious matters which are deposited there by the first crop.* I think this an error, and that we have abundant facts in the New World to disprove the hypothesis.

The ejected matters, on being thrown into that great laboratory of vegetable food, the soil, must immediately become again blended, through the medium of water, with the vegetable food there deposited, and in nearly similar proportions as at first; and, consequently, may be as innoxious to the plant the second time as they were the first. But I have stronger reasons to offer. In the great secondary formation of West New York there are hundreds, and, I believe, thousands, of instances, where a wheat crop has been taken from the same field, ten, fifteen, and twenty years in succession, and in one instance at least twenty-two years, without any manifest diminution of product. Upon some of the alluvial flats of the Genessee, Sciota, and other western rivers, Indian corn has been grown twenty and thirty years in succession; and before their settlement by the whites, it was grown time out of mind, it is believed, by the natives. These facts are wholly irreconcilable with the proposition of M. Macaire. I apprehend it is the matters which plants retain, and which are carried from the field, and not those which they throw off, and are left in the soil, that unfit it for a repetition of the same crop; that it is the *want* of specific food, which has been diminished or exhausted by the first crop, and not the presence of noxious matters, that renders a resort to alternation expedient and beneficial; and that it is the presence of the specific food of the wheat and Indian corn in the districts I have named, in yet unexhausted quantities, which has allowed these crops to be taken during so many successive years. If any entire crop is left to decay undisturbed where it grows, and its substance is permitted to become again blended with the soil, fertility will be increased, and the same species may be grown every year, with increasing luxuriance. This is demonstrated in our prairies, and in our forests, where the same perennials and annuals are found constantly occupying the soil. It is proved, also, by the annual growth of the same weeds upon some of our badly managed farms, where annuals are permitted to occupy patches undisturbed, and to return again to the soil from which they have sprung.

Albany, New York, Jan. 26. 1836.

ART. III. *A Series of Designs for laying out Suburban Gardens and Grounds, from One Perch to several Acres in Extent.* By Mr. T. RUTGER. Design 9. *For laying out a Place of Twenty Perches (an Eighth of an Acre) in Extent.* Design 10. *For laying out a Place containing a Quarter of an Acre.*

HAVING gone through what may be considered as the first part of the series of designs for suburban gardens, which consists

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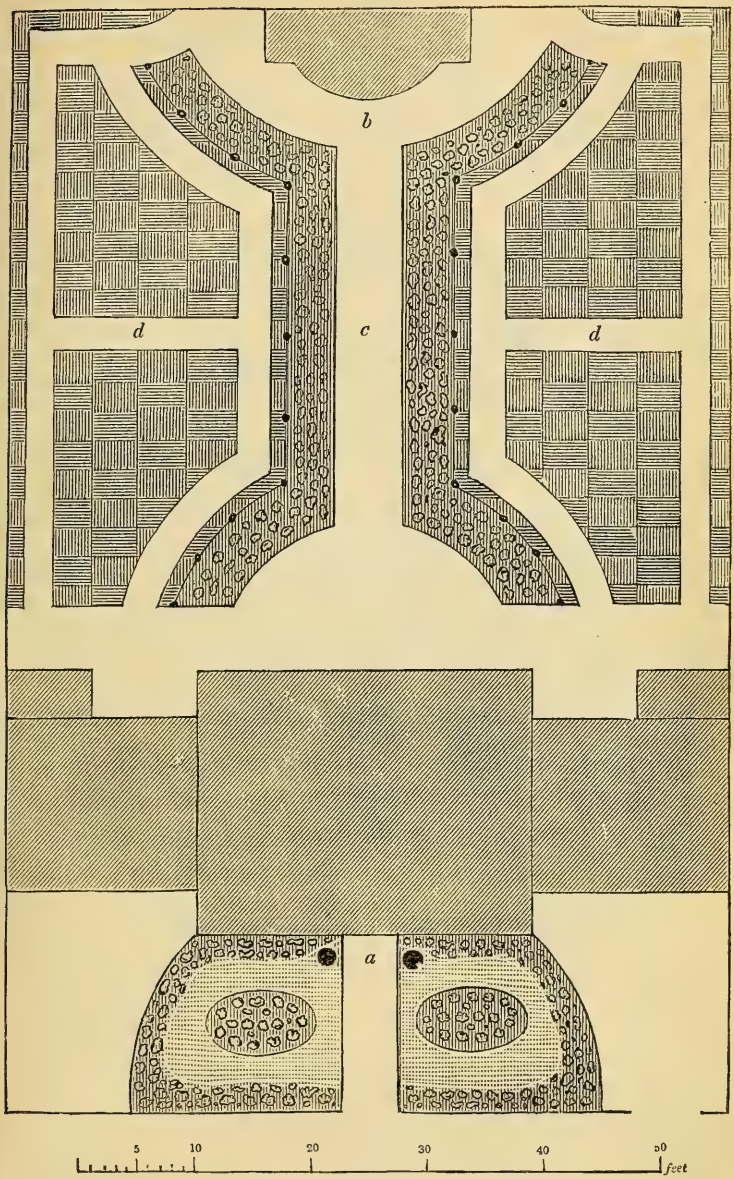

merely of frontages, I shall now commence the second part, which will consist of whole places, the first of which is No. 9. of the series. This design (*fig.* 21.) comprises about 20 perches, or

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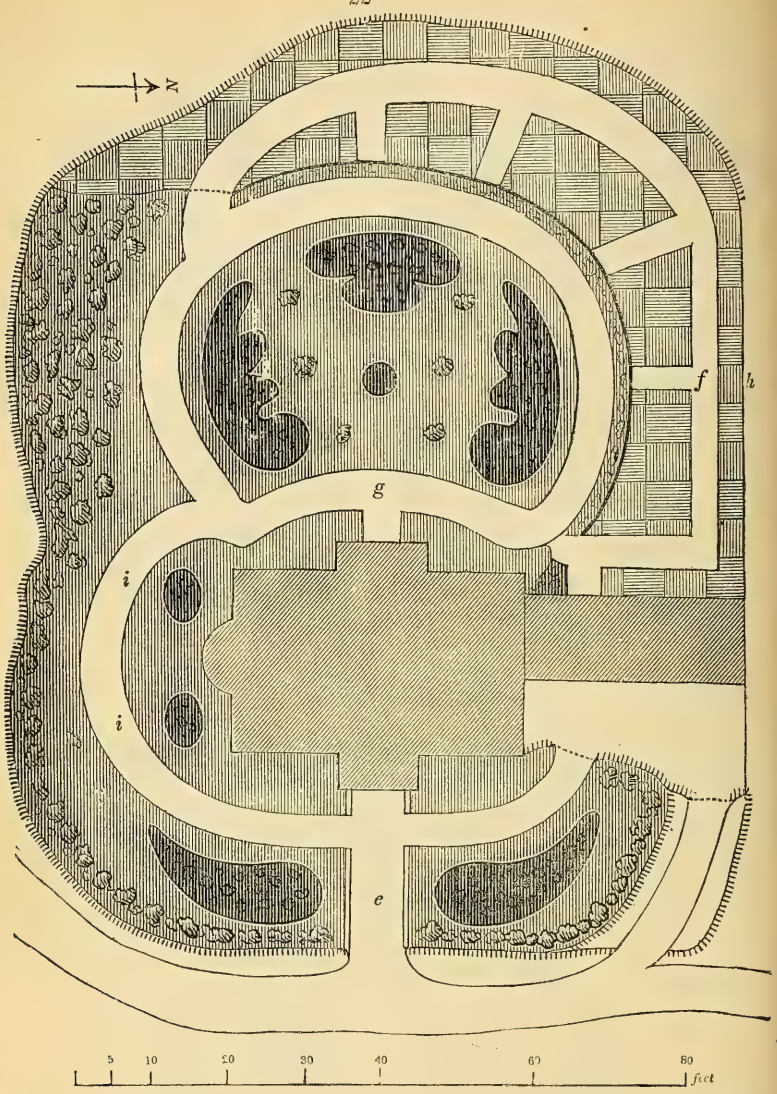

half a quarter of an acre. In *fig.* 21, *a* is the house, with the stable and yard attached, placed on the right, with an entrance from the road; and the kitchen and offices on the left, with the court in front. The structure *b*, at the extremity of the garden, is intended for a tea-room. There is a flower-border on each side of the central walk (*c*), with espaliers at the back, to shut out from view the culinary departments (*d d*).

The design No. 10. is comprised in a quarter of an acre of ground. In *fig.* 22., the path *e*, from the road to the house, is supposed to be a covered way. The stable is on the right, with a way to it from the main road. The culinary department (*f*) is thrown partly round the flower-garden (*g*); and there is supposed to be a wall on the north side, at *h*, for a few fruit trees. The two small ovals on the south of the house, opposite *i i*, are intended for flower-baskets, if approved of.

Portland Place, 1835.

ART. IV. *Notice of the Indigenous and Exotic Trees of Switzerland.* By M. ALPHONSE DE CANDOLLE.

SWITZERLAND is a country naturally favourable for the production of ligneous plants. It contains the highest mountains in Europe; and, from the rain which they attract, and the snow which is continually melting from their peaks, the whole atmosphere acquires a degree of humidity that is particularly favourable for the growth of trees. At the same time, there are exposed places of the most varied description, which, combining with the different degrees of elevation above the level of the sea, at which they are found, produce a singular diversity of climate.

If we enquire into the primitive state of this country, there seems little reason to doubt that a great part of the soil was once covered with an immense forest, uniting on the north-east with the celebrated Black Forest, so often spoken of by the Latin writers. By degrees the plains and the bottoms of the valleys were cultivated; but there still remains a considerable portion of the land (perhaps a fifth, or even a fourth, of the whole) covered with trees of different kinds. On the sides of the mountains, trees are found as high as 5000 ft. above the level of the sea; above which is found only a slender pasturage, crowned by eternal snows, which rise to the height of 8200 ft.

According to the most copious and complete Flora of Switzerland which has been published (Gaudin's *Flora Helvetica*, 7 vols.), combined with M. Seuter's *Catalogue des Plantes des Environs de Genève*, the total number of ligneous species in Switzerland amounts to 218, of which 55 rarely exceed the height of 2 ft.; 101 are shrubs, varying from 2 ft. to 10 ft.; 24 are shrubs and low trees, not exceeding 25 ft. in height; and 38 are trees which surpass 25 ft. These calculations must not be considered as exact, on account of the great difference produced in different kinds of trees from the soil in which they grow: for example, the *Cytisus alpinus* has been found, in some soils, to exceed the height of 35 ft., though, generally speaking, it seldom attains a greater height than 18 ft. or 20 ft.

As the *Flora* of Gaudin comprehends 2313 flowering plants, it is evident that the ligneous species constitute one tenth of the entire vegetation of the country. In this number are comprehended 50 evergreen trees and shrubs, which form about a fourth or a fifth of the total number of ligneous plants. It must be observed, however, that the proportion of ligneous plants which exceed 2 ft. is only about one eighth, and of these not above one seventh exceed 25 ft.

The genus *S*àlix is that which contains the most species, the number being 32. There are also 13 roses, 5 *R*hámni, 7 *H*eliánthema, 8 *G*énistæ, 6 *C*ýtisi, 5 *B*étulæ, 5 *P*ópuli, 5 *D*áphnes, &c.

The trees which are most common in Switzerland, that is to say, those of which there are the largest forests, are, in the lower regions, oaks, pines, and firs; and, in the mountains, beeches, larches, pines, and firs. The celebrated naturalist Wahlenberg, who has so well compared the vegetation of Switzerland with that of Lapland, says that forests of beech are rarely found, on the mountains in Switzerland, more than 4000 ft. above the level of the sea, though some trees are occasionally found as high as 4600 ft.; the forests of the stone pine rise as high as 4550 ft.; and those of *P*ìnus sylvéstris and *A*bies excélsa, to 5500 ft. Every person who has travelled in Switzerland must be aware of the preponderance of dark fir foliage in the forests, particularly in the more elevated regions. The larch is less common; and it grows at different heights, particularly near the glaciers, and generally on the sides sloping towards the north. The *P*ìnus *C*émbra grows also at different heights, and forms forests; as does the *A*lnus víridis, which grows sometimes above the level of the firs. *A*lnus glutinòsa is generally found in low damp places; and *B*étula álba, in Switzerland, is never found above the height of 4400 ft., though in the north of Europe it rises above the limit of the firs.

On the borders of the torrents there are a great number of willows, and *H*ippóphae *r*hamnòides. The sweet chestnut grows here and there in any soil that is not calcareous, and is found even at the considerable elevation of 2400 ft. It is evident that this tree requires a peculiar kind of soil, as in the western part of Switzerland, where it is common, it is scarcely ever found on calcareous soils. If sweet chestnuts ever succeed in soils where this earth predominates, it will almost always be found that they happen to be planted on a bed of sandstone. On the high mountains, above the limit of the trees, there are two species of *R*hododéndron (*R.* ferrugíneum and *R.* hirsùtum), which are only bounded by the regions of eternal snow. Near these elegant shrubs are found the *P*ỳrus Chamæméspilus, and a hybrid between that tree and *P*ỳrus *A*ria which well merits to be intro-

duced into cultivation. Some species of willow (*S.* retùsa, herbàcea, and reticulàta) spread over the uneven surface of the soil; and, as their branches are often covered with the earth, which the heavy rains wash over them, they present the singular phenomenon of trees which are more or less subterranean. The extremities of these branches form, sometimes, a kind of turf, and the astonished traveller finds himself, as we may say, walking on the top of a tree. The *S*àlix herbàcea is the tree that most frequently presents this remarkable appearance, because it generally grows on steep slopes of loose soil, particularly among the fragments of schistus, that are easily penetrated by the melting snow and the rain.

At the foot of the mountains, on the gentle eminences, the *A*rctostáphylos U`va-úrsi, remarkable for its pink flowers and red fruit, grows freely, and covers large spaces of ground.

The forests and brushwood of the less elevated regions present a great diversity of ligneous plants. Here and there are found beautiful specimens of *A*`cer Pseùdo-*P*látanus, *P*ỳrus *A*`ria, *S*órbus doméstica and aucupària, several species of rose, Cotonesáster vulgàris and tomentòsa, *D*áphne alpìna, *C*ýtisus *L*abúrnum and alpìnus, &c. This last species of *C*ýtisus, notwithstanding its specific name, is found much more frequently on the Jura than on the Alps. Near Geneva, for example, it is never found on the Alps, though it is found on the south side of the Jura. It is cultivated in preference to the *C. L*abúrnum, because its flowers are of a brighter yellow, its leaves are greener, and it is less liable to be attacked by insects. In German Switzerland, it is in great demand for the manufacturers of musical instruments.

Switzerland derives great benefit from her forests. She exports, both to France and Italy, a great proportion of the timber used in those countries for building, &c.; particularly the timber of the fir and of the larch. The fir and the beech are also used for fire wood; but the oak and the larch are more particularly the woods employed for construction. The larch is in especial demand, on account of its durability when covered with water, or in damp places. Its bark, according to Kasthoffer, is excellent for tanning. The shepherds of central Switzerland make a number of vases, cups, spoons, &c., of the wood of the *A*`cer Pseùdo-*P*látanus, which they sell to travellers, as the fruits of the labour of their winter evenings. The leaves of this tree are used as forage. In the canton of Glaris is prepared most of the wood used for inlaid work in England, Belgium, &c. *B*úxus sempervìrens, *S*órbus doméstica, *S*órbus aucupària, and *C*érasus àvium also produce ornamental woods, which are used by cabinetmakers and upholsterers.

In a country naturally so well wooded as Switzerland, there

is little occasion for planting trees and shrubs, either exotic or indigenous. However, near Berne, large plantations of the *Pìnus Stròbus* have been raised from seed; and it is said that this wood, at 25 years old, is much more advantageous to the planter than the common pine of the country. Forests of larch and fir are also sown, and for this purpose there are seedsmen for selling indigenous seeds. One of these, M. Thomas, at Bex (canton de Vaud), sells tree seeds by wholesale; and strangers may apply confidently to him for excellent seeds, especially of the larch, of which he sells a great quantity annually. This is particularly important for English planters, as it appears from the correspondence between Mr. Stephens and M. De Candolle, in the *Bibl. Univ. de Genève*, Feb. 1835, and the *Quart. Journ. of Agric.* for 1835 (vol. v. p. 403.), that the larch seeds grown in Switzerland are much better for sowing in British plantations than seeds ripened in Britain.

Some trees are in general cultivation in Switzerland both for their fruits and for their wood. Of these the common walnut (*Jùglans règia*) grows in the valleys, and in sheltered situations about 2000 ft. up the mountains. It attains the height of the largest trees, and is much admired for its beauty and its majestic habit of growth. Unfortunately, the introduction of the colza (the rapeseed plant), for making oil, has driven the walnut trees grown for that purpose from the plains; and there are already many parts of western Switzerland where much fewer trees are planted than are cut down. It is, however, consoling to reflect that, though the value of walnut oil has diminished, that of the timber of the walnut tree has increased; and it is evident that this wood, from its beauty, will be always valuable for cabinet-makers, &c. Cherry trees are cultivated to a great extent for their fruit, which is used in making kirschwasser, a liquor which becomes excellent when it gets old. The mulberry is cultivated only on the southern side of the Alps; for example, in the canton of Tessin, of which the agriculture, the people, and the geographical situation are all alike Italian. Throughout the whole extent of Switzerland, up to about 3800 ft. above the level of the sea, we find pear and apple orchards, from which a great quantity of cider is made, though it is of an inferior quality. The proportion of harsh and sweet fruits is not properly calculated, and the best mode of making the liquid is not properly attended to. It is true that the common drink of the country is wine, which forms an important article in Swiss agriculture, particularly in low and sheltered regions.

The best vineyards, as to quality, are those of Valais and Tessin: they produce a sweet wine, often with a muscat flavour, analogous to some of the wines of Italy, the fault of which is, that they do not keep well. The vineyards which border the

lakes of Zurich and Thun produce a great quantity of wine, but it is of rather inferior quality; and those on the borders of the lakes of Neufchâtel and Geneva produce a wine very superior to it. The wines of Cortaillod at Neufchâtel, and those of Ivorne, of Lataux, and of la Côte, in the canton de Vaud, are most esteemed: they resemble the inferior Rhenish wines, and sell readily, on account of the proximity of the country in which they are made to those mountainous parts of Switzerland where the vine does not flourish. The vineyards of the canton de Vaud are remarkable for the enormous quantity of wine which they produce from a given surface, in consequence of the manure which is lavished upon the land, and the care which is bestowed upon the vineyards by the vine-dressers. A produce of 800 or 1000 francs the hectare [about two acres and a quarter] is very frequent; but the expense of cultivation absorbs two thirds of this produce.

Cherry trees, apple trees, and pear trees are seldom grown in Switzerland at more than 3800 ft. above the level of the sea; but the vine is not grown higher than 1700 ft., or, at most, 1900 ft.

ART. V. *Remarks on Mr. Lawrence's Plan for "forming Plantations, with a View to facilitating their after Management."* By Mr. ARCHIBALD GORRIE, F.H.S. M.C.H.S., &c.

PERHAPS there is no branch of rural improvement so much neglected as that of thinning young plantations; and, though it cannot be said that the evil consequences of such neglect have not been frequently pointed out by writers on arboriculture, yet a slight glance at the generality of young plantations is sufficient to convince any one acquainted with the subject, that judicious thinning is, in the forest, a desideratum. Your respectable correspondent, Charles Lawrence, Esq., (Vol. X. p. 28.) has given some very plain directions as to "forming plantations with a view to facilitating their after management," by planting in rows, and subsequently thinning out by rule; and, where the operation of marking out thinnings depends on land proprietors, some sort of royal road may be necessary to relieve them from the "irksome task," which, by the method of your ingenious correspondent, may be safely committed "to any labourer, without superintendence."

Although this plan appears to me to be liable to several serious drawbacks; such as trees in rows being more exposed to currents of wind than when planted in the ordinary irregular way; the thinner being obliged to mark for cutting a given tree, although its neighbour might be the better plant to remain for timber; and, ultimately, the trees being left all over the plantation at equal distances, for timber, without respect to variety of soil or vigour

of growth; yet, for the benefit of those proprietors who will not, or cannot, superintend the thinning of their own plantations, and who may not have it in their power to employ a skilful forester, I submit a few remarks on row planting, with illustrative tables. As to the mode of operation, anything like aid from a garden line, in extensive plantations, is out of the question: the planter, whether in setting or pitting, has only to keep in line with two distant poles or objects, the same as a land surveyor does, who holds the back end of a surveying chain. The mode was much practised in Scotland about the middle of last century; and some

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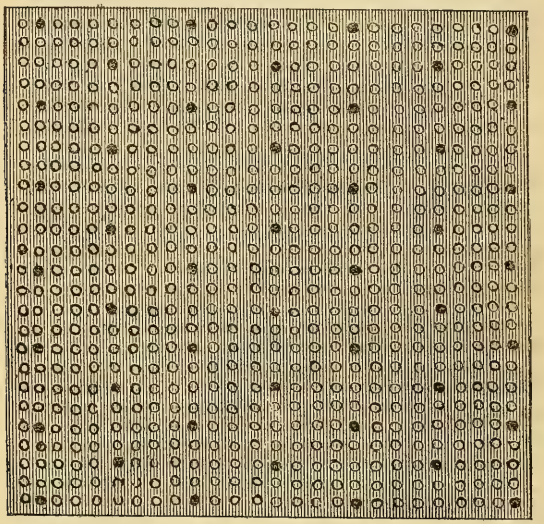

plantations still standing show the accuracy with which trees were then planted in rows, on an extensive scale.

In planting in rows, it should be kept in view, as far as possible, to accommodate the plants to the soil most suitable for their growth; and this may be done by retaining the same lines, and varying the hard-wood plants according to the nature of the soil and subsoil over which the lines may pass; still preserving the same distance with hard wood and nurses. For these nurses, I would prefer larch in general, as affording ample shelter in summer and autumn, while the plants are in a growing state; and, from their comparatively open nature, as well as being deciduous, they admit a sufficient quantity of air, at all times, to produce what Sir Henry Steuart would call "protecting properties" in the reserves: nor are their roots understood to be hurtful to the growth of any of the hard-wood trees. Although I would, in ordinary circumstances, not recommend planting closer than from 4 ft. or 6 ft., yet, as on some poor soils, and ex-

posed situations, closer planting may be advisable, I have, for the sake of illustration, commenced the plantation represented in *fig.* 23., at 3 ft. plant from plant, in squares; introducing hard-wood plants (say oak) at 12 ft. apart, interlined as marked by the darkest spots. Supposing this a plantation ultimately to stand either as oak coppice, larch, or Scotch pine, the first thinning might be necessary some time between the 6th and 9th years, according to soil and locality. The first thinnings may be useful for tops of dike fences, short hurdles, and rustic fancy work; and, by taking every other plant, as marked (*fig.* 24.), the plants re-

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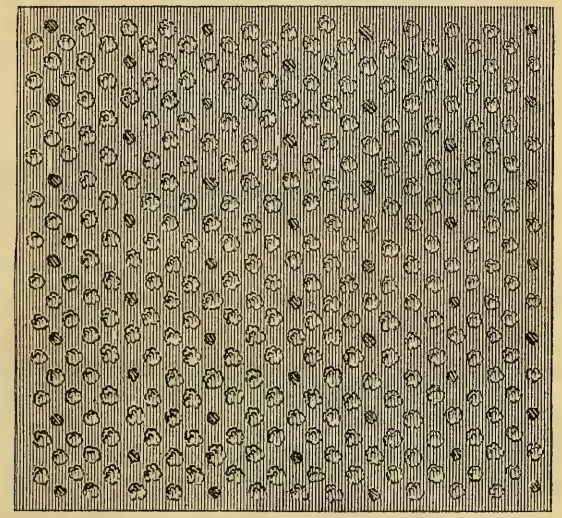

maining will be interlined without the trouble of conspicuous "knots" on a garden line in planting. If hard wood is intermixed as indicated by the dark marks, the larch nurses may be "Billingtoned" [have their side branches foreshortened] where they interfere with the reserves, before the second thinning, which should take place between the 15th and 20th years, according to circumstances; when the thinnings will be useful for palings, bosses [hollow cones in the centre of corn ricks, to admit the air], and other rural purposes. In this thinning, it will be observed, that all the nurses in the line of reserves, whether these reserves are of soft or hard wood, are removed; and the entire rows next to them, with the half of those left at the previous thinning in the middle row. This will leave the mass rather irregular, as appears from *fig.* 25. The nurses left should be finally removed some time between the 20th and 25th years from planting, leaving the reserves, whether larch, Scotch pine, or oak coppice, at 12 ft. apart, and regularly interlined, or quincunxed, as some call it, as

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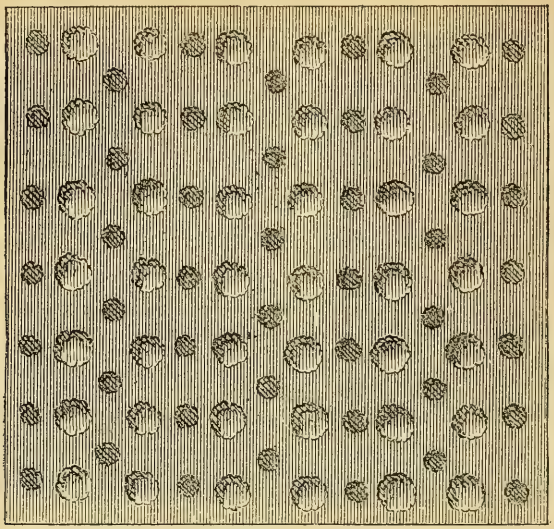

represented in *fig.* 26. For oak coppice, the stools may stand rather wide at 12 ft., unless the soil is very favourable. On high

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and poor lands, the distance may be sufficient for the ultimate crop of larch or Scotch pine. On lower and richer soils, this

distance is too little; and, in such cases, the original distance at planting should be wider (say 4 ft., 5 ft., or 6 ft.); which, by following out the principle offered, would afford a proportionally large space at the first, intermediate, and final thinnings: a fourth, or even a fifth, thinning, on the same principle, would place the reserves regularly at any required distance.

To those who may feel inclined to adopt and act upon this system of row planting, the above remarks are submitted: but, from the general tenor of the communication by Mr. Lawrence, I doubt not but that gentleman will agree with me in saying that, when plantations are under skilful and judicious management, planting *regularly irregular* possesses many advantages, which cannot be obtained where the fate of every tree in the wood is fixed at the moment of putting it into the ground.

Annat Gardens, Jan. 16. 1836.

ART. VI. *On the Treatment of Green-house Plants in the Summer Season.* By AN OBSERVER.

GARDENERS generally allow their young men a few days during summer to visit the neighbouring gardens; and, having lately had a perambulation of a few days, I have been induced to note down the following remarks on what I saw. I have not unfrequently observed Cape heaths, acacias, and other green-house plants, while out of doors during the summer months, huddled together close to garden walls, or under the drip of trees, one hanging east, another west by the neck over the pot; some peeping through Marchán*tia* polymórpha, and some climbing, interwoven one with another: in fact, looking as if they belonged to nobody. Some of your readers may think I am exaggerating; but I can assure them that what I have stated is a fact. I could mention several places where the green-house plants are treated as above; but I forbear doing so, lest I should give offence: but I have no doubt many readers have seen it frequently both in England and Scotland. After the plants are removed into the green-house, supposing them to have been treated in the above manner, a great many may be expected to die; and then who is in fault? Why, the foreman. When he (the foreman) has informed his master of a sickly or dead plant, of course he will examine it; and then he will say, "Why, you have drowned it:" or make some equivalent remark; though, in all probability, the plant was virtually dead before it was brought into the house, owing to having been so long soaked with heavy rains, without the enjoyment of a free current of air. Now, if the plants were treated in a proper manner while out of doors, many of these

unpleasant meetings between masters and their men would be avoided; and not only that, but both the master gardeners and their employers would have the pleasure of looking at healthy and vigorous-growing plants. I by no means wish to insinuate that no plants would die under good treatment; but it must be allowed, that it would give them a fairer chance to live. The mode of treatment that I would advise is, that, when the plants are turned out in summer, let them enjoy a partial shade (but by no means place them close under a garden wall), and let them have a free current of air; attend to watering, tying them up, &c. I would also recommend syringing morning and evening, while the weather continues hot; and, by attending to the above, I have no doubt the plants will do well.

November 14. 1835.

ART. VII. *Notice of a successful Mode of grafting the* Rhododéndron *álta-clerénse.* By Mr. JOSEPH WALKER.

HAVING been successful in propagating *R*hododéndron álta-clerénse in a way that I have not before seen practised, I make it known to you, hoping that my doing so may induce others to practise it; and trusting it may be the means of making this scarce species of this beautiful genus of plants more abundant. Calling at Chatsworth last spring, I observed that they had a fine plant of it beautifully in bloom; and I begged the favour of Mr. Paxton to allow me to take a small sprig, which he kindly permitted me to do. I then inserted the end of the sprig into a potato, and brought it home with me a distance of eight or nine miles. Happening to have a small plant of *R*hododéndron pónticum in a pot, I cut it down to about 5 in. above the pot, and grafted it in the whip manner with the small sprig thus procured, letting the end still remain inserted in the potato. I then clayed it, and put it under a hand-glass in a cool vinery, where it united to the stock, and is now a healthy plant, standing out under a south wall.

Banner Cross, near Sheffield, Nov. 10. 1835.

ART. VIII. *Remarks on cropping Fruit-tree Borders.* By Mr. T. RUTGER.

THE articles which have occasionally appeared in your Magazine, upon the injury that wall-fruit trees sustain by cropping the borders, seem to leave no doubt that the system has an injurious effect; and, therefore, whatever may be advanced towards reme-

dying the evil is, I think, worthy of regard. Every practical gardener cannot help appreciating the value of a south border for early crops of peas, beans, kidneybeans, &c.; and, in spite of the regard he may have for his fruit trees, and the desire he may feel to see them in a prosperous condition, still, he will very reluctantly give up that portion of the garden which is so advantageous for the purposes of an early crop of the more delicate kinds of vegetables; and, although such a crop, whether of peas, or any other, may, according to Mr. Errington's hints (p. 129.), be obtained within a week of that on a wall border, still this will not sufficiently gratify those who pride themselves on being the first in their neighbourhood to succeed in bringing an early crop to perfection, and with whom the priority of a single day may be considered a triumph.

In order, therefore, to secure the advantages necessary for wall-fruit trees, and for obtaining early crops of vegetables at the same time, a totally different system from that which heretofore has been generally pursued seems to be necessary. I would therefore suggest that, in the laying out of a new garden of considerable extent, a compartment should be appropriated expressly for the purpose of growing early crops of vegetables; and that in this compartment there should be erected screens of some material or other, running east and west, say at about 20 ft. distant from each other, and about 6 ft. high, between which borders and walks might be formed. With regard to the materials to be used for the erection of such screens, it may be left to the judgment of those who may be favourably disposed to the plan here hinted at; taking into consideration the most efficient, and, at the same time, the cheapest mode of carrying the plan into effect. In old gardens, where it may be inconvenient to have a new compartment attached, I should recommend one, or part of one, of the quarters to be appropriated for it; and, whether in a new or an old garden, the most sheltered spot might be selected for the above purpose. These screens, if constructed of solid materials, and which would be best for the refraction of light and heat, might be also convenient for training young fruit trees, growing tomatoes, &c.; and, if not wanted for such purposes, a row of peas or kidneybeans may be sown close to the screen, the former of which might be confined to it with strands of bast, or any other material; and in this position they could easily be protected from early cutting winds and sharp frosts, and thus enable the cultivator to sow earlier, with a prospect of almost certain success.

If objections arise against the allotment of a compartment for *permanent* screening, I should recommend something of the kind that might be portable, constructed in about 10 ft. lengths, to be fixed in any part of the garden that might be considered

best for the intended crop; and, on the removal of the crop, the screening might be taken away, and laid by against another season.

All, I think, will agree with Mr. Errington, that, where fruit trees of any description, whether for standards, espaliers, or for Dutch training, are planted on the margin of the quarters, the borders on which they stand should never be digged; but the misfortune is, that, in general, gardens are found to be too small for carrying every thing into operation that the gardener may wish, and, in many instances, it is necessary that every inch of ground be made available for some purpose or other.

63. *Portland Place, March*, 1836.

ART. IX. *Observations on the Cultivation of the Vine under Glass.* By JASPER WALLACE, Gardener to William Forsyth, Esq., of Clayton. (*This Essay gained the first Prize at the St. Andrews Horticultural Meeting, in September*, 1835, *as mentioned in* Vol. XI. p. 714.)

BEFORE making any observations on the culture of the vine, it will be necessary for me to make a few remarks on what I consider the best method of constructing the vinery. Instead of the common practice of building the front wall of the house on pillars, I would advise it to be made a solid wall from the foundation, as I consider an inside border to be more injurious than beneficial to the roots of the vines. The principal cause of the shrinking of early-forced grapes is, indeed, in my opinion, owing to the roots being over-heated, and not having sufficient moisture, which, when they extend far in the interior of the house, it is impossible for the most experienced to be aware of at all times, without too often disturbing the roots of the vines. Having given my objections to an inside border, and explained why I would, as before mentioned, make the front wall solid from the foundation, I may add, that it will be found a saving of expense. I consider upright sashes of no use, which, also, would be a considerable saving; and I would recommend the back wall to be made much higher than it commonly is, as the vines always fruit best at their extremities. I would also advise the house not to be made so wide as is usual, which will give less strain upon the rafters; and, instead of wooden walks, I would have the floor of the house paved with stones, which would look much better, and be no more expense in the end. I consider 2 ft. sufficient height for the front wall, as the lower it is, the less strain there will be on the roof, and the less height will be required for a back wall. I think that the rafters should be thinner and deeper than usual; and, instead of the trellis being hung by bolts at a considerable dis-

tance from the rafters, I would have it fastened to the lower edge of them, in order to keep the young wood and fruit as near the glass as possible. Where there is only one house to be erected, it would certainly be much better to make it circular in front, as it would be more exposed to the sun's rays. With regard to the construction of the flues, if the house is to be warmed by fire heat, I would recommend them to be made lower and much wider than they commonly are, as the greatest heat always proceeds from the top of them. I would have the furnace or fireplace made much larger than usual; as, by having plenty of room to make up a large slow-burning fire, the operator has it more in his power to keep a steady heat in the house, than when the fireplace is small, and he has to stir it often to keep up the required heat in cold weather.

I now come to the preparation of the border. The situation, if not naturally dry, must, of course, be rendered so by draining. The best bottom, in my opinion, is one formed of large flat stones, got from the top of a lime rock, which is of a nature that would assist the growth of the vines when they reached it. The border ought not to be deeper than from 2 ft. to 3 ft.; as, if it is more, the roots of the vines will get away from the action of the summer weather, and the good of the manure that may be put on the surface. Instead of having the border almost composed of a stiff clay, as is often the case, I would have it formed of decomposed turf and good black earth, with a sufficient quantity of decomposed cow-dung, vegetable mould, and cold [slaked] lime, well mixed by frequently turning it, and which should be allowed to lie for two years if convenient. Having the border filled in and subsided, I would plant the vines in rather poor soil, as the roots will run farther in such soil, the first year, than in a strong rich soil. I would have good strong plants planted close to the wall on the outside, and introduced through holes made in the building, from 4 in. to 6 in. in diameter, projecting upwards towards the inside, and proceeding from a few inches above the surface of the border on the outside.

I would not plant more than one plant for every two sashes in the house, as the less the roots are interwoven with one another the better; and there is no difficulty in filling any house in this way. I would train up only two shoots the first year, keeping the sashes of the house on all the first season, until all the leaves have fallen off; at which time I would cut down both shoots to three buds. The second season, I would put on the sashes on the first of March, giving plenty of air through the day, and shutting up at night. It will be observed, that I have allowed three buds to remain on each shoot of last year's growth, which will produce three for every sash this year, which I would train up to their full length. There should be a little fire put on

this season, about the latter end of August, at night, or when the nights turn cold; and this fire should be continued until every leaf falls off. The third season, I would allow the shoot in the middle of the sash to remain, nearly to the top of the house, cutting down the other two to two buds, or eyes, which will produce two shoots on each side of the fruiting one, and which are to be trained up to their full length. The house may be shut up about the 1st of March, and the fire lighted about the middle of that month, the heat being raised gradually to 75°, at which it may be kept until the fruit is ripe; when it should be allowed to fall off by degrees, but not entirely discontinued until the whole of the leaves have fallen off.

I now come to the winter pruning for the fourth season. It will be observed, that I had one fruiting shoot, and four young shoots, for every sash last year: the old one I would allow to remain, with spurs of three buds, and one of the young shoots on each side of it, nearly to the top of the house; the other two I cut down to two buds, which will produce two young shoots on each side of the three fruiting ones, to be trained up to their full length. If the vines have been all along treated as above, they will now be very strong, and will be able to stand forcing nearly a month earlier, if required; and also more heat than when they were younger: indeed, I consider that vines, after they have attained to the age of standing forcing, should have much more heat than is commonly given to them.

I will now describe my method of winter pruning for the fifth year, which will show how I would continue it. It will be observed, that I had three fruiting shoots, and four young ones, for every sash last year; the spurred one I cut away altogether, and spur the two which had only fruited one year, with two of the young shoots, which will leave two for cutting down, to produce four young shoots again. Now, it will be seen that I have always two spurred shoots, and two young shoots fruiting, and two to cut down; which is not only a regular method of pruning, but one which will keep the vines in a far more growing state, than the common methods of having so much old wood upon them. It will be seen by this regular method of winter pruning, that the summer pruning can be done in much less time, which is also an advantage, by my method of performing; which is, to pinch off all the laterals which may appear below the fruit, and one bud above it; continuing to pinch off all above the next bud, as the plants grow, for the whole season. With regard to the number of bunches which I would allow to grow on each fruiting spur, it should be all that set well, as the vines will be able to bring to maturity almost all the fruit they show, if treated in the manner I have endeavoured to describe.

I have said that vines, in my opinion, should have more heat than is usually given to them. I have forced vines at 76° of fire

heat, and I am convinced they never should have less, from the flowering season until the fruit is at maturity. With regard to watering, I commence, as soon as the fires are begun, with syringing the vines with water which has been kept in the house for a night, and continue so to do every night until the vines show flower; at which time I give all the steam possible by pouring water on the flues when the fire is made up for the night; a practice which cannot be overdone except when air is required, if there is no frosty weather to be apprehended. I consider the middle of the day by far the best time for watering, giving plenty of air at the time; as the flues require to be warmed too hurriedly to keep up the heat if the watering is done at night, as is the usual practice. As to giving air, I consider there should be a little admitted as soon as the thermometer rises a very few degrees above the medium heat of the fire; and that it should never be allowed to rise much more than 5° above it; at which heat the house should be shut, when the sun gets low, and the fire stirred up; but the heat should not be raised too hastily. The thining of the grapes, in my opinion, should be done very carefully, as soon as they are fairly set, too much should not be done at once; and they should be gone over a second time shortly after the first.

With regard to the surface manuring of the border, as soon as the wood of the vines is fully ripe, it should be forked over about 2 in. deep, with a blunt dung-fork, and 6 in. of the best cow-dung should be put on. To supply liquid manure for the border of one house, get one bushel of common salt, as much black soap, and a quantity of the drainings of stable-yard dung, all put into a large cask, and allow it to stand for a week; after which, mix it with a large quantity of rain water, and put it regularly over the border; then put on as much common earth as will completely cover the dung, but no more. In this state the border should remain until the month of April, when there should be none of this covering taken off; instead of nearly taking off the whole, as is the general custom, and often digging the border nearly a full spade deep, and cropping it with potatoes or cauliflowers, which is, certainly, a very wrong practice. All that should be done to the border in the spring is, to break the surface well with a rake, and sow the whole with dwarf annual flower seeds. It will be allowed by every one, the least conversant with the nature of vegetation, that the nearer to the action of the summer weather the roots of any plant are the better; and, as the vine is a plant which requires a great deal of food, its roots run in search of it wherever it can be found: so this very rich surface which I have directed to be made will be found, on examination, to be full of the roots of the vines, and it is the very life of them, to have sufficient nourishment so near to the surface.

September, 1835.

ART. X. *Description and Result of suspended Trellises in early Forcing-houses, as a Method for more readily forwarding Vines, &c.* By Mr. CHARLES PULLAR, Gardener to J. L. Goldsmid, Esq., Champion Hill, Camberwell.

I HAVE under my charge a hot-house, of the curvilinear construction, 40 ft. long, heated by hot water, with vines planted outside, and introduced through the front wall; there are also vines planted inside on the back wall, trained on the spur system; and there is a pine-pit in the centre, containing pines in a fruiting state. The command of artificial heat is sufficient, and there is no obstruction of light; but, when the sun shines bright, the internal air is heated to excess, as the means of admitting the external air are limited; consequently the vines are exposed to extremes in sunny weather; and, if not carefully attended to, they would receive a severe check in cloudy weather and in cold nights, being near the glass.

To give, in some measure, more uniformity to the heat, I lowered the vines by tying them to iron rods belonging to another house not in use; fixing their lower ends, and suspending the upper ends at pleasure. One half of the vines in the house were thus let down from the glass about 3 ft. or 4 ft. The other vines were trained in the usual manner to the fixed trellises, 12 in. from the glass.

The comparative results, even in the same house, after two months' trial, were in favour of the lowered vines, which were more than two weeks in advance; they being in a state to be thinned in their bunches, while the vines kept near the glass were only in flower. Another advantage was in productiveness; as, though those nearest the glass showed bunches of grapes generally, yet, owing to the variableness of the season, and their being so near to the wet, many of the bunches failed in perfecting their fruit, and were consequently useless.

The above remarks give a proof favourable to the experiment of suspended trellises, upon the conditions mentioned, at the first stages of the course of forcing; and, also, after the fruit has been gathered, it will be of beneficial effect in preventing the vine leaves from being dried up; and they will be better preserved to perfect their fruit buds for the after-season, likewise affording succession of fruit in the same house. The mode I had recourse to was only temporary; but the trellis might be constructed in such a manner as to be lowered or raised at ease, and in little time; so that, if it were found necessary to give air to the back of a hot-house in case of several successive sunny days, the vines might be let down, and at night raised to any distance that might be deemed proper.

I have thus given but general ideas; however, at the end of

the season, if an opportunity offers, I will detail more minutely the full result of the fruit ripening, and all the sorts of grapes in the house, if you deem it necessary, and will forward them for observation.

March 26. 1836.

[We shall be happy to receive the details to which our correspondent alludes; and, in the meantime, we hope he will favour us with his method for destroying the white scale (see p. 160.), to which he refers in his postscript.]

Art. XI. *A Plan for growing Potatoes and Dahlias on the same Ground, and in the same Season.* By J. H. R.

I am fearful that I shall be thought troublesome, if I give you my plan of growing potatoes and dahlias; yet some of your numerous readers, who are fond of profitable and ornamental gardening, may like to follow it. In the autumn, when the leaves have nearly all fallen from the trees and shrubs, and the seedling weeds are near coming to seed, I fork over all the spare ground where crops have been growing, which leaves it in a neat state during the winter. In February, I plant my potatoes (the early Shaws), which I generally put into the ground whole; but, if the potato is large, I divide it by drawing the knife through the middle of the cluster of eyes at the end of the potato. I begin planting the large beds, having the first row a convenient distance from the edge; after setting down the line, I dig a trench without treading upon the spade, and, as I come back, clean out the trench to about 4 in. deep. I put in the sets, then remove the line 3 ft. or 3½ ft., and dig another trench in the same manner, having a wooden rake by me to pull in the earth over the sets, and rake the ground even as the work of planting goes on. I next remove the line 2 ft., and dig another trench, which leaves but sufficient space for the moulding up of the potatoes. I next remove the line 3 ft. or 3½ ft., and so on. As soon as the potatoes are grown a sufficient height to be seen, I fork the ground one fork wide on each side of the row, by thrusting in the fork and pressing it down, so as to raise the earth, and thus leave it, not to throw it out. When the plants are sufficiently high, I mould them up, observing to mould them highest on the wide side, so as to give the stalks an inclination to fall between the narrow rows, where they are to be kept, so that one side of each row may have the full benefit of light and air. About the middle of May, I put on between the wide rows a slight coat of dung, and dig it in close to the moulding of the

potatoes. By this plan the potatoes do not get at the dung, until they are in a fit state to bear it without injuring their flavour. I plant the dahlias 5 ft. asunder between the wide rows of potatoes, placing a stake about 2 ft. high to each plant, for the purpose of supporting it, and marking the place where a taller stake is afterwards to be placed. In July and August, the potatoes are taken up, and the ground cleared. If the weather should be dry, and the dahlias likely to require water, I then make basins round the plants before levelling the soil. Since I have adopted this plan, I have had a more abundant crop of potatoes, and of better flavour; and, instead of the ground appearing as if lying waste after they are gathered, I have something to look at. As my garden rises on each side from the centre walk, I can assure you the dahlias, when the colours are well mixed, make a very pretty appearance.

Saffron Walden, March 9. 1836.

ART. XII. *On the Culture of the Chicory as a Salad Plant, as practised in Belgium.* By Dr. LIPPOLD, Author of the "Taschenbuch der verstandigen Gärtners."

DURING my journey through Belgium, in the months of January and February of the year 1834, I was struck with seeing a winter salad on the landlord's table, and another in the vegetable market, which recommended themselves as much to the eye by their beautifully yellow and red speckled leaves, as to the taste by their agreeable bitter. I enquired the name of this salad, and was informed that it was called the Chicorée de Bruges all over Belgium. It is grown in a cellar, like the wild chicory (*Cichòrium Intybus L.*), which the Parisian vegetable-growers bring in such quantities to market, and which is called, jocosely, *Barbe de Capucin.* There is, however, one difference: the thick roots of the Chicorée de Bruges produce broad leaves, and luxuriant young shoots; whilst the roots of the Barbe de Capucin, or wild chicory, have such small leaves, that a bundle of fifty roots scarcely produces a moderately sized plateful of salad; while from one dozen of roots of the other a good-sized dish of salad can be obtained. My predilection for garden culture induced me to procure seeds of this vegetable, and the following information for its cultivation.

The seed is sown about midsummer, in deeply dug garden soil, well manured with rotten dung: it should be but thinly sown, so that the plants may have sufficient space to grow. When the young plants produce leaves, they should be thinned, so that each plant may stand at least 1ft. apart from the others. Those that

are taken out may be replanted in another place. It is to be understood that the ground must be kept free of weeds, and well watered from time to time. About the end of October, or the beginning of November, forcing begins, when the roots that are too long should be cut off, and all the leaves also, except those in the very centre. The roots are then planted in a bed of earth, in a cellar that is of a moderate warmth and completely dark; the bed should be broad, and consist of light garden mould, neither too damp nor too dry; and the plants should be either one foot, or two thirds of a foot, from each other, and watered moderately. In the course of a month, the produce may with certainty be obtained. The largest outer leaves should only be taken, and those in the centre left to grow. It may easily be seen from these directions that the cultivation of the chicory is very simple; and I will only add a few words on the subject from my own experience. On my arrival in London, I gave some of the seeds to my esteemed friend and patron, William Christy, Esq., Clapham Road, who permitted his gardener to sow them. Although the seed was sown tolerably thick, on the outer edge of a bed, the plants grew so luxuriantly without any attention or care, that their dark green thick bushes of leaves covered the whole border 2 ft. broad. I think the chicory in this state might be cooked as spinach; but I have not yet tried it, though it is well worth the trouble. The plants, however, would not do so well for producing winter salad if they were to be forced, after having been deprived of their leaves in summer for spinach. I found, to my astonishment, in the autumn, that the roots, notwithstanding the plants had been suffered to remain too close together, had grown as thick as the finger, and were from $1\frac{1}{2}$ ft. to 2 ft. long. I observed two varieties amongst the plants; one had curly leaves, very much cut, and of a uniform green colour; the other had varied green and brown speckled leaves, quite smooth round the edges. Both kinds equalled my highest expectations. Agreeably to the directions, I took off all the outer leaves, and planted the roots in Mr. Christy's cellar. They were sixty in number; and I planted them half a foot apart: in the course of a month they produced fine strong leaves. The first variety had beautiful pale yellow curly leaves; but the second was much more splendid, with red and yellow mottled leaves, of a very agreeable bitter taste, and very tender. This salad is not only very wholesome, like all the chicories, but is a true ornament to the table, and has the advantage of being grown very clean. During the space of two months, I never saw a decayed leaf in the cellar, a snail, or any vermin whatever. As I have two plants keeping for seed, if it ripen, I shall be able to give you and other friends of gardening some next year. I only wonder that this chicory is not so well known in France and England as it deserves. I have only to

remark, in the last place, that these plants differ as much from the coffee chicory, as from the wild chicory and the common chicory, while they, perhaps, are only a variety of the latter.

10. *Commerce Place, North Brixton Road, Dec.* 1835.

ART. XIII. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Maund's Botanic Garden, or Magazine of Hardy Flower Plants cultivated in Great Britain; in monthly numbers, each containing four coloured figures in one page; large paper 1*s.* 6*d.*, small 1*s.* Edited by B. Maund, F.L.S.

Linàceæ.

921. LI'NUM.
*Berendièri Hook. Berendier's ○ ?⌐ or ?2 au Y O Bejar 1835 S s.l Bot. mag. 3480
Synonyme: Plôtzii Hook. MSS.

An exceedingly beautiful and new species of *Lìnum*, discovered by Mr. Drummond at Rio Brazos and San Felipe, and introduced by him into our gardens in 1835. In the Glasgow garden, it has been kept in a cool frame, where it flowered in August; but there is reason to think it may prove a hardy annual, and, if so, it will be a valuable acquisition to our gardens. (*Bot. Mag.*, April.)

Leguminàceæ, or *Fabàceæ* Lindl.

2144. KENNE'DY*A*.
*19381*a* Stirlíngi Lindl. Stirling's ♿ ⌐ or ?3 ap S Swan River 1834 ?C s.p Bot. reg. 1845

"A graceful green-house trailing plant, native of the Swan River. It was raised by Robert Mangles, Esq., of Whitmore Lodge, from seeds given to him by Sir James Stirling, the governor of the colony, in compliment to whom it has been named. It has thin, broad, pale green leaves, fringed with long weak hairs; and its twin scarlet flowers sufficiently characterise this species, which, moreover, is botanically remarkable

for having its bracts collected into a whorl, or even grown together into a little involucre."

Rosàceæ.

1528. POTENTI'LLA *L.* [gard. 542
*13613*a* mollissima *Lehm.* softest-*leaved* ♃ △ or 1½ jl.s Y Europe 1832 S co Maund's bot.

A free-flowering and showy sort of Potentílla, raised from seeds sent from the Berlin Botanic Garden. Mr. Maund has some doubt whether it is a distinct species: he says, "It approaches near to Potentílla Thomàsii of Tenore, and, probably, may be the identical plant." It ripens seeds, and requires no peculiarity of management. (*Bot. Gard.*, April.)

†1506. *CRATÆ'GUS* 12908 microcárpa *Lindl.* Bot. Reg. 1846.; *C.* spathulàta *Elliot*, Fl. S. Carol. i. p. 525.; Arb. brit. t. 31. k.; not of Michaux nor of Pursh.

Spec. Char. Subspinose; leaves in fascicles, oblong-cuneated, 3-cleft, lobed and crenated, smooth, shining; corymbs many-flowered; calyx smooth; segments ovate, quite entire; fruit ovate subrotund, smooth, 5-celled; stone thin. (*Lindl.*)

"Few hardy plants are more deserving of general admiration, for the neatness of their foliage, the diversity of their manner of growing, the beauty of their flowers in the spring, or the gay appearance of their numerous richly coloured haws in the autumn than the various species of the genus *Cratæ'gus*; and yet they are little known, except to the curious collector. They are not very frequently seen in gardens, if we except a few varieties of the common hawthorn; and botanists themselves have paid them but little attention. I therefore propose to avail myself of the circulation of this work for the purpose of bringing the subject into more notice, and of showing how very well deserving the species of *Cratæ'gus* are of general cultivation; but, as they are very much alike in flower, and as their strongest claims to be considered ornamental plants arise from the beauty of their leaves and fruit, it is in the latter state that they will generally be represented. *C.* microcárpa is, according to Elliot, a native of the upper districts of Georgia and Carolina; in Colombia county, Georgia, common, growing to a small tree, from 12 ft. to 15 ft. high. It was also collected in an unusually spiny state by Mr. Drummond, in the province of Texas. Elliot confounds it with *C.* spathulàta, which, as described by Michaux and Pursh, must be a different species in the way of *C.* parvifòlia, and allied to *C.* virginiàna of the English nurseries. In this country, *C.* microcárpa is a small tree, with slender, smooth, drooping branches, and something of the habit of the white thorn. Its leaves have a very handsome appearance, and are remarkably shining and deep green; they usually grow in clusters; have a long stalk, tapering upwards into a blade, which is sometimes nearly entire, with only a tooth or two at the end; sometimes they are 3-lobed with crenated segments; and occasionally they are deeply 3-parted; their form is always more or less spathulate. The stipules of the more vigorous branches are large and leafy. The flowers are white, and appear in May, or the beginning of June, at the same time with those of *C.* cordàta, and later than most others. The fruit is rather abundant, but small; and, although bright red, does not make much show upon the branches. The sides of the stones of the fruit are unusually thin for a *Cratæ'gus*." (*Bot. Reg.*, April.)

12923 heterophýlla Bot. reg. t. 1161. and t. 1847

Spec. Char. Leaves bright, falling off late, lanceolate-cuneate, toothed at the apex, 3-cleft, pinnatifid, segments serrated; tube of calyx fusiform; cymes many-flowered; flowers 1-styled; fruit ovate, including one nut, with a hard bony shell, and one seed; stipules large, pinnatifid. (*Lindl.*)

" The tree," Dr. Lindley observes, from which the drawing in the *Register* was taken, " is one of the handsomest in that very extensive collection of hardy trees and shrubs. It forms a dense pyramidal head, leafs among the first of the genus, and is soon covered with a mantle of snow-white blossoms. After the latter have fallen away, the leaves become fully developed, and, from their shining surface, neat figure, and firmness of texture, render the tree still a beautiful object. Finally, the rich crimson of the numerous haws, which adorn the branches in the last days of autumn, harmonises beautifully with the fading verdure of the leaves." (*Bot. Reg.*, April.)

We have quoted the specific characters of this and the preceding species, and Dr. Lindley's remarks on them, at length, in order to lend our aid in attracting attention to this very interesting genus of hardy trees and shrubs. We are much gratified to find that Dr. Lindley proposes to bring them into more notice, and to show, as quoted above, " how very well deserving they are of general cultivation." We have been endeavouring to impress this on the readers of this Magazine for the last three years, and, we hope, not without some effect. We have already figured thirty-five sorts in the *Arboretum Britannicum*, the entire trees drawn from nature, from specimens in the Horticultural Society's Garden, or in the arboretum of Messrs. Loddiges, to a scale of 11 in. to 4 ft.; and the botanical specimens, all from the same sources, and all drawn by Mr. Sowerby on wood, to a scale of 2 in. to 1 ft. We have more species and varieties to figure before our monograph of this genus in the *Arboretum* will be complete; and, besides these, we mean to give, in the same work, figures of one leaf of each species and variety, the exact size of nature, traced from the real leaves, in the same manner as we have done figures of the leaves of the species and varieties of the genus *Acer* in the number of the *Arboretum* for April. We rely much more on figures of this genus, as, indeed, of most others, than on descriptions, however elaborate; for thorns vary so much in the size and shape of their leaves, and in the absence or presence of spines and bracteæ, that we do not see how it is possible to frame a specific character in such a manner as to embrace only those points which are common to all the forms of the species, and, at the same time, enable any one to make out the species in any one of its forms. In fact, this may be said of specific characters and botanical descriptions generally; and hence the necessity of dried specimens and drawings or engravings. Even specific characters, drawn from dried specimens, drawings, or engravings, cannot, in many cases, be altogether depended on: and, in proof of this, we may refer to any genus of which there are more than a dozen species which are not all natives of the same country, or which have not been seen together in the same garden, for several years, by some botanist who has described them. Nothing, in our opinion, will ever enable botanists to bring their characters and descrip-

tions to perfection, but seeing all the species of a genus growing together in the same garden, and studying them there for several years. Things, however, must go on as they are for a long time; but, however impracticable the possibility of studying all the species of a genus in the same garden may seem at present, it is an object that, with the progress of civilisation and science, will certainly be ultimately attained. When there shall be botanists and botanic gardens established in almost every country, and a universal intercourse among botanists, it will then be a comparatively easy matter to assign to each garden the genus or genera which it ought more particularly to contain.

To return to the figures in the *Botanical Register:* they are most beautifully executed; and, being of the natural size, and coloured, and of species more absolute and limited in their forms than most others of the genus, they cannot fail to enable any one instantly to recognise the species they represent.

Onagràceæ.

1183*a*. GODE'TI*A* Spach. (See *Gard. Mag.*, xii. 135.; unexplained, but, doubless, a Latinised proper name.)
*lépida *Lindl.* pretty ○ pr 1½ au.s Pk California 1835 S It.l Bot. reg. 1849

"A pretty new annual, found in California by Mr. Douglas, and raised in the garden of the Horticultural Society, in July, 1835. In some respects, especially in the spots on its petals, it resembles Godèt*ia* (Œnothèra) quadrivúlnera, but is more handsome than that species: in reality, it is more nearly allied to Godèt*ia* (Œnothèra) decúmbens; but that species, independently of its glaucous leaves, decumbent habit, and whole-coloured flowers, has less shaggy and more linear fruit." (*Bot. Reg.*, April.)

The genus Godèt*ia* has been formed from certain species of Œnothèra, by M. Spach, a German botanist resident in Paris, who has published several monographs of both herbaceous and ligneous genera, in the *Annales des Sciences Naturelles.* Copies of several of the latter M. Spach has been kind enough to send us, together with dried specimens illustrative of his names, and for which mark of attention and kindness we take this opportunity of returning M. Spach our best thanks. We shall notice M. Spach's arrangement of the hardy ligneous genera, to which he has directed our attention, in the *Arboretum Britannicum.*

Melastomàceæ.

3345. CHÆTOGA'STRA.
*grácilis *Hook.* slender △ pr 1 jn R. Li Brazil 1834 S p.l Bot. mag. 3481

An extremely beautiful melastomaceous plant, raised in the Glasgow Botanic Garden, from seeds received from the collector, Mr. Tweedie, who sent them from South Brazil. It requires the heat of a stove, and blossoms in June. (*Bot. Mag.*, April.)

Compósitæ, § *Tubuliflòræ*, §§ *Senecionídeæ*, §§§ *Helenièæ*, §§§§ *Galinsògeæ*, §§§§§ Madièæ.

*OXYU'RA *Dec.* (It is supposed that this word is from *oxus*, sharp, and *oura*, a tail; but its application is not obvious.) [Bot. reg. 1850
*chrysanthemöides *Dec.* Chrysanthemum-like ○ or 1½ au.s Y California ?1834 S lt.l

A new genus of Compósitæ, placed by M. De Candolle, in his catalogue of the genera of that order, in the second edition of Dr. Lindley's *Natural System of Botany*, in the subdivision *Madièæ*.

A hardy annual, found by Douglas in California, and sent by him to the Horticultural Society. Dr. Lindley remarks that, though it has "very much the aspect of *C*hrysánthemum coronàrium, except that it is not half so tall, it agrees very nearly in structure with the widely different genus *Màdia*." It flowers in August and September, "ripening seeds in abundance." (*Bot. Reg.*, April.)

Scrophulariàceæ.

45. *VERO'NICA* L.
*343*a* exaltàta [*?Hort.*] lofty ♃ △ or 4 jl.au B Siberia 1816 D lt.l Maund's bot. gard. f. 543

"A well-marked and distinct species, which is far from being the case with many of this extensive genus. It is a plant of elegant growth; and its handsome spikes of blue flowers are very ornamental, equal, if not superior, to any *Verónica* with which we are acquainted."

It does not increase very freely, but may be divided every autumn; and, doubtless, might be propagated by cuttings of the stems, planted in sand, and covered with a glass. (*Bot. Gard.*, April.)

Ericàceæ.

[2d series, t. 330.
†11041. ZENO'BIA speciòsa *D. Don*, in Edin. Phil. Journ., July, 1384, p. 152.; Swt. B. Fl. Gard. *Synonyme:* Andrómeda speciòsa *Mich.*; Hort. Brit. No. 11041.

The genus Zenòbia has been formed by Professor Don from a part of the species previously included in Andrómeda. It is "dedicated to the illustrious Queen of Palmyra, alike celebrated for her virtue, learning, and misfortunes." (*Brit. Flow.-Gard.*, April.)

1339. *R*HODODE'NDRON 4343 flàvum *D. Don*, *Syn.*: Azàlea póntica [Sw. fl. gard. 2. s. t. 331
var. *coronàrium *D. Don* garland-*flowered* ♠ or 7 my.jn rich Y Holl. 1832? L s.p.l

This is one of the new Ghent azaleas, as they are commonly called in the nurseries; a number of the species of that genus being now united with *R*hododéndron. This variety may be considered as an improvement of the commonest kind of azalea sold in the nurseries; its flowers are of a rich yellow, and are produced in large compact clusters. Professor Don remarks that it "may be regarded as the handsomest of the yellow-flowered kinds." (*Brit. Flow.-Gard.*, April.)

Euphorbiàceæ.

*Poinsétt*ia* (Gra.) *pulchérrima Gra., *Euphórbia* Poinsétt*ia*

Buist MS., mentioned by Mr. Peter Mackenzie of Philadelphia, in p. 209., as a splendid plant, is recorded in Jameson's *Journal* for April, vol. xx. p. 412., as having been introduced to the Edinburgh Botanic Garden, by Mr. James Macnab, in Nov., 1834, and as having flowered twice there in 1835; subsequently, with Dr. Neill, at Canonmills; and again in the Edinburgh Botanic Garden, in Feb., 1836. From the information communicated by Mr. Macnab, it has been imported into several British collections from Mr. Buist's garden. "Nothing can be more ornamental," Dr. Graham observes, "in the stove. The rose-like whorls of bracteæ which terminate the branches have been seen, on the large plants cultivated at Philadelphia, as much as 20 in. across, and equal in colour to the finest tints of *Hi*bíscus *R*òsa-sinénsis. There can be no doubt that it forms a new generic type, though, in several species of *E*uphórb*ia*, especially *E.* spléndens, there are the rudiments of the remarkable septa found in the involucre here. I have dedicated it, if not to its original discoverer, at least to one who has first brought it into cultivation, and into general notice among botanists, and from whose exertions many additions to our collections of plants from Mexico are expected. At Philadelphia the plant is exposed in open air during summer; but is placed in the stove during winter, at which season, or early in spring, there, as here, it seems to have its period of flowering." (*Edin. New Phil. Journ.*, April.)

Orchidàceæ.

2569. *ANGRÆ'CUM.* [r.w Bot. reg. 1844
*caudàtum *Lindl.* tailed-*labellumed* £ ⊠ cu 1½? au W Y G Sierra Leone 1834?

"A most remarkable new species of *Angræ'cum*, imported from Sierra Leone by the Messrs. Loddiges, in whose collection the accompanying drawing was made in August last. At present it is exceedingly rare, and is likely to remain so; for it seems to be one of the most difficult of the tribe to manage successfully. In the nursery at Hackney, it is attached to a piece of wood suspended from the roof of the stove for epiphytes. The most curious point of structure in this species is the unusual length of its spur, which measures 9 in. from its base to its two-lobed apex. The only parallels to this, among all the orchideous plants I am acquainted with, are those of Habenària longicaúda, figured in the *Botanical Magazine*, t. 2957., and of *Angræ'cum* sesquipedàle of Du Petit Thouars's *Orchideæ*, t. 66. and t. 67. For what wise purposes these extraordinary appendages may have been destined by nature, we may well be unable to imagine. It would seem that they must be added to the vast list of objects which, to our confined apprehension, appear merely intended to exhibit the endless diversity of power of the Creator." (*Bot. Reg.*, April.)

2537. MAXILLA'RIA. [reg. 1849
†rufèscens *Lindl.* brownish £ ⊠ cu ½ d Ysh spot Trinidad ?1834 D p.r.w Bot.
Synonyme: M. fuscàta *Hort.*

Described in our Vol. XI. p. 588. Imported by Mr. Low of Clapton. It flowered at Chatsworth in 1834, and is now general in collections; in some, under the name of M. fuscàta. "By no means one of the prettiest of the genus; nevertheless, its

yellow labellum, richly spotted with crimson, is a beautiful object, when closely examined." (*Bot. Reg.*, April.)

3478. PERISTE'RIA *Hook.* [3479
*pĕndula *Hook.* pendulous £ ⊠ or 1 ja Gsh W Demerara ?1835 D p.r.w Bot. mag.

"This fine plant unquestionably belongs to the curious genus Peristèria, of which only one species (P. elàta *Bot. Mag.*, t. 3116.) was hitherto known, and that was a native of Panama. The present one was imported, with many other varieties, from Demerara, by John Allcard, Esq., in whose stove, at Stratford Green, it flowered in January of the present year, and who kindly sent us the drawing here engraved, from the pencil of V. Bartholomew, Esq., Associate of Painters in Water Colours." (*Bot. Mag.*, April.)

Amaryllàceæ.

* Sceptránthes *Graham* (from *skēptron*, a sceptre, and *anthos*, a flower; in allusion to the length of the perianth, which is 2 in. long, and 1½ in. across) †Drummónd*ii*. This is a new name, proposed by Dr. Graham to be given to the Zephyránthes Drummónd*ii* of Don, in Sweet's *Brit. Flow.-Gard.*, 328., and our No. *8022*a*, p. 184. The reason given is as follows: — "The length of tube, and especially the adhering filaments, seem to me to remove the plant from the genus Zephyránthes; the greater shortness of the tube, the less flattened limb, and the stipitate germen prevent me from uniting it to the genus Coopèr*ia*." (*Edin. New Phil. Journ.*, April.)

REVIEWS.

ART. I. *Transactions of the Horticultural Society of London.* Second Series. Vol. I. Part V. 4to. London, 1833.

(*Continued from* p. 85.)

43. *Journal of Meteorological Observations made in the Garden of the Horticultural Society, at Chiswick, during the Year* 1831. By Mr. Robert Thomson, Under Gardener in the Fruit Department.

44. *A Report upon the Varieties of the Bean cultivated in the Garden of the Horticultural Society.* By Mr. George Gordon, Under Gardener in the Kitchen-Garden Department.

THIS Report and one on Peas, by the same experienced author, which we shall give in next Number, "are intended to reduce the discordant nomenclature of the seed-shops to something like order; to enable the gardener to know the quality of the sorts he is unaccustomed to cultivate; and, above all, to prevent his buying the same kind under different names. The results which have been arrived at are taken from the observations of several suc-

cessive years, and the comparison of many thousand samples; from which it appears that only eleven kinds of beans can be distinguished among forty-three reputed varieties.

"1. *Dwarf Fan. French Synonyme:* Fève naine à chassis. *English Synonymes:* Fan or bog, dwarf cluster or bog, broad. — Stems about 2½ ft. high. Blossoms white. Pods short and nearly round, seldom containing more than three beans, which are white, small, and nearly oblong. A very abundant bearer, rather late and of good quality.

"2. *Early Mazagan. French Synonyme:* Fève de Mazagan. *English Synonymes:* Mazagan, Stidolph's new early.—Stems about 4½ ft. high, but sometimes more, if the seeds are sown early. Blossoms white. Pods rather short, seldom containing more than four beans, which are small, oblong, and thick, of a white colour. This is the best bean in the collection for early sowing, as it is hardy, a good bearer, and early.

"3. *Red-blossomed. French Synonyme:* Fève à fleurs pourpres. *English Synonymes*: Early asper, scarlet-blossomed, purple-blossomed. — Stems about 4½ ft. high. Blossoms varying, sometimes of a light red, at others of a dark crimson colour. Pods short and much pointed, seldom containing more than three beans, which are small, short and thick, of a rusty white colour when ripe. This is only fit for ornament; it is but a moderate bearer, and will not keep long after gathering, as it soon turns black.

"4. *White-blossomed. English Synonyme:* White-blossomed long pod. — Stems about 4 ft. high. Blossoms pure white. Pods rather long and nearly round, mostly containing four beans, which are small and nearly oblong, of a rusty white colour when ripe. This, like the preceding one, is of very little value, as it bears but moderately.

"5. *Violette. French Synonyme:* Fève verte de la Chine. — Stems about 4½ ft. high. Blossoms white, with the vexillum striped with brown, and two dark brown spots on the alæ. Pods long and broad, mostly containing three, but sometimes four beans, which are large and broad, white stained with purple when young, but when ripe, of a dark red colour. This is a tolerably good bean, and worth growing as it is somewhat later than the Mazagan in coming into use.

"6. *Long Pod. French Synonyme:* Fève à longues cosses. *English Synonymes:* Common long pod, hang down long pod, early long pod, large long pod, sword long pod, Windsor long pod, moon, Wrench's early moon, Lisbon, early Lisbon, Sandwich. — Stems about 4½ ft. high. Blossoms white, with the vexillum striped with brown, and two brown spots on the alæ. Pods long but not very broad, mostly containing four, but sometimes five beans, which are large, broad, thin, and white. This is a good bean, and of excellent quality.

"7. *Dutch Long Pod.* — Stems about 5 ft. high. Blossoms white, with the vexillum striped with brown, and two brown spots on the alæ. Pods long and broad, containing five or six beans, which are large, broad, and white. This is the best bean in the collection for general cultivation, a good bearer, of good quality, and rather late.

"8. *Green Long Pod. French Synonymes:* Fève verte, Fève toujours verte. *English Synonymes:* Green nonpareil, green Genoa. — Stems about 4½ ft. high. Blossoms white, with the vexillum striped with brown, and two dark brown spots on the alæ. Pods long, and not very broad, mostly containing four beans, which are small, oblong, and rather thick, of a green colour, both when young and when ripe. This is one of the best bearers, and a good bean for summer use, as it is rather late and looks well even if a little old.

"9. *Windsor. French Synonyme:* Fève de Windsor. *English Synonymes:* Kentish Windsor, Taylor's Windsor, broad Windsor, Mumford, small Spanish. — Stems about 4½ ft. high. Blossoms white, with the vexillum striped with a dark brown, and two brown spots on the alæ. Pods short and very

broad, seldom containing more than two beans, which are very large and nearly round, of a white colour. This is the best bean in the collection for summer use, as it remains longer in perfection than any other, except the green Windsor. The Mumford is only the smaller seed of the common Windsor bean separated by sifting.

"10. *Green Windsor. English Synonyme:* Toker. — Stems about 5 ft high. Blossoms white, with the vexillum striped with brown, and two brown spots on the alæ. Pods short and broad, seldom containing more than two beans, which are large and very broad, and, like the green long pod, retaining their green colour after being ripe.

"11. *Dark Red. English Synonyme:* Red Windsor. — Stems about 4 ft. high. Blossoms white, with the vexillum striped with brown, and two dark brown spots on the alæ. Pods short and broad, mostly containing two beans (but sometimes three), which are large and broad, of a light red colour when young, and of a very dark red when ripe. This is a good kind, but is not liked by the cooks on account of its red colour; it is of good quality, and rather late.

"The following are the best sorts for spring or early sowing: — Early Mazagan and green long pod. For summer or late sowing: — Windsor, Dutch long pod, and green Windsor."

ART. II. *Catalogues of Roses.* 1. *A descriptive Catalogue of Roses, cultivated and sold by T. Rivers and Son, for* 1835-6. 2. *A Catalogue of Roses, cultivated by Mr. Hooker, at his Nursery Gardens, Brenchley, near Lamberhurst, Kent.*

IN both these catalogues the different sorts of roses are classed, and shortly described and priced; on which account they both well deserve the patronage of the public. In Vol. X. p. 509., we have noticed the very excellent observations on rose culture contained in the first edition of Mr. Rivers's catalogue; and these are repeated in the present edition, with several additions. In order that our readers may judge of both the Sawbridgeworth and Brenchley collections, we shall give the following summary of each.

Mr. Rivers's catalogue contains: Moss Roses, 24 sorts; Provence, or Cabbage, Roses, 25; Perpetual, or Autumnal, Roses, 49; Hybrid China Roses, 90; Varieties of *Rosa alba*, 24; Damask Roses, 19; *R. gallica*, 100; Select Roses of uncertain origin, 25; Climbing Roses, 52; China Roses (*R. indica*), 70; Tea-scented China Roses, 51; Miniature, or Dwarf, China Roses (*R. Lawrenceana*), 16; Noisette Roses, 65; l'Isle de Bourbon Roses, 38; Musk Roses, 10; Macartney Roses, and *R. microphylla*, 10; Sweet Briars, 17; Scotch Roses, 27; Miscellaneous Roses, 101; Variegated Roses, 42.

Mr. Hooker's catalogue contains: of *Rosa bracteata*, 2 sorts, and 22 Hybrids; *R. alpina*, Hybrids, 6; *R. sulphurea*, 2; *R. spinosissima*, *R. pimpinellæfolia*, 15; Hybrids of ditto, 2; *R. centifolia*, 17; Hybrids of ditto, 7; Pompone Roses, 5; *R. muscosa*, 18; *R. damascena*, 14; *R. portlandica*, 32; *R. gal-*

lica, 89; *R.* álba, 20; Hybrids of ditto, 3; *R.* rubiginòsa, 6; Hybrids of ditto, 5; *R.* lùtea, 2; *R.* índica odoràta, 18; Hybrids of ditto, 2; *R.* bengalénsis, 32; *R.* Lawrence*àna*, 7; *R.* Noisett*iàna*, 25; *R.* Bourbon*iàna*, 11, Hybrids of ditto, 6; Hybrids of Bengal and China Roses, which flower only once in the year, 64; *R.* arvénsis, Hybrids of, 3; *R.* sempervìrens, and Hybrids, 9; *R.* moschàta, 4; *R.* Bánks*iæ*, 2; *R.* multiflòra, and Hybrids, 6.

ART. III. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the more interesting.*

LE CULTIVATEUR, Journal Belge d'Economie Rurale; Recueil de Connaissances Pratiques et Raisonnées d'Agriculture. 8vo. Nos. 1, 2, and 3., for July, August, and September, 1835. Bruxelles. Price 6 francs a year for Belgians, and 8 francs for foreigners.

This periodical is more agricultural than horticultural; but it contains some good articles in both departments; and, being circulated at so very low a price as 5*s.* a year in Belgium, cannot fail to do much good among the reading cultivators of that country. An article by M. Van Mons recommends raising potatoes from seed, not so much for the sake of obtaining new varieties, as such, but because the old varieties are continually degenerating.

Annales des Jardiniers Amateurs, Suite aux Annales de la Société d'Agronomie Pratique. In monthly numbers, 8vo. Paris. Price, yearly, 10 francs in Paris, and 14 francs if sent to other countries.

We have received two or three numbers of this work, which appears to be a sort of Florist's Magazine, being chiefly occupied with descriptions of dahlias, roses, &c.

Histoire Naturelle des Iles Canaries. Par MM. P. Barker Webb, and S. Berthelot, Membres de plusieurs Académies et Sociétés savantes: ouvrage publié sous les auspices de M. Guizot, Ministre de l'Instruction Publique. Fol. and 4to. Paris, 1836.

Of this splendid work, published under the immediate patronage of the French government, 5 numbers have appeared. The publisher and the authors spare no expense or trouble to render it worthy of the advanced state of art in the capital of France, and a model for similar publications. The authors, both of whom have been long accustomed to such studies, and

who are not unknown in the scientific world, after a residence of several years in the Fortunate Islands, returned to Europe with immense collections in all the departments of natural history, accompanied by numerous observations, manuscripts, and drawings. The greatest part of these materials they will elaborate themselves; but other parts they have confided to those who more especially dedicate themselves to the particular branches of science to which they relate. M. Valenciennes, the celebrated collaborator of Cuvier, in his great work on ichthyology, has undertaken the fish. M. Brullé, *Aide-Naturaliste* at the *Muséum d'Histoire Naturelle*, a young entomologist of the highest merit, will describe the insects; Col. Bory de St. Vincent has arranged the ferns; Dr. Montague has classified the acotyledonous plants; and Messrs. Brongniart, Cordier, Geoffroy St. Hilaire, De Jussieu, and other distinguised professors of the *Jardin du Roi* lend their advice and cooperation.

The first artists in each line are employed; and lithography, according to the new method of engraving on stone, or copperplate, is employed, as either method best suits the subject in hand.

The work will be composed of 50 numbers, appearing twice a month. Each number contains 12 or 16 pages of text, with 5 or 6 plates; and the publisher, desirous of seconding the disinterested views of the authors, has offered them at the moderate price of 6 francs the plain, and 12 francs the coloured, copies.

The whole will form three volumes in imperial 4to, with an atlas of from 25 to 30 plates of large dimensions; and will contain altogether upwards of 300 lithographic engravings and copperplates besides, vignettes, *cul-de-lampes*, &c.

The first volume, which may be subscribed for separately, will be dedicated to the conquest, the history, and the statistics of the Canaries; together with the relation of the journey, the costumes of the country, and whatever is strictly picturesque.

The second volume will comprehend the geography, geology, and zoology of the country; under which latter head the mollusca, insects, reptiles, fish and birds will be separately considered.

The third volume will contain the flora, or an enumeration and phytographical description of the vegetation; and the botanical geography, or a comparison of the vegetable productions with those of other countries, and their local distribution as to situation and altitude.

Mr. Webb is the proprietor of the arboretum at Milford, and of Messrs. Young and Penny's Nursery; and, as he has kindly sent to that nursery seeds of many of the plants that will be described in the above-announced work, we have given this lengthened notice of it, thinking that some of our readers, purchasers of these fine plants, might like to become subscribers, in order to know something about their natural habits and habitats. The agent in London is Mr. Hunneman, Queen Street, Soho.

Art. IV. *Literary Notices.*

The Flora Domestica, or History of Medicinal Plants indigenous to Great Britain, illustrated by numerous coloured plates, by Benjamin H. Barton, F.L.S., will be published in parts. Part I. to appear on May 2. The work will contain a correct description of all the medicinal plants growing wild in the woods and fields of this country, and such as are cultivated, and easy of access in our gardens. The history of each plant will comprise its botanical and popular character; its poisonous qualities, if any; the uses to which it has been applied in medicine, the arts, and in rural and domestic economy; the mode of appropriating its active principle, with the proper doses, &c.

Illustrations, with a Topographical and Descriptive Account, of Cassiobury Park, Hertfordshire, the seat of the Earl of Essex, by John Britton, F.S.A. &c., is about to be published by subscription. Cassiobury is interesting in an antiquarian point of view; and also on account of its noble Gothic mansion, its beautiful garden scenery, and its very picturesque lodges and cottages; erected, for the most part, from the designs of the present earl. Mr. Britton's work will consist of about 40 pages of letterpress in folio; and, at least, 30 embellishments by Turner, Alexander, Hearne, Elridge, and Pugin. The publication will be limited to 150 copies; 20 of which will have the plates coloured, price 6 guineas each; and the others will be 3 guineas each.

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

Method of preserving Plants during a long Voyage. — The following letter was communicated to Messrs. G. C. and R. W. Fox, and Co., by Capt. R. Gillies, of the ship Hibernia:—

In accordance with your wishes, I have much pleasure in describing to you the mode in which the plants brought by me from Calcutta were put up. The plants were all intended for the green-house in England, and, I presume, were of a delicate kind. Each plant was in a box, 6 in. square, by 1 ft. in depth, filled to the top with a kind of clay; and, no doubt, well saturated with water, previously to being put into the large outer box, which contained eight of these small ones.

The large box was constructed in the usual way; that is, a glazed roof about 2 ft. high, the glass strong enough to resist the fall of a small rope, or other light body. It was hermetically closed with the common *Chunam* * of the country, and was never opened during a voyage of five months. When we arrived in England, the plants were all in beautiful health, and had grown to the full height of the case, the leaves pressing against the glass.

In dry weather, I always observed moisture within the glass, which was

* A sort of lime, used in India as a cement for plastering houses, &c.

caused, no doubt, by the evaporation of the earth, and was again absorbed by the plants.

It is difficult to account for the perfect health of the plants, without the full admission of the atmosphere; but oxygen sufficient was probably admitted, either through the pores of the wood, or otherwise. It is, however, a fact, that no water was given to them during the voyage, and that they were landed in excellent order. — *Robert Gillies. Hibernia, Falmouth Harbour, October* 2. 1835. (*The Third Annual Report of the Royal Cornwall Polytechnic Society*, Falmouth, 1835. 8vo. 2*s*. 6*d*.)

The House Fly. — At the Entomological Society, on Monday, a paper by Lieut.-Col. Sykes was read, on excluding the house fly. The mode adopted was a net made of different-coloured meshes, of about three quarters of an inch square, and which, when placed against a window, was found quite effectual in excluding the visits of these troublesome insects from the outside of the room. The same experiment was tried with meshes made of the finest black thread, $1\frac{1}{4}$ in. square, which proved to be equally effectual. The approach of wasps was also prevented by the above mode, very few finding their way within the boundary. This was accounted for by an optical illusion in the eyes of the insect, of the highly magnifying power of vision, and the small focal length.

Now that netting can be procured at the low price of 2*l*. 1*s*. 3*d*. for thirty-three square yards, gardeners might try whether, by covering a hot-house with such a net, they could not exclude both birds and wasps. They might also apply it over standard cherry trees, and over various kinds of newly sown seeds; and, lastly, they might place it before the windows of their own cottages, to exclude the common house fly.

A cheap and durable Netting for Garden Purposes has lately been brought into notice by Messrs. Howden, who manufacture the article on a new principle by steam. This principle consists in making the knot of the mesh moveable, by which means it expands when the cord swells with wet. The expansive power possessed by this netting renders it much stronger than any other, as it is well known that all nets manufactured in the ordinary manner fail first at the knots, from the wet swelling the cord immediately above and below them, and thus tearing asunder at the point where the tightness of the knot prevents the cord from expanding. Messrs. Howden's nets are manufactured in pieces of thirty-three yards long by ten yards wide, when the meshes are not strained tight; but, when they are thus strained, the length and width of the piece are considerably increased. A piece of this netting containing thirty-three square yards, will cover a wall ninety-nine yards long and 12 ft. high; and the cost of such a piece is only 2*l*. 1*s*. 3*d*. Thus, if this netting were put three times over the trees, it would not be so expensive as bunting (which, when new, is 8*d*. per yard), or any other covering now in use for garden purposes. Pieces of this netting may be manufactured of any size and shape. It would form excellent netting for covering a cherry orchard, such as that described, and accompanied by an engraving, in Vol. III. p. 396.

Rowland's Metallic Wire and Metallic Nails. — In order that these articles may have a fair chance of extensive trial, we have figured specimens of seven different sorts, which Mr. Rowland has sent us, viz.: Nos. 8. to 20. in *fig*. 27.; and also the two metallic nails, Nos. 21. and 22. in the figure. The utility of the wire is thus described by Mr. Rowland: —

"First, in securing wall trees: from its preventing any vermin or insects from harbouring on them (as they do on list); and from its durability, which is far superior to that of either listing or matting, while its softness and pliability far surpass copper or brass wire, and it does not canker, cut, or verdigrise the trees.

"Secondly, in securing vines: it will not cut or injure the young branches, as it is of a very elastic nature; and, in point of cheapness, it is much less expensive than any other wire, listing, or even string; it also occasions a saving of time in securing or tying, as it is fastened by only one turn of the wire.

"Thirdly, in flowers the same as vines, labeling trees, &c."

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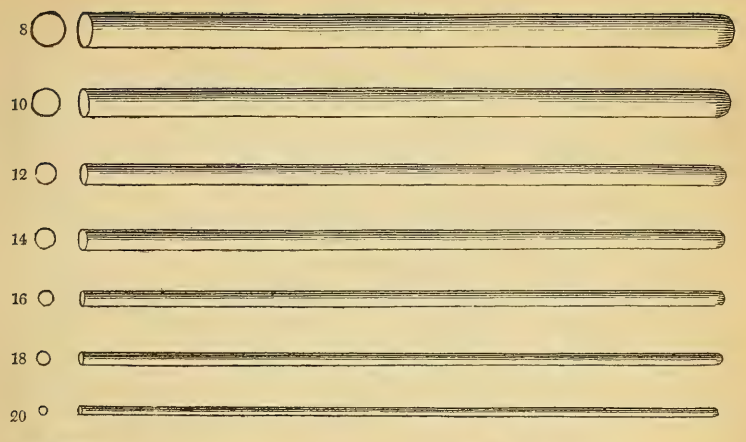


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As the fitness of this wire for general purposes must depend much on its cost, relatively to that of other materials, we give the following scale of prices of the metallic wire : —

No. 8. is 6*d.* per lb., measuring two yards in length ; No. 10. is 8*d.*, and five yards ; No. 12. is 10*d.*, and seven yards ; No. 14. is 1*s.*, and twelve yards ; No. 16. is 1*s.* 2*d.*, and eighteen yards ; No. 18. is 1*s.* 4*d.*, and thirty yards ; and No. 20. is 1*s.* 6*d.*, and sixty yards.

The prices of the metallic nails have not been stated to us by Mr. Rowland The circumstance of these nails being made round, alone, renders them much better adapted for having the shoots of trees tied to them, than the square-shanked cast-iron nails in common use. Every gardener knows that it is the sharp angles of these cast-iron nails that chiefly wound the shoots. We would strongly recommend that all cast-iron nails, intended to be used for training purposes in gardening, should, in future, be cast like the metallic nails of Mr. Rowland, both with round shanks, and with round heads. They would then be less likely to do mischief than they are at present, though they would still be liable to rust. If Mr. Rowland's nails be any thing like as cheap as the cast-iron ones, they are certainly greatly to be preferred to them. — *Cond.*

Waterproof Strands of Bast for tying Trees, and Waterproof Bast Mats. — In our Second Volume, p. 192., a mode of rendering ties of bast waterproof is mentioned by Dr. Van Mons ; and, while recommending a trial of metallic ties, it is but fair that we should remind our readers of this very simple mode of increasing the durability of bast. To make bast ties waterproof, it is only necessary to wet them first with a solution of soap, and next with a solution of alum. A neutral compound is formed from the soap and the alum, joined to the albumen of the wood of which the bast is composed, which is insoluble in water. It has often occurred to us, that, if common matting could be woven in Russia, with the weft of pack-thread, and the woof of strands of bast, mats would then throw off the rain nearly as well as canvass ; and the whole might be tanned, or rendered waterproof by Dr. Van Mons's process. Perhaps our friend at Cronstadt might be able to induce some of the Russian mat manufacturers to try this process. — *Cond.*

Art. II. *Foreign Notices.*

FRANCE.

Paris, 5. Rue des Vignes, March 6. 1836. — I was pleased and surprised to see, by an article from M. Alphonse De Candolle, p. 381., that his father had discovered, fifteen or eighteen years ago, in a garden at Bourdigny, near Geneva, a tree of the female Salisbùria; but, when he adds that all the female salisburias in Europe are from that tree, I imagine, he is wrong. It was at Bourdigny where I resided in 1775, when I was collecting plants upon the Alps, and I deposited them in the garden of M. Gaussin, the proprietor of Bourdigny, until I could send them to England, which I did, to Drs. Pitcairn and Fothergill, the same year. When I returned to France in 1776, I continued in correspondence with M. Gaussin; and, when employed in forming the gardens at Bagatelle and Monceau, I always sent to M. Gaussin some of all the new plants that I got; and these were numerous, as I was then forming a collection of trees and plants at Monceau for the late Duke of Orleans. The last packet of trees that I sent to M. Gaussin was in 1790; and amongst them was a plant of the *Ginkgo* biloba (Salisbùria), which I reared at Monceau. I have M. Gaussin's letter, wherein he writes to me from Geneva, "I have received a parcel of plants, twenty-nine species, by M. Merlin, for which I beg your acceptance of my sincere thanks," &c.; dated, "Geneva the 11th Xbre., 1790;" and signed, "*Gaussin de Chapeaurouge.*" Now, this tree, when M. De Candolle observed it, as he says, must have been nearly twenty-nine years planted. This is what I can certify; but, whether the trees at Monceau were male or female, I cannot say, as the revolution in France began about this time, and I was forced to leave Paris, and all the plantations that I had made. Part of these plantations were afterwards destroyed, but some were saved. For this reason, I think it cannot be from Bourdigny that all the female salisburias have sprung. There was cut down, about two years ago, to build a house in the garden of Marbœuf, a fine salisburia, above 40 ft. high. This tree was planted about fifty years ago, by Mr. Jansen, an English gentleman, who laid out the garden, and who was very curious in plants. The garden is cut up for building all round; and many fine trees that were in it have been destroyed. A beautiful sophora was cut down near the same place where they cut down the salisburia. The gardens at Bagatelle have been sold, and purchased by Lord Yarmouth, who, they say, is going to restore the house and gardens, but how I do not know.

The winter here has been long, but not severe: we have had no very hard frost to kill the plants; so that now many evergreens, which formerly could not be purchased, can easily be had in the nurseries about Paris, and may ornament the gardens. I have been executing some works lately at Mortefontaine, the seat of the Baronne De Feuchère. This place, I dare say, you saw when you went to Ermenonville. A great part of it was laid out when it belonged to Joseph Bonaparte, when there were many things badly placed, which cannot now be changed. There was a long and narrow dark passage from one park to another, which I proposed to enlarge, so that the two parks might join. This the lady saw the propriety of; but former arrangements rendered it impracticable. I would have sent you grafts of the early-flowering horsechestnut; but Mr. Gordon, the ambassador's gardener, who was bred up at Kew, told me they had an early-flowering horsechestnut there. I asked him if the ailantus bore seed in England. He said he never had seen the flower. However, you may. If you have not, and would wish any seed, I could send you plenty, as there are several trees here loaded with seeds. — *Thomas Blakie.*

We have seen flowers of the ailantus frequently, and also seeds, at White Knights; but the latter, when we saw them, were not quite ripe. — *Cond.*

BELGIUM.

Ghent, March 1. 1836. — I have been expecting plans of gardens from different gentlemen for your *Suburban Gardener*, but, as yet, have not received

them. I send you a new number of the *Horticulteur Belge*, and recommend to you an article, by M. Moren of Liege, on the artificial fecundation of the Orchídeæ tribe, and which I would recommend to you to translate. Our new building for the exhibition of plants will be open for the winter exhibition of 1837; and it will be well worth any gardener's coming over to see it. I believe there will be a kind of fête on the occasion, and a large banquet given. Our last winter exhibition was very respectable in forced plants, though some camellias figured under false names; a plan which both foreign and English gardeners ought to be ashamed of practising. Foreigners are very apt to play sad tricks with the names of camellias, dahlias, and roses; so much so, indeed, that I scarcely ever purchase any of these three classes of plants unless in flower. A hint in your Magazine might, perhaps, make the foreigners ashamed of these tricks, and would serve as a lesson to the English gardener. — *J. M. B.*

All my different Varieties of Indian, Bengal, and Noisette Roses, budded upon the *R*òsa canìna and *R*òsa Smíthii, or the common blue Noisette, have stood the winter, uncovered, very well; the points only of the branches being a little scorched by frost; whereas those on their own bottoms have, for the most part, been killed down to their roots. *Rìbes* speciòsum has stood very well uncovered. The winter has been very trying for open ground plants, not one day being like the other. Eleven degrees and a half below the freezing point of Reaumur was the lowest degree of cold, with very little snow; but during the most severe weather the flavour of the Brussels sprouts was much improved. Green-house plants here have suffered severely. Many gardeners, being deceived by the mild appearance of the night, have found, to their cost, two or three degrees (Reaumur) of cold in their houses before morning. In short, I never, in this country, have observed so changeable a winter as the present; and vegetation is at least three weeks backwarder than it was last winter. — *Id.*

ITALY.

Monza, November 25. 1835. — I do not know what pleasure people can find in deceiving others, and in propagating falsehoods; but it is certain that there are such beings in existence, and I fear your correspondent Mr. ——— may be one of them, as he has had the folly to declare that he saw the fruit of the salisburia in the Botanic Garden at Pavia, where it has never flowered, and where it does not appear that there is even a female plant. I consider the contradiction of this false assertion of such importance, that I transmit to you, enclosed, an answer which I received from Signor Pratesi, a gardener, and good botanist, belonging to that establishment; and whom your correspondent must have seen, if he really visited the Botanic Garden at Pavia. I do not think that there is a female plant in this garden, because, when I was there a short time ago, I do not remember it; and, certainly, if it were there, Signor Pratesi must have been aware of it, and would have mentioned the circumstance in his answer. Professor Giuseppi Moretti would also have mentioned it in the Return Paper which I sent him from you, begging him earnestly to fill it up as soon as possible.

Now we are on the subject of deception, I must tell you that you have been very incorrectly informed respecting this royal garden. In your valuable *Encyclopædia of Gardening*, p. 19., 1st edition, you say, that " Every thing is in as good order as the parsimony of the present viceroy permits." This is an injustice which this best of princes does not deserve; and you may suppose so, when I assure you that the gardens at Monza are not kept up for himself, but for the government; and that the sum spent annually for their support (I speak of the gardens only) is now never under 35,000 Austrian francs; while under the former government only 19,000 Italian francs were expended.

For two years past I have had the pleasure of the acquaintance of a countryman of yours, who lives near the Lake of Como, Signor Conte George Compton, to whom Lombardy is indebted for the introduction of many beau-

tiful and useful plants; and, among others, for a tuber of *Cánna Achìras*, or *C.* edùlis. From what you say in your Magazine, and the testimony of Signor Conte Compton, I wrote a paper, suggesting to the Georgofili Academy at Florence to try to cultivate it in the marshes which are occasionally overflowed by the sea. The secretary of that establishment informed me that, according to my proposal, they had planted and cultivated the achira in the open air; and that the result was very successful, as he thus writes: — "The four tubers which I planted have produced more than twenty of a large size. I have tasted them, and they are excellent; the juice being sweet and agreeable. I have also extracted the fecula, and find it resembles that of the potato, and of the Maránta *a*rundinàcea; and I have calculated that it produces at the rate of eight to a hundred." This year I have also grown a considerable number of tubers. When the extreme cold was over, I planted them in the open air early in the spring, in a rich soil exposed to the sun, not failing to water them abundantly every day; and by these means the stems grew to the height of about 9 ft., flowered freely, and produced abundance of seed. When the cold set in, which this year was a month earlier than usual, because on the 13th of this month the thermometer was at 3° of Reaumur, and on the 14th and 15th there was a heavy fall of snow, I dug up the ground, and found that the tubers of the achira had produced abundantly, and that those of a moderate size weighed 4 oz. I had some boiled, and some baked: I found by both the methods that they were agreeable to the palate. I had also a little of the fecula prepared for the table, and found that it tasted like a mixture of the potato and the beet root. I had, also, some tubers fried, and found them excellent. This year it will become better known in the country, and I hope its usefulness will be proved. The stems and leaves might, probably, serve as food for cattle, if prepared by steam.

O'xalis crenàta and O. Arracácha. The former has been introduced here by Signor Compton, and succeeds very well with me; having produced tubers weighing more than 16 oz. I have not yet tried them for the table, but shall do so when I get a sufficient quantity, and will send you the result. Our august viceroy received *O. Arracàcha* from Vienna. It appears to me to be a variety of *O.* tetraphýlla, only differing in having flowers flesh-coloured, instead of violet. The tubers resemble the root of the carrot which is called in Italy *carota corta;* but they contain too much water to be pleasant to the taste. They weigh about 2 oz. each. I have never seen tubers of *O.* tetraphýlla of so large a size, although it is cultivated in this neighbourhood.

I here add a list of the professors to whom you may address your Return Papers: — Sr. Burberi, at Montovo; Sr. Bomato, at Padua; Sr. Jean, at Parma; Sr. Bertolini, at Bologna; Sr. Merati, at Bergamo; Sr. Moretti, at Pavia; Sr. Balsami, at Milan; Sr. Comolli, at Como; Sr. Linneo Tagliabue, at Lairate, near Milan; Sr. Biasoletto, at Trieste; and Sr. Brambilla, at Cremona. All my spare time is devoted to translating Dr. Lindley's excellent *Ladies' Botany.*

My brother Antonio, who is director of the plantations on the military road on the banks of the Lake of Como, writes to me that he will soon send me a list of the exotic plants that stand the open air on the Lake of Como, from Leno to Collico; and as soon as I receive it I will forward it to you. — *Giuseppe Manetti.*

Monza, December, 1835. — *The Acorns of* Q. Ròbur. When I mentioned the oaks in the Return Paper, I forgot to state that the acorns of *Quércus Ròbur* and pedunculàta are used here as coffee, after being subjected to the action of heat; and that such coffee is chiefly drunk by those who suffer from weakness of the stomach.

The O'xalis Arracàcha, which I mentioned to you in my last letter, appears to be the *O.* floribúnda which you speak of in Vol. VIII. p. 691.

Plants which will stand in the open Air at Como. — I subjoin the list I promised in my last of the plants which stand the open air on the shores of the Lake of Como; from which you will be able to form an idea of the mildness

of the climate. *Ricinus* commùnis has lived with me three successive years. Aloýsia citriodòra, Búddlea globòsa, Cæsalpínia *Sáppan*, Camél*lia* oleífera, C. *Sasánqua*, C. japónica, C. j. fl. álbo, C. j. fl. plèno, and other varieties, *Clèthra* arbòrea, *Elæágnus* argéntea, Eránthemum pulchéllum, *Jasmìnum* azóricum, *Justícia Adhátoda*, *Laúrus* índica, *L.* fœ'tens, *L.* tomentòsa, Leptospérmum pubéscens, Magnò*lia* fuscàta, Melaleùca *hypericifòlia*, Eriobótrya japónica, Metrosidèros [Eriostèmon] *salígna*, M. [?] álba, M. [E.] lophántha, M. angustifòlia, *Myrìca quercifòlia*, *Nèrium* Oleánder, *N.* spléndens, *O'lea* fràgrans, *O.* americàna, *Pìnus* longifòlia, *Pistàcia Lentíscus*, Pittósporum undulàtum, Podocárpus elongàtus, *Rhús* lùcida, *R.* viminàlis, Royèn*a* lùcida, Edwárds*ia* grandiflòra, *Vibúrnum* rugòsum, *V.* odoratíssimum, Littæ'*a* geminiflòra, *Anthýllis* Bárba Jòvis. — *Antonio Manetti.*

INDIA.

Seeds of the Prangos Hay Plant were sent by the French general Allard, in the service of the Rajah of Lahore, in the spring of 1834, to the Calcutta Botanic Garden; but, though they were sown, and every care taken of them, none of them came up. A bottle of the same seeds was also sent to Europe, to M. Vilmorin of Paris, by the desire of the Agricultural and Horticultural Society of India; but they, also, had lost their vital principle before arrival. The same Society, with that liberality which ought to distinguish every public body that has for its object the improvement of the arts connected with civilisation, sent seeds to Britain, to North America, and to Van Diemen's Land. The climate of Ladak, of which country the Prangos hay plant is a native, resembles that of Canada, Ladak forming part of the vast plateau of Tartary. There can be no doubt, therefore, of the hardiness of this plant, if it were once introduced into Europe. (*Extract of a Letter from H. Peddington, Foreign Secretary to the Agricultural and Horticultural Society of India, to M. Vilmorin of Paris, dated Calcutta, May* 5. 1834.) In Vol. VIII. p. 13., there is a notice of this plant, taken from Wallich's *Rarer Asiatic Plants*, No. 9., from which it appears, that the Prangos hay plant is said to fatten sheep in an incredibly short space of time, and to prevent them from being affected with the rot. — *Cond.*

Art. III. *Retrospective Criticism.*

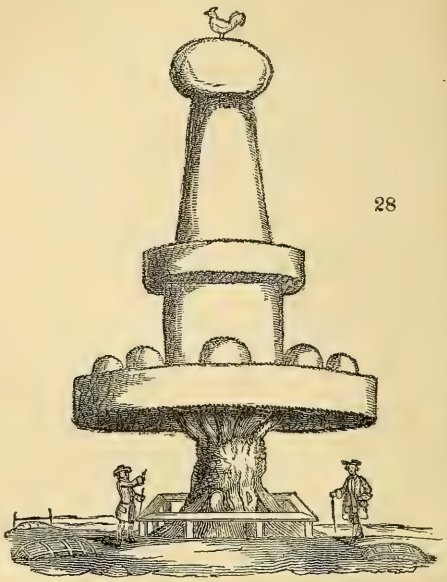
Errata.— In the communication of M. Klause, p. 7., for "Caralate," read "Caralath;" p. 7., for "Fischals," read "Fischbach;" p. 8., for "Sidel," read "Seidel;" p. 9., for "Thavant," read "Thurant;" p. 9., for "Breiten," read "Breiter;" p. 12., for "Schnitzboor," read "Schnitzban;" p. 12., for "Noar," read "Noack."

Errata.— Vol. XI. p. 554., 7th line from the bottom, for "Mr." read "Mrs.;" and p. 556., 4th line from the bottom, for "I think in L. microcárpa," read "I think it L. microcárpa. — *G. M. Elliot. Ripley Castle, March* 19. 1836.

The Belfast Horticultural Society.— It is only lately that my attention has been drawn to an anonymous article which appeared in your Magazine for March, 1835, No. 60. p. 152., under the head of *Ireland*, and relating to the *Belfast Horticultural Society;* or I should ere this have taken notice of it. I now beg to inform you, that this article is one tissue of calumny and misstatement; and, through you, to call upon the writer to come forth from his ambush, and avow his real name. When I know with whom I have to grapple, I pledge myself to prove, if needful, the falsity of the imputations attempted to be cast upon the proceedings of the Society, which were only intended to bring order out of confusion, and to place the Society on such a footing, that its members might meet together in harmony and peace. — *Michael Andrews, Secretary B. H. S. Ardoyne, near Belfast, March* 21. 1836.

Art. IV. *Queries and Answers.*

A remarkable Yew Tree. (*fig.* 28.) — Mr. Gibson, bookseller in Oxford, found, the other day, among some old books which he had recently purchased, and which were formerly the property of (the Rev.) Mr. Henry Bright, who, I think, was author of a small work on the virtues of British plants, an old copperplate print of a very large and curious yew tree (*fig.* 28.), said to have been growing, about 1729, in the village of Arlington, Middlesex. This print is headed, "Poet John Saxy upon his Yew Tree, Nov. 1729;" and it is accompanied by a copy of verses, from which it appears that it must have been as much as 50 ft. or 60 ft. in height. It was surrounded at the bottom of its trunk by a wooden seat, above which, at 10 ft. from the ground, was a large circular canopy, formed by the tree itself, which was, according to Poet Saxy, —



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"So thick, so fine, so full, so wide,
A troop of guards might under it ride."

Ten feet above this canopy was another, of much smaller dimensions; and above that a pyramid, about 20 ft. high, surmounted by a globe 10 ft. in diameter; and this globe was crowned by —

"A weathercock, who gaped to crow it
This world is mine, and all below it."

In the rhymes, this tree, it is said, —

"Yields to Arlington a fame
Much louder than its Earldom's name;"

from which it may be inferred, that it grew in some churchyard in the parish of Arlington, though the paper is indorsed, "The Yew Tree at Harlington, Middlesex."

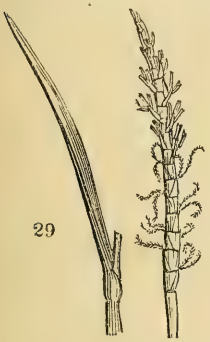
I find no notice of such a tree as this ever having been growing at Arlington, either in Brewer's *Description of London and Middlesex* (1816), Middleton's *Agricultural Survey of Middlesex* (1807), Miller's *Gardener's Dictionary*, Evelyn's *Sylva*, or any other work in my library. As you are living not far from the place, perhaps you may know more about it, and whether the tree is still growing there. — *W. Baxter. Bot. Gard. Oxford, Dec.* 16. 1835.

We have been unable to procure any information respecting this tree; and should be much obliged to any of our readers who have it in their power, to send us an account of its present state. — *Cond.*

Loudon's [Robert of Carstairs] *Seedling Grape* is mentioned (Vol. X. p. 397.) as an excellent grape, which "readily produces a second crop, especially when grown in a pine-stove." A correspondent in the same volume, p. 577., asks

from what part of the vine the second crop is produced. Mr. Barnet has not answered the question directly; but he has sent us a plant, and some cuttings, from the letter accompanying which we make the following quotation :—" Loudon's seedling grape is a very excellent variety, producing a second crop from the fourth or fifth eye beyond the joint at which it has been pinched off in summer. In cases where it is grown in stove heat, the plant is seldom without clusters of fruit. I am not acquainted with any variety of the vine that seems to have this property." — *J. B. Experimental Garden, Edinburgh, April* 1. 1836.

The Gama Grass. — Messrs. Jacob Wrench and Sons, seedsmen, London Bridge, having received a bag of the seeds of this grass, and having requested us to give them some account of it, we think it may be useful, more especially as this grass is at present making a considerable noise in the United States, to lay some particulars respecting it before our readers. The Gama grass was so named in honour of the Spanish gentleman who first introduced its culture into Mexico. Its scientific name is Trípsacum *dactylöìdes L.* (*fig.* 30.); and there is a variety of it, T. monostàchyon *W.* (*fig.* 29.), which by some is considered as a species. T. *d*actylöìdes was introduced into England from Virginia in 1640; and T. monostàchyon was brought to this country from North America in 1825; though we have not been able to ascertain where a plant of the latter species is to be found. There are plants of " T. *d*actylöìdes in the grass collection at Kew, which have been there a number of years. It is there a robust perennial grass, requiring no looking after as regards its cultivation, because neither heat nor cold, wet nor dryness, appear to affect it. It is late in beginning to shoot; and its flower stems do not show till late in the summer. They are spreading, and from 3 ft. to 4 ft. in length. They continue green till destroyed by the cold nights in autumn. It does not appear that the seeds are sufficiently ripened to vegetate; at any rate, no plants have been raised at Kew from seeds ripened there. — *J. S. Kew, April* 12. 1836."



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In the *Gard. Mag.*, vol. x. p. 570., a New York correspondent states that the Gama grass is considered the best of all grasses for soiling, in the neighbourhood of that city. It is also strongly recommended for this purpose in the *Genessee Farmer*, vol. iv., for 1834. It is there stated, that Dr. Hardiman of Missouri appears to have been the first cultivator of this grass in the United States; but that whether he found the seed there, or procured it from the Spaniards, is uncertain. It is said to be a native of various parts of the Union, and to be found on the sea coast as far north as Connecticut; and in the interior, on the Schuylkill, 25 miles above Philadelphia. Various accounts are given of the produce of this grass. From " seventy to ninety tons of green hay, and from twenty to thirty tons of cured hay, to the acre," are said to have been grown in North Carolina. The flower stems attain the height of 7 ft. or 8 ft.; and the editor of the *American Farmer* says that a blade sent to him in a letter measured 32½ in. in length. One of his correspondents observes : " When all surrounding vegetation was literally burnt up, the Gama grass was green and flourishing; and during the month of July it grew 43 in. It was cut on the first day of every month, ranging from 3½ ft. to 4½ ft. in height." It is said to grow well in both sandy and clayey soils; to taste like the leaves of Indian corn (a taste of all others the most agreeable to animals); and, when mixed with a little salt, and given to mules, to render the addition of corn for them quite unnecessary. (*Genessee Farmer*, vol. iv. p. 4.) In a subsequent page of the same volume, the editor states that the seed requires an unusual length of time to vegetate; in some instances, as much as fourteen months. Some seeds, which the editor of the *Northern Farmer* kept constantly wet with water,

near a stove in the kitchen, were two months before they began to sprout. From all that we have read in the American agricultural journals, and from the habits of the plant at Kew, we think it very likely that the Gama grass will prove a valuable forage plant in all climates suitable for the Indian corn; for which reason, we hope Messrs. Wrench will send seeds of it to M. Vilmorin for France and the south of Europe, to Sydney and Van Diemen's Land, and also to India and South America.

Art. V. *Covent Garden Market.*

	From £	s.	d.	To £	s.	d.
The Cabbage Tribe.						
Cabbage, per dozen:						
White	0	1	9	0	3	0
Plants, or Coleworts	0	5	0	0	8	0
German Greens, or Kale, per dozen	0	0	9	0	1	9
Broccoli, per bunch:						
White	0	2	0	0	3	0
Purple	0	1	6	0	2	6
Legumes.						
Peas, forced, per pottle	0	5	0	0	7	6
Kidneybeans, forced, per hundred	0	1	6	0	2	6
Tubers and Roots.						
Potatoes, per ton	5	0	0	6	0	0
Potatoes, per cwt.	0	5	6	0	6	6
Potatoes, per bushel	0	2	9	0	3	3
Kidney, per bushel	0	3	0	0	0	0
Scotch, per bushel	0	2	9	0	0	0
Turnips, White, per bunch	0	0	4	0	0	6
Carrots, per bunch:						
Old	0	0	5	0	0	8
Horn	0	0	8	0	0	9
Parsneps, per dozen	0	1	0	0	2	0
Red Beet, per dozen	0	1	6	0	2	6
Skirret, per bunch	0	1	3	0	0	0
Scorzonera, per bundle	0	1	3	0	0	0
Salsify, per bunch	0	1	3	0	0	0
Horseradish, per bundle	0	1	6	0	4	0
Radishes, Red, per dozen hands (24 to 30 each)	0	0	8	0	1	0
White Turnip, per bunch	0	0	3	0	0	4
The Spinach Tribe.						
Spinach, per sieve	0	1	0	0	1	6
Spinach, per half sieve	0	0	9	0	1	0
Sorrel, per half sieve	0	2	0	0	0	0
The Onion Tribe.						
Onions, old, per bushel	0	4	6	0	6	0
for pickling, per half sieve	0	2	6	0	3	6
when green (Ciboules) per bunch	0	0	4	0	0	6
Leeks, per dozen bunches	0	0	9	0	1	3
Garlic, per pound	0	0	8	0	0	0
Shallots, per pound	0	0	8	0	0	0
Asparaginous Plants, Salads, &c.						
Asparagus, per hundred:						
Large	0	8	0	0	10	0
Seconds	0	4	0	0	5	0
Middling	0	2	0	0	2	6
Small	0	1	6	0	0	0
Sea-kale, per punnet	0	1	0	0	2	6
Lettuce, per score:						
Cos	0	1	3	0	1	6
Cabbage	0	0	6	0	1	6
Endive, per score	0	2	0	0	3	6
Celery, per bundle (12 to 15)	0	1	3	0	2	0
Small Salads, per half sieve	0	2	6	0	0	0
Small Salads, per punnet	0	0	2	0	0	0
Pot and Sweet Herbs.						
Parsley, per half sieve	0	2	6	0	0	0
Tarragon, dry, per doz. bun.	0	3	0	0	0	0
Fennel, green, per dozen bunches	0	3	0	0	0	0
Thyme, green, per doz. bun.	0	3	0	0	0	0
Sage, green, per doz. bunches	0	2	6	0	0	0
Mint, green, per dozen bun.	0	3	0	0	0	0
Peppermint, dry, per dozen bunches	0	1	0	0	0	0
Marjoram, dry, per doz. bun.	0	1	0	0	0	0
Savory, dry, per dozen bun.	0	1	0	0	0	0
Basil, dry, per doz. bunches	0	1	3	0	0	0
Rosemary, green, per dozen bunches	0	4	0	0	0	0
Lavender, dry, per doz. bun.	0	3	0	0	0	0
Tansy, green, per doz. bun.	0	2	0	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Rhubarb Stalks, per bundle	0	0	6	0	0	10
Edible Fungi and Fuci.						
Morels, dry, per pound	0	16	0	0	0	0
Truffles, dry, per pound:						
English	0	14	0	0	0	0
Foreign	0	12	0	0	0	0
Fruits.						
Apples, Dessert, per bushel:						
Nonpareils	1	5	0	1	10	0
Reinette grise	1	0	0	1	5	0
Baking	0	6	0	0	12	0
French	0	5	0	0	6	0
Pears, Dessert, per dozen:						
Beurré rance	0	6	0	0	12	0
Baking:						
Worcester	0	1	0	0	1	6
Strawberries, forced, per oz.	0	1	0	0	2	0
Walnuts, per bushel	0	16	0	1	0	0
Filberts, English, per 100 lb.	1	15	0	2	0	0
Pine-apples, per pound	0	6	0	0	12	0
Grapes, hot-house, per pound	0	10	0	1	0	0
Cucumbers, frame, per brace	0	3	0	0	8	0
Oranges, per dozen	0	0	9	0	2	6
Oranges, per hundred	0	5	0	0	16	0
Bitter, per hundred	0	6	0	1	0	0
Lemons, per dozen	0	1	0	0	2	0
Lemons, per hundred	0	6	0	0	14	0
Sweet Almonds, per pound	0	3	0	0	0	0
Brazil Nuts, per bushel	0	14	0	0	16	0
Barcelona Nuts, per peck	0	5	0	0	0	0
Spanish Nuts, per peck	0	4	0	0	0	0

Observations. — The supply to the market, until this morning, has been very limited, and the prices of most articles continued slightly advancing; but they have declined considerably, in consequence of a larger supply coming to hand than could have been reasonably expected in so short a period, with but little influence from improvement in the weather, which has continued to be wet and cold until within a few days. The season may, upon the whole, be considered full fourteen days later in every article of natural produce usually supplied at this season. Articles artificially produced are also materially retarded

by the total absence of solar heat, and come to hand rather sparingly. Grapes not so plentiful as usual; strawberries very limited in quantity; cucumbers rather plentiful, but by no means in demand; asparagus not very abundant; sea-kale in good supply, owing to the forced and the natural being in market together. Of cabbages we have as yet but few, and none of very good quality. Rhubarb, owing to the large breadth in culture, is furnished rather liberally, at a very moderate rate; to-day we have had several waggon-loads. Broccolis, of course the very late varieties, are rather plentiful. The new Russian, or late dwarf white, is found to be an excellent sort for standing well through the severest frost we have experienced this winter. As mentioned in my last, potatoes have been rather plentifully supplied; but, as the season advances, and, as yet, with little else to rely on, the stock must be rapidly diminishing. As expected, prices have fallen materially, but are now again steadily improving. Turnips are now nearly over for the season; some few late sown are still supplied. Carrots continue to be much in demand, and at a very good price. All other vegetables much as usual, with some allowance for the lateness of the season. Our stock of apples of home growth is getting short. We have a few French crabs, gooseberry pippins, winter sourings, and other late keeping varieties; but the commoner sorts come to hand in bad condition. Some considerable importations from Ostend have taken place, of very indifferent sorts, which have kept the supply and prices equally moderate. The dessert varieties, such as nonpareils, golden pippins, court pendus, &c., with some reinettes grises, are all getting scarce; and more valuable pears are now reduced to one variety, and that in very small quantities. — *G. C. April* 16. 1836.

Art. VI. *The London Horticultural Society and Garden.*

April 5. 1836. *Camellia Show.* — *Exhibited for Prizes.* Chinese camellias: Camél*lia* japónica striped, C. j. fimbriàta, C. j. imbricàta, from Mr. Chandler. C. j. double-striped, C. j. fimbriàta, and C. j. *a*lthææflòra, from Mr. G. Glenny. English seedling camellias in pots, from Mr. Chandler. Baskets of cut flowers of Chinese camellias, from Mr. W. Wells, Mr. Chandler, and Mr. Donald; the latter of which were produced in the open air; and of English seedling camellias, from Mr. Allnutt, Mr. G. Glenny, and Mr. Chandler.

Extras. Camél*lia* japónica double white, C. j. Chándler*i*, C. j. concínna, C. j. *a*lthææflòra, from Mr. Chandler; seven seedling camellias, from Mr. Allnutt; baskets of camellias, from J. C. Palmer, Esq., and W. Wells, Esq.; *E*uphórb*ia* spléndens, heartseases, a seedling rhododendron (with somewhat the habit of *R.* azaleöides), from Mr. G. Glenny; *E*uphórb*ia* spléndens, Tropæ'olum tricolòrum, from Mr. Pressley (gardener to Walter Boyde, Esq.); Tropæ'olum tricolòrum, a hybrid rhododendron, Phaíus Woodfórd*i* immaculàta, *A*càcia verticillàta, Ardísia hymenándra, from Messrs. Young of Epsom; Tropæ'olum tricolòrum, from Mr. Lane (gardener to J. C. Palmer, Esq.); Solándr*a* grandiflòra, from Mrs. Marryatt; Drímia sp., *P*lumbàgo *r*òsea, from Mr. Buck; and a very remarkable specimen of ivy, which was laid on the table for the inspection of the visitors, and which had grown and twined round an ash tree (at Chi Grove, Sussex) to such an extent as to completely destroy the tree, from C. P. Dimmond, Esq. — *Fruits.* Maurice pears, from J. Arcedeckne, Esq. At this exhibition Mr. T. C. Palmer, Mr. S. E. Henderson, and Mr. D. Munro, were the judges, and awarded the prizes in the following manner: —

A large silver medal to Mr. Chandler, for the best three Chinese camellias in pots. A large silver medal to Mr. Chandler, for the best three English seedling camellias in pots. A silver Banksian medal to Mr. Wells, for the best basket of cut flowers of camellias. A silver Banksian medal to Mr. Chandler, for the best basket of cut flowers from English seedling camellias. Amongst the extra productions, the following plants being deemed of superior merit, Banksian medals were awarded, one, for Ardísia hymenándra, to Messrs. Young of Epsom; and one for Tropæ'olum tricolòrum, to Mr. Lane, gardener to J. C. Palmer, Esq.

Medals as Prizes, we are inclined to think, are not in accordance with the spirit of the age. Useful articles of an ornamental, an elegant, or of an intellectual description, would, we should think, be more gratifying to the possessor: for example, a microscope, a case of drawing instruments, or a botanical work, to a young gardener; and a snuff-box, a cup, a teapot, a tea-tray, or something of that kind, to a master gardener. What gratification can there be in possessing twenty or thirty Banksian medals, pieces of jeweller's gold or silver, about the size of eighteen-penny tokens? We would suggest the idea of giving prize numbers instead of medals, and leaving it to the option of the party obtaining the prize number to present it either for a certain sum, or for the medal itself, as he might choose. The party taking money instead of medals might write, or have engraved, on the book or other article purchased with it, "Purchased with prize numbers, received from the Horticultural Society of London, between , 1830, and , 1836, as recorded in the *Hort. Soc. Trans.*, vol. ., p. ." (See Vol. V. p. 618.) However, this is but the crude expression of an idea, written on the spur of the moment, like many others in this Magazine, to be hereafter dilated on by ourselves or others, or thrown aside, as circumstances may direct.

Art. VII. *Obituary.*

Farther Details respecting the Death of Mr. Douglas. (See Vol. XI. p. 271.) — The following particulars of this most terrific occurrence are taken from that excellent publication, the *Mirror*, for March 26. 1836. The editor acknowledges having copied it from *Ke Kumu Hawaii*, a mission newspaper, published at Honolulu, Oahu, which was kindly lent to him by a subscriber to the *Mirror*. This newspaper is printed at the Mission Press of Oahu, and in the native language of the Sandwich Islands, except the paper relating to Mr. Douglas, which is in English. It appears that the lamentable event occurred on July 12. 1834, six months sooner than, according to a notice in the *Magazine of Natural History* (vol. viii. p. 410.), was supposed to be the case.

"The document whence these particulars have been extracted is dated Hilo, Hawaii (the principal of the Sandwich Islands), July 15. 1834, and is addressed to Richard Charlton, Esq., his Britannic Majesty's consul there.

"Intelligence of this distressing event reached Hilo on the morning of July 14., when a native came up, and, with an expression of countenance which indicated but too faithfully that he was the bearer of sad tidings, inquired for a Mr. Goodrich. On seeing him, he stated that the body of Mr. Douglas had been found on the mountains in a pit excavated for the purpose of taking wild cattle; and that he was supposed to have been killed by the bullock which was in the pit when Mr. Douglas fell in. Never were the feelings of the writers of this letter so shocked; nor could they credit the report till it was painfully confirmed, as they proceeded to the beach, whither the body of Mr. Douglas had been conveyed in a canoe by the native who brought the news of his death. Upon further enquiry, this person related, in substance, as follows: — That on the evening of the 13th instant, the natives who brought the body down from the mountain came to his house at Laupahoihoi, about 25 or 30 miles distant from Hilo, and employed him to bring it to this place in his canoe. The particulars which he learned from them were as follows: — Mr. Douglas left Kohala Point during the previous week, in company with an Englishman as a guide, and proceeded to cross Moncna Kea on the north side. On the 12th instant, Mr. Douglas dismissed his guide, who cautioned him, on parting, to be very careful lest he should fall into some of the pits for taking wild cattle; describing them as being near the places to which the animals resorted to drink. Soon after Mr. Douglas had dismissed his guide, he went back a short distance to get a bundle, which he had forgotten; and, as he was retracing his steps, in some fatal moment, he fell into one of the pits, into which a bullock had previously fallen. He was found dead in the pit by these same natives, who, ignorant, at the time, of his pass-

ing, were in pursuit of bullocks, and, on coming up to the pit, found a small hole in one end of the covering of it. At first, they conjectured that a calf had fallen in, but, on further examination, discovered traces of a man's steps, and soon afterwards saw his feet in the pit, his body being covered with dirt and rubbish. They went immediately in pursuit of the guide, who returned, shot the bullock in the pit, took out the body, and hired the natives, at the price of four bullocks (which were killed immediately), to convey the body to the sea shore. He himself accompanied them, and procured the native to convey the body to Hilo, promising to follow immediately, and bring with him the compass, the watch (which was somewhat broken, but still going), some money found in Mr. Douglas's pockets, and a little dog, a faithful companion of the departed traveller. Thus far the report of the native who brought the body in his canoe, and who professed to relate the facts as he learned them from the natives who came down from the mountain.

"What an affecting spectacle was presented, on removing the bullock's hide, in which the body had been conveyed! It appeared to be in the same state as when taken from the pit. The face was covered with dirt, the hair filled with blood and dirt, and the coat, pantaloons, and shirt were considerably torn: the hat was missing. On washing the body, it was found to be in a shocking state: there were ten or twelve gashes on the head, a long one over the left eye; another, rather deep, just above the left temple; a deep one behind the right ear; the left cheek-bone appeared to be broken, and also the ribs on the left side; the abdomen was much bruised, as were also the lower parts of the legs.

"After laying out the body, the first thought was to bury it within Mr. Goodrich's premises; but, when a spot had been selected and cleared, doubts were suggested, by a person who had assisted, and who had been much engaged in taking wild cattle, whether the wounds on the head could have been inflicted by a bullock. The matter did not seem clear: many parts of the story were dark and confused; and the following questions arose among the persons present:— How was it that Mr. Douglas was alone, without any guide, whether foreigner or native? Where was John, Mr. Diell's coloured man, who left Honolulu with Mr. Diell, and who, on missing a passage with him from Lahaina, embarked with Mr. Douglas, as had been ascertained from the captain of the vessel in which Mr. Douglas sailed from Lahaina to Kohala Point, and there left the vessel, with Mr. Douglas, on the morning of the 19th instant, in order to accompany him across the mountain to Hilo? How was it that Mr. Douglas should fall into a pit when retracing his steps, after he had once passed it in safety? And, if a bullock had already fallen into the pit, how was it that he did not see the hole necessarily made in the covering? It was, therefore, thought due to the friends of Mr. Douglas, and to the public, whom he had so zealously and usefully served, that an examination should be made of his body by medical men. The only way to have this effected was by preserving the body, and either sending it to Oahu, or keeping it until it could be examined at Hilo. The former plan seemed most desirable. Accordingly, the contents of the abdomen were removed, the body was filled with salt, and placed in a coffin, which was filled up with salt; and the whole was enclosed in a box filled with brine. After the body was laid in the coffin, the members of the mission family and several foreigners assembled to pay their tribute of respect to the mortal remains of the deceased: prayers were offered up, and a brief address was made. These services being concluded, the body was removed to a cool native house, where it was enclosed in the box.

"As neither the guides nor any natives had arrived by the 16th instant, two foreigners were despatched to the place where the body was received on the sea shore, with directions to search out the natives who discovered the body, to go with them to the pit, and, after making as full enquiries as possible, to report to Hilo immediately. So far as could be ascertained, the guide was an Englishman, a convict from Botany Bay, who left a vessel at the Sandwich Islands some years previously: he had a wife and one child with him, to which circumstance was attributed his delay. In the meantime, it was feared that

the captain could not convey the remains of Mr. Douglas to Honolulu, as his vessel was filled with wood, canoes, food, &c.

"In the afternoon, however, Edward Gurney, the English guide, arrived. He stated that, on the 12th instant, about ten minutes before six o'clock in the morning, Mr. Douglas arrived at his house on the mountain, and wished him to point out the road to Hilo, and to accompany him a short distance. Mr. Douglas was then alone, but said that his man had given out the day before; referring, probably, to John, Mr. Diell's coloured man. Having taken breakfast, Edward accompanied Mr. Douglas about three quarters of a mile; and, after directing him in the path, and warning him of the traps, proceeded about half a mile further with him. Mr. Douglas then dismissed the guide, after expressing his anxiety to reach Hilo by evening, thinking that he could find out the way himself. Just before Edward left him, he warned him particularly of three bullock-traps, about two miles and a half a head; two of them directly on the road, the other on one side.

"Edward now returned home to skin some bullocks which he had previously killed. About eleven o'clock, two natives came in pursuit of him, saying that the European was dead, and that they had found him in the pit in which the bullock was. They stated that, as they were coming up to this pit, one of them, observing some of the clothing on the side, exclaimed "*Lole!*" and, in a moment afterwards, discovered Mr. Douglas within the pit, trampled under the feet of the bullock. Edward accordingly ran to the house for a musket and ball. On reaching the pit, he found Mr. Douglas lying upon his right side, and the bullock standing upon his body. He shot the animal, descended into the pit, drew the carcass to the other end of it, and got out the body of the poor traveller. His cane was with him, but the bundle and dog were missing. Edward, knowing that he had a bundle, asked for it. After a few moments' search, a loud barking was heard at a short distance ahead, on the road leading to Hilo; and, on reaching the spot, the dog was found with the bundle. On further examination, it appeared that Mr. Douglas had stopped for a moment and looked into an empty pit, and also into that wherein the bullock was taken; that, after passing on up the hill some fifteen fathoms, he laid down his bundle, and returned to the fatal pit; and that, while looking in, by making a misstep, or by some other means, he fell into the power of the infuriated animal, who speedily executed the work of death.

"The body was covered in part with stones; which circumstance is thought to have prevented its being entirely crushed. After removing it, Edward took charge of the dog and bundle, and of Mr. Douglas's chronometer, his pocket compass, keys, and money, found upon him; and, having hired the natives to carry the body to the shore (a distance of about twenty-seven miles), accompanied them, and came thence to Hilo. The letter adds: 'This narrative clears up many of the difficulties which rested upon the whole matter; and, perhaps, it will afford a pretty satisfactory account of the manner in which Mr. Douglas met his awful death.' The writers then propose to the consul to send the body to Hilolu, should the captain consent to convey it; if he should not, the corpse was to be interred. We are not aware which course was adopted. The black man mentioned in the letter probably lost his way, and perished in the mountains, as he has not since been heard of."

Dr. Hosack of Hyde Park, near Albany, U. S., a great patron of gardening, died on the 22d of Dec. last, at New York, aged 66. He had, we understand, been visiting the ruins of the great fire that so lately desolated that city, and dropped in a fit of apoplexy in the streets.

That venerable agriculturist and most excellent man, *Sir John Sinclair*, Bart., died, Dec. 22., in Edinburgh, aged 82. Excellent biographical notices of Sir John Sinclair will be found in the *Quarterly Journal of Agriculture*, and in the *Gentleman's Magazine* for April, 1836; and we trust Dr. Mease, or some other American correspondent, will send us some particulars of the life of Dr. Hosack, of whom there is a short, but interesting, notice in *Silliman's Journal* for January, 1836.

THE

GARDENER'S MAGAZINE,

JUNE, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Notes made during a Tour to Cashiobury Park, Ashridge Park, Woburn Abbey, and Hatfield House, in October*, 1825. By the CONDUCTOR.

OUR esteemed friend Mr. Britton, who is about to publish *A Topographical and Descriptive Account of Cashiobury*, having asked us if we could supply any information respecting the gardens, we are induced to print the present article, which was prepared exactly as it is in Nov., 1825; with the exception of the additions contained within brackets and the engravings. These additions are made entirely from the Return Paper filled up for us by the gardener at Cashiobury, Mr. Anderson. The whole is very far from being a correct idea of the gardens at Cashiobury; but, not having time to revisit it at present, we consider it our duty to supply what we have to Mr. Britton, leaving him to choose any part of it, or reject the whole, as he may think proper. Mr. Britton's work, as will be seen by the literary notice of it, p. 263., will be unique in its kind; and it would afford us very great pleasure to be able to give any information worthy of insertion in such a work.

OCT. 13. 1835. *London to Watford and Berkhampstead.* — Proceeding along the Edgware Road, we found it had undergone great improvement within the last three or four years. This road needed no alteration in the direction, being nearly a straight line from Paddington to Edgware; but it was very irregular in regard to breadth; and some hills required lowering, and hollow places and trifling watercourses filling up, or being crossed by substantial bridges. All these improvements, and others, have been accomplished in a very effectual and satisfactory manner, under the direction of the local trustees. At Edgware there is one of the handsomest toll-houses in the neighbourhood of London. (*fig.* 31.) On the summit of the tower is a reflecting lamp

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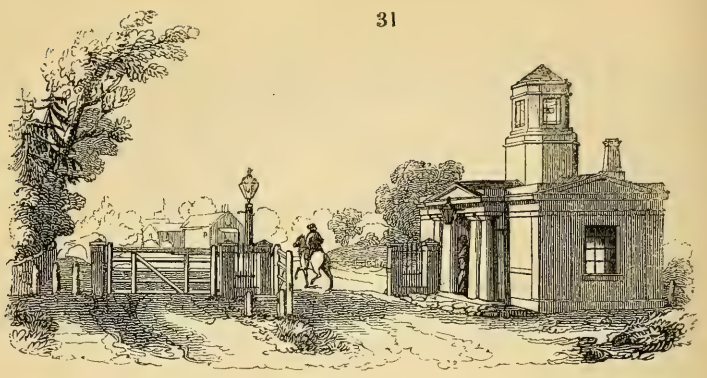

with three burners; two looking along the road before and behind, and one looking across for the purpose of illuminating the gate and gate-posts. [The tower on this toll-house has been since taken down, the lamp at night having been found to frighten horses, when brilliantly illuminated. Such, at least, was the excuse made to us, in 1834, for its disappearance.]

Cannons Park. — Near the middle of Edgware is the principal entrance to Cannons, a place of extraordinary interest, both in a moral and gardening point of view, though it can now ouly be considered as the wreck of what it once was. (See *Encyc. of Gard.*, 2d ed. § 7520.) It is impossible not to reflect on the wonderfully sumptuous and yet regulated magnificence of the Duke of Chandos. The circumstance of his employing, at first, calculators, to ascertain exactly to what extent he might carry his expenditure; and then adjusting his daily expenses accordingly; the magnificence of his house, the principal staircase of which consisted of blocks of Italian marble, 20 ft. long, and the handrailing of silver; his painted chapel at Little Stanmore; and the complete band kept on purpose for it; the vault underneath, where his remains and those of his family lie in coffins, which, in 1814, were in a dilapidated state, and liable to have pieces of their rich coverings torn off as memoranda, by strangers; his horse patrol, which day and night perambulated the park; his body guard; and, above all, his grand idea (which he had in great part carried into execution and which, it is said, if he had lived, he would have been able to accomplish), of making purchases of land from Little Stanmore to Chandos House, in London, (then surrounded by fields, but now forming part of Cavendish Square,) so as to have an uninterrupted private avenue in a direct line, and which would have been nine miles in length, from his country to his town residence.

That the establishment at Cannons should have been broken up at his death is generally looked upon, by the vulgar, as a visitation

for some supposed irregularities in the mode by which he acquired his immense fortune. That he did acquire both his wealth and his title, as a government contractor, is a matter of notoriety; but we know of nothing upon record that indicates him to have been less honest than other men of his time; and it appears to us probable, that the chief difference between him and other men of modern times, who have made large fortunes as government contractors, consists in the greater liberality and public spirit he displayed in spending the sums he had acquired. The park of Cannons has the advantages of possessing a rich soil, and of being near London; but the situation is low, the grounds little varied, and there is scarcely any distant prospect. In looking at the park from the road, we observed some round clumps of newly planted trees, placed in the midst of large open spaces, which we could not but consider as deformities, destroying the breadth of the landscape. It surely could never be the intention of the planter, that these formal and unconnected masses should grow up and remain.

Dr. Hooper's Cottage at Stanmore. — On Stanmore Hill great efforts have been making in the cottage Gothic style, by Dr. Hooper. The proprietor being from home, we did not enter the grounds; but we could observe the outline of the cottage picturesquely varied by enriched clusters of chimney tops, and the pointed roofs of projections and dormer windows. From what we could see of the exterior offices and garden walls, they seemed to be all finished in the same style, and in enrichments kept duly subordinate to the principal mass. We have since heard that the place, in the interior, is unique in its kind.

The Grounds of the Priory. — Farther on are certain plantations of spruce firs, apparently meant to conceal the grounds of the Priory from the public road. They have been thickly planted, and never thinned; and, like other woods of the same kind which have been similarly treated, they are now beginning to defeat the purpose for which they were intended. Had two thirds of the plants been hollies, there would now have been a phalanx of vegetation, impenetrable, both as a fence and as a screen. A few hollies, indeed, appear to have been planted among the spruce firs; but, from inattention to thinning out the latter, the former have never come to any size.

Watford deserves to be mentioned for its gravel, which is equal to the best of that at Kensington. Mr. Snare, the nurseryman here, has attracted notice, for many years past, by his dwarf apple trees. It was formerly, it seems, quite new here, to graft apples on paradise stocks, and thus produce bushes not larger, and not less prolific, than the gooseberry.

Cashiobury Park, the Seat of the Earl of Essex, has been celebrated for upwards of a century and a half, for its plantations and

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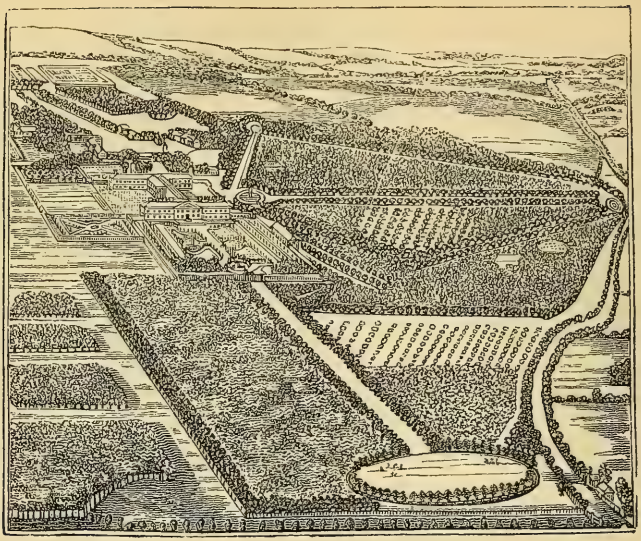


gardens. The latter are said to have been laid out by Le Notre; and an interesting isometrical view of them is given in Kip's *Views of the Seats of the Nobility and Gentry*, from which *fig.* 32. has been reduced. Of Cashiobury, Evelyn observes: "No man has been more industrious than this noble lord (Essex), in planting about his seat, adorned with walks, ponds, and other rural elegances. . . . . The gardens are very rare, and cannot be otherwise, having so skilful an artist to govern them as Cooke, who is, as to the mechanical part, not ignorant in mathematics, and pretends to astrology. There is an excellent collection of the choicest fruit. My lord is not illiterate beyond the rate of most noblemen of this age." (*Bray's Memoirs.*)

"My lord," Evelyn informs us, "assisted in pruning the trees himself:" and the gardener he alluded to (Moses Cooke) was the author of *The Manner of Raising, Ordering, and Improving Forest Trees*, published in 1675; who afterwards became a partner in the famous nursery at Brompton Park. In the dedication of his work, Cooke compliments his master on his "honour's great understanding in, and love to, the subject of" trees. He adds: "For, to your eternal praise be it spoken, there is many a fine tree which you have nursed up from seeds sown by your own hands." Succeeding proprietors seem to have been equally attached to Cashiobury and planting, with the subject of Moses Cooke's praises; so that the character of the place for planting and gardening has continued to increase rather than to diminish.

We entered the park through a recently erected Gothic gateway and lodge, built, as we were informed, from the proprietor's own designs. The style was that sort of Elizabethan Gothic

which prevails in the house. The execution was most substantial; and, to give the appearance of age, it was painted over, and splashed in imitation of moss and weather stains. The gates were hung with Collinge's patent hinges, which open and shut with the least possible friction, and remain stationary at whatever point they may be left. In this last respect, they are not so desirable for gates in general as the common hinges, and mode of hinging; by which the gate falls to, or falls back, of itself, and is only at rest when perfectly shut, or opened to the greatest width. With such gates as the present, however, and in all cases where a door or a gate is likely to be carefully shut by the person who opens it, Collinge's hinges are by far the best; and it is highly gratifying to see a nobleman alive to their merits and patronising them.

Cashiobury House, and the scenery immediately surrounding it, excite ideas of grandeur, combined with comfort and beauty, such as cannot easily be communicated by words. The buildings and garden scenery seem peculiarly well suited to each other: both are venerable with age, extensive, rich in design, and generally in the highest order and keeping. We entered the pleasure-ground by a small door near a Turkish pavilion, richly lined with cloth, and carpeted and furnished with sofa and tables. We then passed in front of the house, and entered on the other side to a series of different sorts of flower-gardens. After passing through these in succession, the effect left on the mind was that of having been carried through a labyrinth of beauty and variety. So rapidly were we hurried along, that, after a first visit, it is not easy to recall to the memory distinct pictures of what we have seen, or the order in which we saw them. We shall merely note a few particulars from recollection, promising ourselves, in the beginning of next summer, the gratification of seeing this place at leisure, when to its many other attractions will be added the singing of innumerable birds.

Much of the gardening and botanical interest of all pleasure-grounds consists in the exotic trees and shrubs which they contain. There are some fine specimens of this kind in these gardens: one of the oldest plants of the Magnòl*ia* tripétala in England [in 1836, 14 ft. high]; a very large Magnòl*ia* grandiflòra [one against a wall, 50 ft. high]; and some of M. conspícua in the open air: but the largest plant was in the Chinese conservatory; where, however, it has not a tenth part of the room requisite to its attaining its full size There are some magnificent and venerable plants of *R*hododéndron, Azàlea, and Andrómed*a*. The American plants, in general, are grouped together in dug masses, surrounded by turf; and they have grown to such a size as totally to cover the margin of the dug space around them, and to form a broken picturesque outline on the turf. Roses and ornamental flowers are also disposed in masses, much in the same way as at Cobham Hall, in Kent. Some are enclosed by

basket-work, others trail over rocks and fantastic stones; some of the rockeries have a margin of curious Derbyshire spar, and others are entirely of plum-pudding stone. There are groups of large shells (*Chàma gigas*), corals, corallines, madrepores, tuffa, lava, petrifactions, ammonites, and different sorts of scoria, all curiously intermixed with flowers and plants. There is a picturesque aquarium, the sides of which are finely ornamented with rockwork and American evergreens. There is a conservatory with an opaque roof in the ancient style, with the piers between the windows externally clothed with rare exotic creepers, and the interior of the house decorated with rustic props, and green trellis-work. At one end is a sort of banqueting-room, carpeted and furnished with couches, sofas, tables, musical instruments, books (especially on botany and landscape), mirrors, and a variety of other things.

The plants in the conservatory are chiefly orange trees, which are particularly appropriate to this kind of building: they are not, generally, in tubs, but planted in the free soil; and they looked far better than could have been expected from plants kept perpetually under an opaque roof. In common with the holly, the box, and the common laurel, when grown under the shade of trees, their leaves, though flaccid, were of a dark shining green. There are two other conservatories, of a modern character, with glass roofs: the plants they contain have for many years been too large for them, so that they are annually obliged to be cut down. When these conservatories were built, the idea of such immense glazed structures as are now erected had not entered into the minds of either gardeners or architects. There is a wall on which various half-hardy plants are trained, and, among others, that singular New Zealand tree, Edwárds*ia* grandiflòra. (*fig.* 33.) The Chinese garden here is unique of its kind. It is not large, but contains a conservatory, a sort of low pagoda, and other ornamental buildings, and a great quantity of valuable Chinese porcelain, of Chinese figures, monsters, mandarins, the god Joss, dragons, &c., and paintings, fountains, gold fish, jets, &c. In the conservatory are all the sorts of camellias that could be procured when it was planted; very large plants of green and black tea, because at that time it was not known that the green

tea is nearly as hardy as the sweet bay (*Laúrus nóbilis*), and will, in a few years, be a common evergreen in our shrubberies in the south of England. Among the hardy plants is a fine specimen of *Abies Clanbrasiliàna*, above 20 years old, and forming a tuft not above a foot high, and a foot in diameter. It is now (1836) 2 ft. 3 in. high, the diameter of the trunk 2½ in., and that of the head 3 ft. 6 in. Such a dwarf is peculiarly appropriate to a Chinese garden. We observed in other parts of the pleasure-ground various plants of the *Pinus Cémbra* [the largest was 20 feet high, in 1836] (*fig.* 34.), which is the aphernousli tree of the Tyrol, so much recommended by Harte for cultivation in this country, and noticed by Lord Byron as the tree found at a greater elevation on the Alps than any other of the pine and fir tribe.

34

> "But, from their nature, will the tannen grow
> Loftiest on loftiest and least sheltered rocks."

It is a very slow-growing tree, but attains a considerable size, and, when full grown, the timber is of excellent quality. The height of this tree in England, according to our Return Papers received in 1835, varies from 40 ft. to 50 ft. The largest specimens are in the park of Wolcot Hall, in Shropshire.

[In 1836, there were at Cashiobury, the hemlock spruce (*Abies canadénsis*), 28 ft. high; the cedar of Lebanon, some plants of which, only 30 years planted, have attained the height of 35 ft.; tulip trees, 20 years planted, which have attained the height of 30 ft.; Virgília lùtea, 19 ft. high; Gymnócladus canadénsis (an idea of which tree may be formed from *fig.* 36., which is a portrait of a full-grown tree of that species at Syon); Photínia

35

11 ft. high, 4 in. diam.

The tree drawn to a scale of 1 in. to 4 ft.; and the botanical specimens to a scale of 2 in. to 1 ft., with the exception of the parts marked +, which are of the natural size: *f* represents the female flowers, and *m* the male flowers.

serrulàta, 20 ft. high, against a wall; *Catálpa syringæfòlia*, 21 ft. high; a purple beech, 15 ft. high; an Irish yew, 11 ft. high (*fig.* 35.); Juníperus virginiàna, 34 ft. high (*fig.* 38.); and a fine old white mulberry, 25 ft. high, with a trunk 32 in. in diameter.]

We could say a great deal more about these grounds; but the truth is, we were so much charmed with them, that we have not a sufficiently definite recollection of what we saw; and doubt not that inaccuracies, and, of course, omissions, will be found in what we have said. A fine effect on the mind is produced where, in passing from one garden to another, two large granite balls attract the eye. A copperplate inscription informs us that they were shot from the castle of Abydos, in the Dardanelles, and fell on a ship under the command of a brother of Lord Essex, in the squadron of Admiral Duckworth, and killed or wounded 15 men. They weigh 7 cwt. each. The unexpected occurrence of objects of this sort recall the mind from what it is engaged in, and relieve it by raising up a new train of ideas, and transporting the imagination to distant and very different scenes. Such episodical effects are very desirable, when they can be introduced in garden scenery without appearing ridiculous or affected.

The kitchen-garden at Cashiobury is large; but not more so than is required for the family, which resides here all the year, and averages at least a hundred persons. As an item of consumption, the gardener, Mr. Anderson, informed us, that he had sent in last year ten thousand heads of celery. On one of the walls we observed two plum trees, which had been killed down to the graft by a *coup de soleil*, one afternoon about 2 o'clock, in July, 1825. The trees were in their usual state when Anderson passed them, about half-past 1 o'clock; and when he returned, in half an hour, he found all their foliage black. In the October following, when we saw them, they were shooting from the graft. Accidents of this kind are not uncommon in the south of France, and are said to be guarded against by wrapping straw round the trunk and main branches. It is not likely, however, that this or any other precaution can be effectual, unless it is accompanied with an abundant supply of moisture to the roots. Trees spread out on walls are, undoubtedly, more liable to be so killed than such as are standards. A standard tree, with a bushy head, abundantly clothed with young shoots and leaves, would be least liable to it, because the trunk, branches, and all the interior parts of the tree, and the entire half of the exterior surface, would be safe from the direct influence of the sun's rays.

There are some very good pines grown here; and, on the back of one of the stoves, we observed a plant of *Anòna Cherimòlia* trained with a view to its producing fruit. It has not yet blos-

36

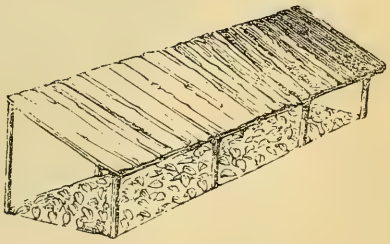
Full-grown tree at Syon; 57 ft. high; diam. of the trunk, 3 ft.; and of the head, 47 ft.

The tree drawn to a scale of 1 in. to 12 ft.; the foliage to a scale of 2 in. to 1 ft.

somed, nor has a larger plant at Woburn Abbey; but one plant has shown flowers in the garden of the Horticultural Society.

There is one part of kitchen-gardening carried to a great extent here, which deserves particular attention in every place, from the smallest to the most extensive; viz., the raising of winter salading. Wherever there is a cucumber-frame this may be done to a certain extent; but, even without frames with glazed roofs, roofs of wickerwork, covered in severe weather with thatch or reeds (*fig.* 37.), will effectually preserve endive and chicory. What are called small salads may be raised in every kitchen; and blanched chicory from the previous year's roots (as Dr. Lippold has shown, p. 250.) may be produced in every cellar. At Cashiobury, we found long ranges of frames filled with endive, brown Cos lettuce, and large quantities, also, of full-grown endive, placed in the floors of the vineries and peach-houses, not in a state of forcing, but of slow or imperceptible growth, amounting almost to complete hybernation. There was also a large plot of chicory for the purpose of being dug up during winter, and forced into leaf in any warm dark shed or cellar, in the Dutch, Belgic, German, and Russian manner. Two or three hot-beds were already filled with pots of Neapolitan violets, which are here regularly forced throughout the whole winter, their blossoms being much in demand for perfuming apartments.

37



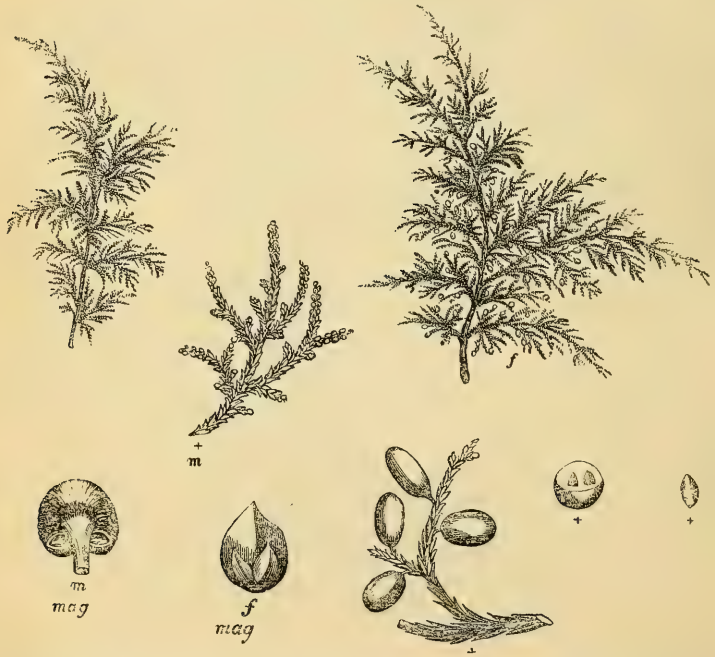
Without viewing the park, we took our leave by an approach not far from the kitchen-garden; to which, as a lodge, there is a very picturesque cottage, in the old style of oak framing, filled up with brickwork, and plastered. This lodge, like the other, is also from the design of the proprietor, and does credit to his taste.

The head-gardener here had lately been visiting Stowe, and other remarkable gardens within a day or two's ride of Cashiobury He mentioned that, in the months of September and October, a gardener could better spare time for this purpose than at any other season of the year. This practice of gardeners visiting one another's gardens ought to be particularly encouraged by their employers; for scarcely any other means will be found so effectual in improving them, and enabling them to add to the stock of plants, and increase the variety and excellence of what is under their care.

We were sorry not to have leisure to call at *Beechworth*, where we should have seen a fine example of agriculture, and the improved breeding of live stock: the proprietor, Sir John

38

13 ft. high, 3½ in. diam.



The tree drawn to a scale of 1 in. to 4 ft.; and the botanical specimens to a scale of 2 in. to 1 ft., with the exception of the parts marked +, which are of the natural size; and of those marked *mag.*, which are magnified; *f* represents the female flowers, and *m* the male flowers.

Sebright, possessing much science and great experience in these subjects.

Oct. 14. *Berkhampstead to Woburn.* — We went from Berkhampstead to Ashridge Park along an excellent new road which leads across the country to Dunstable, and was formed, as we were told, chiefly, or entirely, at the expense of the late Earl of Bridgewater. Various other roads leading to Ashridge were made by the same patriotic individual, who, in this respect, may be said to have displayed a similarity of taste with his ancestor, the celebrated Duke of Bridgewater, the friend and patron of Brindley, the engineer. We entered the park by a very elegant Gothic lodge, built of rubbed white stone and black flints. No one is allowed to enter or go out by this or any other of the gates, without having his name and address put down in a book kept by the porter. An excellent approach road, the length of which is reckoned by miles, leads over an even surface, and through a stately grove, composed chiefly of beech trees, to the house. Every variety of effect is produced that can result from a varied disposition of the trees; and groups, thickets, scattered trees and bushes, ferns, furze, hollies, thorns, glades, recesses, and natural vistas, succeed each other in endless variety. These were interspersed with abundance of red and fallow deer in some places, and horses and cattle in others. No distant prospect, nor any striking object, meets the eye till we are within half a furlong of the house. This grand and irregular pile is seen to very good advantage from this and the Dunstable approach. The two prominent features in the outline are, a square tower near one end, and a lofty spire with a clock at the other. From the two approaches mentioned, these two features fall into perspective in such a way as to form one pile, or group; but when the edifice, or, rather, assemblage of edifices, is viewed directly either from the entrance or garden front, it appears thrown into two groups. Though it does not, when so viewed, form so good a whole, yet it gives an idea of grandeur and magnificence to an ordinary observer, which, perhaps, would not be produced by the foreshortening of an angular perspective view.

We first went to see the kitchen-garden, which is upwards of a mile from the house. On our way to it, we descended to a hollow surface, and passed through scenery of a more open and varied description than that of the Berkhampstead approach. The timber trees were, if possible, grander than before: both oaks and beeches had straight clean trunks, often, we have little doubt, 50 ft. or 60 ft. high.

The garden is situated on a steep bank, facing the south-east; the walls appear to have been built between forty and fifty years; but the hot-houses and pits seem of more recent construction. We found the head kitchen-gardener, Mr. Torbron, advantage-

ously known at Kew, and by a paper on forcing cherries in the *London Horticultural Society's Transactions*, busily occupied in making up that day's supply for the kitchen and the dessert. A large sheet of paper has a printed column down the left-hand margin, enumerating every description of kitchen-garden product, each article having a line ruled across the page; then there is a vertical column for every day in the month, headed as in the table below, with the days of the week. Fifty-two of these printed sheets are required for the year. The first thing the gardener does, is to enter in the table, under the day of the month, and day of the week, the articles he is about to send off; noting such things as are sent by weight or measure, by inserting their weight or measure after them; but simply inserting the number in figures when the articles are sent by number: thus: —

January. Sent on - -	1st. Friday.	2d. Saturday.	3d. Sunday.	4th. Monday.
Potatoes -	2 pecks common. 1 pk. kidneys.	3 pecks common.	3 pecks common.	2 pecks common. 1 peck kidneys.
Melons -	2 Cantaloups.	1 green flesh. 1 black rock.		2 Lady Chite's green flesh.
Grapes -	2 lb. black Hamburgh. ½ lb. sweetwater.	2 lb. black Hamburgh. ½ lb. sweetwater.	2 lb. Black Prince. 1 lb. muscadine.	2 lb. Black Prince. 1 lb. muscadine.
Small salad	1 pint.	1 pint.	½ pint.	¾ pint.
Cucumbers	2 brace.	4 brace.	6 brace.	4 brace.

The items being filled into the table, the next thing is to copy off on a slip of paper, the names and quantities of the articles sent, which paper is delivered as a bill of parcels by the man with the donkey-cart to the clerk of the kitchen.

A similar plan is pursued in some other great places; but, instead of entering them in a table, they are entered in a journal, which is sent to the kitchen along with the articles, and brought back again to the gardener. If nothing is said or written by the clerk or cook, it is concluded that every thing entered for that day has been received safe, and is of a satisfactory quality.

We found the open garden excellently cropped with large supplies of those standard articles of winter consumption, broccoli, celery, and endive. In the houses was a large supply of retarded black and white grapes, pine-apples that promised a succession during the whole winter, and a fig-house in full crop. No attention seemed any where to be paid to neatness or orderly keeping; but every effort to the production of excellent crops.

The pleasure-grounds at Ashridge Park are under a separate direction from the kitchen-garden: the gardener was, when we visited them, Mr. Poynter, formerly propagator in Messrs. Colvill's nursery. He had every thing in very high order and keeping, and especially the plants in two large conservatories.

The pleasure-grounds here extend in front of the house, without being continued either to the right or left of it, as in most instances of successful effect in pleasure-ground scenery. They contain a good many acres; but, from their compact roundish form, and their naked obvious outline, the first impression which they made upon us was that of being confined. We should have preferred less depth in front of the house, and a greater extension along the margin of a valley on the north side. It is agreeable to have a secure pleasure-ground, where one can walk safe and secluded; but it is, at the same time, grand, where one can look from the windows of the house, over the wire fence or ha-ha, to an undefined extent of park scenery, where we can ride about at pleasure. There is no natural variation of surface, and very little of distant prospect; so that, to create interest in this scene, it became necessary to form gardens, or parterres, of different kinds, and rockworks. Rare exotic trees and shrubs would also have contributed to the variety; but very few of these have been introduced, either in the open ground or in the conservatory. There is a small spot, surrounded by a hedge of box, called the Monk's Garden; another, called the French Garden; a rosary, rockwork, and some other separate scenes; the best of which is the rockwork, composed of large masses of plum-pudding stone, a production which abounds in this county. There is no great variety of plants in the conservatories; but such as are there are, in general, of the most showy kinds; and, being brought forward in reserve-houses, are only placed in the conservatory when in flower, or in their best state. Very few plants, and those chiefly creepers, are fixtures in the soil. There is a Pittósporum undulàtum, with a round head, 10ft. or 12ft. in diameter. The principal conservatory connects the state-rooms with the chapel; and, we should think, is one of the finest Gothic structures for plants in England. [We have since seen that at Alton Towers, in Staffordshire, which is considerably larger, and, when we last saw it, in 1831, was in the very best possible order.] Both front and roof are glazed with plate glass. A plan of the principal floor of the house, conservatories, and chapel is given in Brewster's *Encyclopædia* (art. *Architecture*), as an example of every modern comfort and luxury, combined with the ancient style of building. The architect was Mr. Jeffrey Wyatt, now Sir Jeffrey Wyattville.

The park is of great extent, exceedingly well wooded, limiting that phrase to bulk and quantity of timber; but it exhibits very

little variety of kinds of trees, the prevailing, and, indeed, almost the only, tree being the beech; and it is well known to the admirers of forest scenery, that of all forests one of beech is the tamest. Notwithstanding this, there are some beech trees here with straight clean trunks of upwards of 100 ft. in height; and we hardly think these are to be equalled in the island. Let the stranger enquire for the king and queen beech. All the trees in the park seem to have been regularly pruned and trained for the timber-merchant; and form, in this respect, a singular contrast to the beech trees in Eastwell Park.

The surface of the park is not without considerable undulations; but these are not heightened or brought into effect in a picturesque point of view by the emplacement of the wood. There is, also, a total want of water. To make the park what it ought to be, in correspondence with the house, water ought to be brought by a steam engine and iron pipes from the nearest practicable stream, and the valley to the left of the house flooded. The approach from Dunstable would then pass over a bridge; and the pleasure-ground might be narrowed opposite the house, and extended along the margin of this lake, or river, to any extent, and with variations in the distant scenery, which our hasty glance did not enable us to determine. In short, while the highest degree of art and expense has been displayed on the house, scarcely anything has been done to the grounds to render them a worthy accompaniment to such a splendid pile.

Oct. 15. *Woburn Abbey.* — Went round the park with Mr. Forbes, the gardener, venerating that fine old drive through evergreens, said to have been planted by Miller; and which is commended by Repton in his *Enquiry into the Changes of Taste in Landscape-Gardening;* 8vo; art. *Drive.* The large specimens of the pine and fir tribe, especially the cedars, are gratifying to the sight. The dark green hollies, with trunks of timber size, with their shining leaves and coral berries, remind us of the time of Evelyn, and his fine hedge at Sayes Court, which the Czar Peter made gaps in, by having himself wheeled through it by his attendants; of the fine holly hedge in Sir Mathew Decker's garden, at Richmond; of those of Moredun, Collington, and Woodhouselee, near Edinburgh; and of the miles of holly hedges at Tyningham, in East Lothian. There are few trees or shrubs, in our opinion, certainly no natives, that can compare in dignity and beauty with the holly. The common and Portugal laurels in this drive are remarkably fine; and there is no want of rhododendrons, junipers, and laurustinuses. Among the evergreen timber trees, the cedars are most conspicuous. A considerable number of silver firs, and Weymouth and other pines, have been cut down since we visited the place for the first time in 1806.

We turned out of the drive to the thornery, a most pictur-

esque morceau of huge and fantastic oaks, grotesque old thorns, hazels, and dogwoods; on ground abruptly varied, and appropriated to man and elegant enjoyment, by a highly characteristic cottage with a Scotch kitchen and furniture. The parlour of the cottage is beautifully painted in body colours by Aiglio; and the speck of kept ground immediately around it is trim and neat in the highest degree.

There are a number of ornamental cottages scattered round the margin of Woburn Park, of much exterior beauty, with neat gardens, kept in good order under the direction of the head gardener. In most of them is an apartment for the reception of small parties from the Abbey, who wish to amuse themselves by allusions to primitive simplicity: for it is one of the enjoyments of those who are habituated to live in a style of high art and refinement, to take occasional refuge in the contrast produced by comparative artlessness and simplicity.

The farm lands were in beautiful order; the new-sown wheats already above ground, and the drilled turnips luxuriant, considering the by-past season. We pointed out to Mr. Forbes a defect in the training of the young hedges, which we did not expect from a Northumbrian manager; that of training them upright in the sides, instead of beveling them to the centre, like a hogged mane.

There are a great many fine oak trees in the park: a number are of considerable age, and of these some now and then show symptoms of decay. When that is the case, it appears to be customary for the forester, Mr. Ireland, to paint a white line round the trunk, in order to show the duke that such trees ought to be felled. The duke, however, does not always consent to the opinion of the forester, but wisely prefers retaining some grand and picturesque forms, though in a state of decay, as proofs of the antiquity of the scenery, and as contrasts to the youth and vigour of more recent growths.

*Oct.*16. This, being Monday, is the public day for seeing through the house and pleasure-grounds at Woburn Abbey. Of the house, and the buildings connected with it, we shall only observe that the gallery of statuary is the most extraordinary thing of the kind in Britain, out of London. It is gratifying, in another gallery, in the interior of the Abbey, to observe the models of cattle and other domestic animals reared under the direction of the late Duke Francis. In one room is a series of miniatures of the heads of the Russell family, from the earliest times to the present. A biographical account of them has been written by the late Mr. Wiffen [whose lamented death we have heard of while passing this sheet through the press.].

With respect to gardening, Woburn Abbey has never been so celebrated, as for its plantations. The kitchen-garden, though

large, has scarcely any hot-houses, and very few pits or frames. One wonders how a duke could live without peaches and grapes, not to say pine-apples, forced strawberries, and kidneybeans; but, doubtless, these articles are procured from London. [A most complete kitchen-garden, and ample ranges of forcing-houses, pits, and frames, have been since formed and erected; and the most complete success has attended their management. See *Hortus Woburnensis*, by Mr. Forbes, in which engravings are given of the garden and garden structures, and various other objects.]

The pleasure-ground is a large roundish area behind the Abbey. There are a few fine old specimens in it of oaks, pines, firs, and cedars, but very few rare trees or shrubs. Since the accession of the present duke, it has been very greatly improved in one small spot near the house. Some beautiful flower-gardens have been formed from the designs of Repton, and the suggestions of the present duchess; but the principal features are the exotic and hardy heatheries, formed under the particular direction of the duke. Plans and a description of these have been printed, and distributed by His Grace, accompanied by an enumeration of the heaths they contain, by Mr. George Sinclair. A willow-ground is in contemplation, which will be a great addition to the interest of the scenery. [This has been since accomplished, and the *Salictum Woburnense* printed.] We must not forget the grass-garden, the most complete thing of the kind which has ever been formed in any country; and which, from the exertions of Sir Humphry Davy, and the patient and assiduous labour of Mr. Sinclair, and the publication of them to the world in the *Hortus Gramineus Woburnensis*, it may confidently be predicted, will, in time, bring to a very high degree of perfection that part of agriculture which consists in the culture of forage grasses.

Oct. 17. *Woburn to Hatfield.* — Hatfield House, the residence of the Marquess of Salisbury, is in the Elizabethan style, and deservedly celebrated. The park is extensive, but not remarkably interesting; and the gardens afford little to gratify the amateur. There is an antique flower-garden, with walks arched over with clipped lime trees, which is separated from the house by a terrace-walk of turf. Beyond this garden is another, also devoted to flowers, and containing a range of hot-houses, for the culture of pine-apples and grapes. The kitchen-garden is in a different and distinct part of the grounds. The whole is very well kept; but there are no rare plants, either hardy or exotic; and there is but little evidence of such a love of gardening in the proprietor, as would be sufficient to stimulate and encourage his gardener. [The collection of plants here, we understand, has since been considerably increased. The park, according to the Return Paper sent us, contains a number of magnificent trees, especially oaks.]

ART. II. *A Historical and Descriptive Account of the Botanic Garden at Berlin, accompanied by a Plan of the Garden, a List of the Ferns cultivated in it, and a general Account of the Trees contained in the Arboretum.* By Mr. W. D. BRACKENRIDGE, late Head Gardener to Dr. Neill, at Canonmills Cottage, near Edinburgh, and now in the Berlin Botanic Garden.

§ i. *History.*

THE Royal Botanic Garden at Berlin lies about a mile from the town, on the great Potsdam road, at the end of the village of New Schöneberg. The locality is certainly anything but well adapted for such an establishment, from the low-lying marshy nature of the soil, and the total want of shelter. It is bounded on the east by the turnpike road; having on the south the village, and on the west and north sandy fields. It has a surface of about twenty-seven German acres, surrounded by a wall 9 ft. high. But, before entering into particulars respecting the present state of the garden, the rich collection of plants it contains, and the scientific manner it is conducted in, I presume it may not prove altogether uninteresting to some of your readers, to have laid before them a short account of the origin of the establishment, and its progress, under its different sovereigns and directors, up to the present day.

About the middle of the seventeenth century, it was a field, surrounded by a wooden fence, where hops were cultivated for the royal brewery. After the termination of the war in 1679, Frederick William, the great Elector of Brandenburgh, and the last who bore that title, a lover of gardening and botany, had it converted into a garden for the cultivation of exotic trees and ornamental plants, appropriating, at the same time, a part for the raising of vegetables of the more uncommon kinds for the kitchen. One Michelman, a native of Holstein, was appointed gardener; and the ambassadors at the different courts of Europe, who seem to have had the interests of the garden no less at heart than their royal master, sent home plants and seeds for ornamenting it. Frederick, the first king of Prussia, who used to spend much of his time in this garden with his sisters, at his own private expense sent the son of the gardener, Michelman, a journey through France, Holland, and England; and, on his return, appointed him successor to his father. The kitchen-garden he caused to be turned into a pleasure-garden for the court, and commenced erecting forcing and green-houses. These houses were not expressly for the cultivation of plants belonging to the garden, but also for the protection, during winter, of those used for decorating the royal palaces in summer. At this time, the garden contained many interesting plants; as Dracæ'na Dràco, *L*aúrus *Cámphora* L. [*C*innamòmum *R. Br. Cámphora* Swt.], *C*hamæ'rops hùmilis, Royèn*a* lùcida, *P*istàcia *T*erebínthus, &c.

By the liberality and perseverance of Dr. Gundelsheimer, physician in ordinary to His Majesty, who accompanied Tournefort on his travels, many valuable additions were made. At his own expense, he introduced seeds, and greatly enriched the collection with the many rarities he received from Tournefort, till a premature death deprived the garden of his valuable services.

Frederick William I., not possessing so great a taste for gardening as his predecessors, made a present of the botanic garden to the Royal Society of Berlin; who, not being provided with means necessary to meet the outlay, gave orders that only medicinal plants should be cultivated in it, for the royal apothecary. Under such circumstances, the gardener, Michelman, was scarcely able to preserve from ruin that which it had cost so much expense and trouble to collect, far less to make any additions. About this time, Ludolff, the first professor of botany here, drew up a catalogue of the plants, showing, at the same time, the state of the establishment. He, with the assistance of Michelman, increased the collection as far as was practicable, without incurring expense.

But the successor of the latter, one Müller, who seems to have had little taste as a botanic cultivator, neglected the more rare and valuable plants.

In the year 1744, when Frederick the Great was on the throne, Ludolff died; and the king appointed Gleditsch director; and afterwards conferred on the Society the title of Academy of Sciences, whereby the splendour of the garden was again restored. But the exertions of Gleditsch were in a great measure counteracted by the negligent conduct of the acting gardener. During the seven years' war, when, it may be said, science slept, it received almost a death-blow: the enemy not only destroyed the gateway, but extended their ravages to the hot-houses; so that the cultivation of the plants was obliged to be given over for a time. About this period, it was flooded in spring with water; so that what plants remained of consequence were utterly destroyed. At the return of peace, the king gave orders that the garden should be surrounded by a wall; the houses were put into repair, and considerable additions made to them; and these were soon decorated with those plants that had escaped the ravages of invaders, and many new ones. Two acres were allotted for the cultivation of exotic plants in the open air, and one for trees and shrubs; the remaining part was cropped with vegetables.

From this time till 1786, in which year Gleditsch died, little mention is made of improvement, with the exception of removing the houses with oblique roofs, and in their place erecting others with high upright fronts, similar to those common in Germany to this day; and it is not to be wondered at that the loss of a great many plants was the result.

After Gleditsch, Professor Meyer succeeded as director; and it may be necessary here to mention, that, a few years previous to Gleditsch's death, Stiel had become gardener; but he, like some of his predecessors, looked upon the interests of the garden as a secondary consideration; and Meyer, from his medical profession, and the multiplicity of other business which he had to attend to, was prevented from devoting that time and talent to the garden which the interests of such an establishment required.

Such was the state of affairs in 1801, when the celebrated Willdenow, who may be said to be the father and founder of the present flourishing establishment, undertook the direction of the garden. Willdenow took quite a different view of things from those who had gone before him; and, with an industry only equalled by his perseverance and love for the science, he soon caused the face of the garden to assume a different appearance. In the place of Stiel, he appointed one Siedle, from Dresden, as gardener. A green-house was built, 32 ft. long; the lines of beeches and oaks, which ran in different directions through the grounds, were cleared away, and an additional two acres taken in, which is now planted as an arboretum. Nor was it at home only that he was busy; he took advantage of every opportunity in opening a correspondence with botanists and botanical cultivators, both at home and abroad, from whom he received large supplies of plants and seeds. For the same purposes, he made botanical excursions through Italy, France, and Holland, and considered nothing a toil which tended to advance the interests of the garden. It is well known how successful he was in raising ferns from the sweepings of his dried specimens; and I have been told it was not uncommon, in spring, to see him busy at the potting board, shifting plants with his own hands. The progress which the garden made under his direction can only be fairly ascertained by referring to the catalogue, which, in 1801, when he first undertook the management, contained only 1200 specimens, including indigenous plants, but which, in the space of seven years, had accumulated to 6350, among which were many rare plants belonging to the genera Bánks*ia*, *P*ìper, *C*ássia [? *A*càcia] Mimòsa, Melaleùca, Pròte*a*, *E*rica, Strelítz*ia*, *A*`rum, Passiflòra, *C*éstrum, &c. Those tribes which seem to have been his favourites were, mesembryanthemums, stapelias, and ferns, of which he drew together large collections. In 1802, an alteration took place, which assisted him greatly in putting his plans into execution. On the resignation of Seidle, he was succeeded by the present indefatigable and truly scientific director, Otto; who found a wide field for

improvement open before him, especially in the grounds; the soil, in most parts, being poor, and of a marshy nature. This evil he overcame, in a great measure, by the making of ponds, to draw the water together, there being no declivity for draining. Many parts of the garden were afterwards raised and improved, by the addition of composts; and the whole was laid out with walks and plots, in an elegant manner. The trees and shrubs may be said to have been planted what you call geographically; each species being placed in the situation where it was most likely to succeed, whether moist, dry, shady, or open; and, in many instances, this system has been found advantageous, particularly in promoting the growth of the trees.

On the 2d of June, 1802, the prosperity of the garden received a severe check from a violent hail storm, which left not a pane of glass in the houses; and the tropical plants, which were then in their greatest beauty and vigour, were laid prostrate with the ground by the pieces of ice, which are said to have been as large as common walnuts. The trees and shrubs in the open garden were also considerably injured; but, through the bounty of the King of Prussia, the requisite sum for the repairing of the damage was soon granted; so that, by the end of summer, scarcely any traces of the disaster were visible. Nothing particular occurred worthy of mentioning till the death of Willdenow, which happened in 1812. Shortly after, Professor Schlechtendahl drew up a *Supplement to Willdenow's Hortus Berolinensis*, containing 1350 additional species, which, with what the author published himself in 1809, showed that the garden, at his death, possessed a collection of between 7000 and 8000 plants.

Since the learned and well-known Professor Link became connected with the garden, considerable and important additions have been made to it. Elegant and commodious houses have been erected, and richly stocked with many valuable tropical plants, especially from Brazil and Mexico, received from the different botanical collectors sent out for the express purpose, and also from private individuals. The different journeys made by Director Otto through France, Holland, and England have also been of the highest importance to the establishment; not only from the quantity of plants M. Otto brought back with him, but from the establishment by him of a correspondence with the superintendants of other botanic gardens; which, from the liberality with which new plants are here given out, must be beneficial to all parties.

§ ii. *Description.*

Concerning the origin and progress of this garden, I think enough has been said; and I shall now endeavour to give you a short account of it in its present state. Whatever different opinions may be entertained as to the garden itself in the neighbourhood of Berlin, I think all must allow that the entrance-gates are poor, and the situations badly chosen. To speak plainly, the entrance-gate does not seem to be here considered as an object on which taste can be displayed; although, in the instance now before me, the deficiency does not appear so glaring as in some gardens which I have lately visited, and of which I will send you an account at some future period. The entrance to the Berlin Botanic Garden is through a plain cast-iron gate, supported by four stone pillars, or columns, forming the carriageway in the middle, with two small gates on each side. On passing these, you find yourself in a large court or square, formed by the superintendant's house on the one side, and the dwellings of the gardeners on the other. The last is high, and has a barrack-like appearance; but it is commodiously fitted up inside. On being shown through the inner door by the porter, a stranger is astonished to find himself all at once in the midst of green-houses and stoves: these are arranged in three grand ranges of seventeen divisions, running east and west, the whole breadth of the garden. On account of the houses having been built at different periods, and without any regular plan or arrangement having been attended to, they fail in producing an effect as a grand whole; but this defect is amply overcome by the numerous and rich collection which they contain. I shall first speak of the tropical plants and their houses, which consist of ten divi-

sions: these are constructed on various plans inside, to suit the nature of the plants to be cultivated in them; the dry stoves being fitted up with stages, and most of the others having pits in the centre, filled with dung and old leaves, in which the plants are placed, or plunged. This department has been greatly enriched through the combined exertions of the collectors Sellow and Beyrich, in Brazil; and Schiede and Deppe in Mexico, who not only imported vast quantities of seeds, but living plants also. The number of species in many genera is truly astonishing; as in Passiflòra, *S*ìda, Malpíghi*a*, Gésner*a*, *H*ibíscus, Banistèri*a*, *A*ristolòchia, Begòni*a*, *F*ìcus, Ardísia, Bignòni*a*, *Pò*thos, *P*ìper, &c. Among these are many new species, or, at least, species that are supposed to be new, which have not yet flowered. The collection of ferns, of which I send you a list, is the finest I have seen, and it is most admirably cultivated. Most of these plants have been raised from the shakings of dried specimens, and many of them are assuming the habits of trees; as *P*olypòdium alsóphilum, which has a stem 4 ft. high, by 6 in. in diameter, with an elegant crown of leaves; and Cibòtium Schiède*i*, from Mexico, which is supposed to be of the tree kind. The plant, though young, has pushed fronds 12 ft. long, and is remarkably handsome. Among the other conspicuous ferns may be mentioned Didymochlæ'na sinuòsa, *P*olypòdium aúreum, Diplàzium arboréscens, Marátti*a* læ'vis, and M. *c*icutæfòlia: the propagation of the latter is rather interesting. The root, or tuber, whence the leaves spring, is a large, scaly, corky-looking substance, resembling the stem of a Zàmia. Each of these scales has at the point of its insertion in the stem an eye, or bud, which, when carefully removed, and planted in a small pot placed in heat, roots freely. The more rare and tender ferns have a house allotted to them; but most of them are used in decorating the other houses, for which purpose they are admirably adapted, from their light green foliage, and from their thriving well in situations which could not be otherwise occupied. The cultivation of tropical *O*rchidàceæ here, as in England, has become a matter of interest. A pit of 60 ft. long has lately been built, and it already contains a very neat collection: the parasitical kinds are grown in cork boxes and cocoa nut shells suspended by brass wire from the rafters; and, although that degree of humidity and heat is not kept up which some late writers on this beautiful tribe recommend, the plants are succeeding admirably, and flowering freely. Many specimens have flowered this season which have not been, as yet, figured in any work: they are mostly from Brazil.

The Berlin Garden has long been celebrated, and justly, for its collection of succulents, especially *C*actàceæ, which certainly do great credit to the director; not only from their number and their robust and healthy state, but from the scientific manner in which they are named and arranged. Each species has the name and authority attached to it, neatly written with black paint on a porcelain tally. (*fig.* 39.) These tallies are about 4 inches long, of a wedge shape rounded at the head, which has a very clean appearance; and the different genera are arranged together; a method indispensably necessary in a tribe so difficult to distinguish. An exceedingly interesting house is kept up at a heat of 15° of Reaumur. Great care is taken in watering at this season, especially the mammillarias, which are apt to damp off. In summer, the more rare and tender kinds are removed into frames, where they receive a gentle bottom heat; the bed being covered over with a layer of sand, on which the plants are placed. They are now more copiously watered, and, in hot weather, syringed and shaded from the scorching heat of the sun. The more hardy kinds are placed in a sheltered situation in the open air, and remain without protection through the whole of the summer. The number of species runs about 350. Hybrids are not so much sought after here as in Eng-

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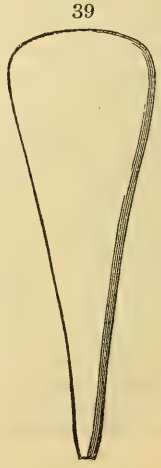

land. In the second dry stove there is a tolerably complete assortment of species of Mesembryánthemum, *A*loe, Gastèria, and Hawórth*ia*, named and arranged in the same way as the *C*actàceæ. Among the Cape and New Holland plants, which occupy seven divisions, are some fine old specimens of species of *A*càcia, Bánks*ia*, and Dryándr*a*. The Prote*à*ce*æ* are cultivated in a separate house, and the *E*ricàceæ in another. The plants comprised in this order, though not so stocky as they are generally to be seen in England, are healthy, and flower profusely; but what is more worthy of notice, are the fine seedling plants of *Araucària* imbricàta and *A.* brasiliàna, and Altíng*ia* Cunninghàm*i*. A new species of pine, *P*inus Llave*à*n*a*, has been raised here from Mexican seeds, which has a very graceful habit of growth. *L*ýchnis Bunge*à*n*a* [Agrostémma Bunge*à*n*a* D. Don, in Sweet's *British Flower-Garden*, second series, t. 317.; whence some account is quoted in *Gard. Mag.*, vol. xii. p. 76.] and Silène laciniàta, which flowered here for the first time last summer, are very showy plants, and are well worthy of notice. It would occupy too much space to enumerate all the varieties which have lately been received from different countries, and especially from North and South America; but one thing I must observe, which I think would please you, namely, the clean and workmanlike manner in which the plants and houses are kept, and the vast number of old species which are cultivated, and, apparently, are as much thought of as their more modern neighbours.

About the middle of the garden, and in front of a fine group of old trees, stands the conservatory (or, as it is called here, the winter house, from its being only in winter protected with glass). It is a square heavy-looking building, 80 ft. long, by 26 ft. wide, with an upright front 36 ft. high; and is covered with a span roof, which has a rise from the front to the centre of the house of about 7 ft. The shrubs, or rather trees, are growing in a large bed, or border, which is divided into two by a walk which crosses the house, and goes round the front, with other small paths between the plants for the convenience of watering them. The entrance is from behind. Here stands the celebrated female plant of *C*hamæ'rops hùmilis, on which Dr. Gleditsch, in 1769, performed the well-known experiment of fertilising the seeds by suspending a bunch of male flowers over them. (See *Encyc. of Gard.*, edit. 1835, § 678.; and *Transactions of the Prussian Horticultural Society*, vol. i. p. 32.) The stem of this palm is now 16 ft. high; and it is in a healthy state, bearing many bunches of flowers and fruit; though the latter are, of course, imperfect, as the flowers are not now fertilised. According to Dr. Otto's account, it must be 181 years old. Leptospérmum flexuòsum, Eucalýptus longifòlia, and E. robústa, Casuarìna torulòsa, and Melaleùca linariæfòlia, have reached to the top of the house; and, when the sashes are removed in summer, they send forth their luxuriant shoots, 8 ft. and 10 ft. above the rafters. Between these fine plants, and as underwood, are large specimens of Magnòl*ia* grandiflòra, Cunninghàm*ia* lanceolàta, *C*lèthra arbòrea, Melaleùca stypheliöìdes, *P*æòn*ia* *Moútan*, Quércus Túrneri, *A*càcia floribúnda, and *A.* affi'nis, with many more New Holland trees and shrubs. A large plant in a tub of the rarely flowering *P*hórmium tènax, pushed ten stems, each at least 10 ft. high, last season, and flowered beautifully. Nothing can be more elegant than the appearance of this house, when laid open in summer, from the walk in front outside. The graceful habits of the casuarina, the shining green leaves and large white flowers of the magnolia, contrasted with the hoary-looking eucalyptus, have a very striking effect, which attracts the attention of all the strangers of taste who visit the garden.

A little farther on, and about 100 yards to the right, is the palm-house, which was built in 1828, on much the same principles as the last, though not so high by 8 ft. In the centre of the house, and standing on a pedestal, is a magnificent plant of *Latània* borbónica, which covers a space of ground 29 ft. in diameter, and is supposed to be the finest plant of the kind in Germany. On both sides of this noble specimen, the house is divided into three beds, with gravel walks between: these beds run lengthwise, and are thickly set

with pedestals, or cut stems of old trees, on the top of each is placed a slab, or table, on which the plants are placed. You will be apt to imagine that these will have an unsightly appearance; but they are almost entirely hidden by the plants growing in the borders; such as species of *Fi*cus, *Pòthos*, and *A*rum, which mingle their tops with those of the dicksonias and polypodiums, which hang down from the pots and tubs, and which, in turn, are crowned by the leaves of the palms, the number of which, including the *Cy*cadàceæ, amounts to about 80 species. Among the most rare and fine specimens may be reckoned Thrìnax élegans and argéntea, Loudòn*ia* excélsa, Elæ'is guineénsis, *Còcos* refléxa, *C*aryòta ùrens, Wallích*ia* caryotöides, Acrocòmia globòsa, *Sàgus* Rúmphi*i*, Diplothèmium marítimum, Desmóncus orthacánthus, *Latàn*ia glaucophýlla, &c. Encephártos Frederìc*i* Wilhélm*i*, and E. Altenstèn*ii*, two species of a genus nearly allied to Zàmia, have lately been imported from the Cape, and named in honour of His Majesty the King of Prussia, who is a great lover of palms, as may be seen from the fine collection on the Peacock Isle (Pfauen Insel), and of one of his ministers. Among the other plants of interest are, Furcræ'*a* longæ'va, and Agàve *yuccæ*fòlia; the latter of which is now in flower. This house, though built at so late a date, cannot be considered as a proof of the improvement of garden architecture: the back wall is arched over, and shades more than one half of the plant; while the thick columns and stout beams used for its support would give the whole a very heavy and unsightly appearance, were not the ingenuity of the gardener brought in to remedy the defect. The beams and rafters are now covered with different kinds of Passiflòra and *A*ristolòchia, the gay trusses of flowers produced by which tend to lighten the fabric. All the houses are heated by means of flues, with the exception of one small warm-water apparatus, which has been erected, but which is almost too trifling to mention: the fuel is wood. Outside of this house, advantage has been taken of the heat given out by the flues, which run along inside close to the wall under the passage; and frames have been sunk, in which Cape and South American bulbs are cultivated. The soil is a mixture of vegetable earth and sand. Brunsvíg*ia* Josephìn*æ*, different sorts of Amaryll*is*, Zephyránthes, *I*'xia, Hæmánthus, and *G*ladìolus, flower freely; and the tall sorts of Alstrœmèr*ia* are planted near the back of the bed, and trained against the glass. I mention this, that others, possessing the same means, may take advantage of them. I am well aware that many Cape and South American bulbs have been grown in England in the open air; but, where a general collection is planted out, as is the case here, the protection of a frame is necessary. As many of these bulbs push in winter, the German gardeners are very dexterous in protecting the frames and plant-stoves from frost; the frames are covered with boards, one laid over another like the tiles of a house, and the stoves the same, with the exception that the boards are there laid side by side, parallel with the sashes, the ends resting against a bar; and the upright fronts are protected by shutters pushed into grooves, or sockets. In this manner a range of houses 200 ft. long can easily be covered and uncovered in the space of ten minutes. For the shading of the houses in summer, the stems of the common reed (*P*hragmìtes commùnis) are used: they are cut to suit the breadth of two sashes, and are fastened together at the ends, till a kind of network, or web, is formed of the required length, which is fastened to a roller, and let up and down by means of a rope and pulley. The herbaceous plants, which occupy a considerable space, are arranged according to the Linnæan system, and named with written wooden tallies; but, from the vast devastations committed by the *A*chèta Gryllotálpa [*Fabr.*, Gryllotálpa vulgàris *Latr.*], duplicates of the more tender and uncommon kinds require to be kept in pots.

This insect (*fig.* 40.) is called in English the mole cricket; a word that is the literal meaning of Gryllotálpa, from *gryllus*, a cricket, and *talpa*, a mole; a description of which, with a figure, will be found in the *Mag. of Nat. Hist.*, vol. ii. p. 290. There is also some account of this insect in a French work, entitled *Spectacle de la Nature*, which has been translated into English in 7 volumes It appears about the beginning of summer, in myriads, and in

provided with two strong claws, or feet, attached to its body near the head, by means of which it makes its way through the ground like a mole, and with as much dexterity. Nothing in the herbaceous way is proof against its ravages. I have seen the stem of a dahlia an inch thick cut through by it in the course of a night, with as much precision as if done with a knife. From the circumstance of these insects seldom appearing on the surface, and the rapidity with which they breed, no method has been fallen upon whereby they are likely to be eradicated, although hundreds of thousands are caught yearly by means of flower-pots, plunged with their brims about 2 in. below the level of the surface, into which the insects fall during their nightly rambles: nests are also sought for and destroyed. Do you know any means by which this destructive insect could be extirpated? It is the greatest enemy the gardener has to contend with at Berlin.

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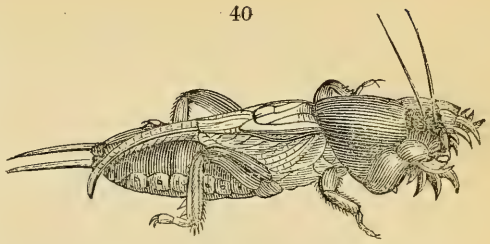

The collection of alpines is large, and among them are many little gems, particularly belonging to the order Primulàceæ. The plants are shifted early in spring, and placed in a shady situation, every genus being placed by itself. I would here have made a few remarks on the number of deciduous shrubs and trees, their size and general arrangement; but, from the correct manner in which this has already been done by Director Otto, any thing from me on that head would be superfluous; only, I would observe, that about half an acre is kept as a nursery, for the raising and propagation of the more rare kinds; so that, when improvements are making, or a vacancy occurs, the garden can be supplied from resources of its own.

The arboretum, though rich in trees and shrubs of deciduous kinds, is as far in the other extreme with regard to evergreens; and this may be accounted for by the coldness of the climate, and the unsheltered situation of the garden. The *R*hododéndron pónticum and azaleas, of which there are several groups, are covered in winter with dense coverings of pine branches, and, in very severe weather, receive an extra layer of leaves. The only evergreens which seem to bid defiance to the bitter cold are, *T*hùja occidentàlis, *J*uníperus virginiàna, and *J. S*abìna; *P*ìnus resinòsa, *P.* [*Cémbra* var.] sibírica, *P.* [*L*àrix] microcárpa, *P.* mariàna, *P.* nigréscens, *P.* rùbra, *P.* ìnops, *P.* [? *L.*] péndula, *P.* rígida, *P.* variábilis, and *P.* hispánica. Portugal laurels and bays [? *C*érasus Laurocérasus], there are none; and I have never seen a good specimen of the common holly in the country. Owing to the absence of these and similar evergreens which stand the open air in Britain, you can easily imagine the bleak aspect which the country assumes in winter.

The months of February and March are, in general, cold, with sharp easterly winds; and, before the beginning of April, vegetation is scarcely perceptible; but the rapidity with which Nature now unfolds her gay productions, spreading her mantle over field and garden, is truly astonishing, and, in some measure, may be said to resemble the springs of North America. The activity of the gardener is now called into exertion; the plants are uncovered; and the vines, which have lain buried in the ground all the winter, are taken out, pruned, and tied to their trellises. One of the greatest beauties of the garden, at this time, is the *C*ércis canadénsis, of which there are several fine specimens, covered from bottom to top with flowers.

The more hardy kinds of house plants are, by degrees, removed to the open air, and arranged in groups in front of and between the ranges of houses. The figures which they form are of different shapes, to suit the sweeps of the walks, or to take advantage of the shade of walls or large trees. The larger

ones being placed in beds for the convenience of watering, the pots are plunged up to within 1 in. of the brim, the tall plants being made fast to light spars, and the groups always sloping to the walk. As much regularity as possible is observed in selecting the plants for each group, by placing together such as require the same treatment, and, where it is practicable, such as belong to the same family; as Proteàceæ, *M*yrtàceæ, Coníferæ, &c. This method of cultivating the green-house plants in summer has many advantages: first, a beautiful effect is produced by the different forms of the groups themselves; secondly, a contrast is formed by the various shades of colour and forms of the leaves; and, lastly, the plants do not suffer so much from wind and drought as they do when huddled together upon gravel, in some out of the way corner, as is often enough to be seen in Britain. The only serious objection which can be raised against this plan is, that worms will infest the pots, and that the borders must be prepared with sand, or some other hard material. Here, for the fine and tender kinds, the beds are raised 2 ft. high by means of a platform, which is covered with sand. All the species of *C*ánna flower well in the open ground. The bed in which they are to be planted is dug out to the depth of 2 ft.; and a quantity of warm dung and leaves is laid in the bottom, which is covered with a layer of vegetable mould and peat earth. With this treatment, many grow to the height of 10 ft. and 12 ft. in a season; but, to do this, they must be copiously watered. Many of the ligneous plants of Brazil and Mexico are also removed to the open air in summer. The cultivation of fancy or florist's flowers has, of late years, become a matter of interest, especially the dahlias and heartsease. Of the first, there is a very fine and select collection, most of the plants contained in which are from England, they being considered superior to those raised in Prussia. The borders along the edges of the walks are ornamented, in summer, with annuals of the more hardy and easy-flowering kinds, as the Prussian stocks, larkspurs, &c.; and are succeeded by the rare and tender sorts from the frames, as Schizánthus Grahàm*i*, S. retùsus, Ipomópsis pulchélla, Gíli*a* trícolor, and a mass of other plants too numerous to mention in detail. As a substitute for box edgings, a very neat one is made of *O*'xalis tetraphýlla and *O*. Déppe*i*. The bulbs, or eyes, are planted about the beginning of May, in a drill 2 in. deep: the soil is light and sandy, in which they grow rapidly, and flower beautifully till cut down by the frost. I do not know if you are aware that these plants are used as vegetables. I can assure you that the tubers (by which I do not mean the bulbs, or knobs, but the spindle-shaped root underneath them) of both species, when stewed, as they are done here, make a very palatable and fine-looking dish. Bushels of them are raised here yearly; a result which has never followed the cultivation of the much famed *O*. crenàta, at least not in this country, as it has here proved a failure: the leaves of *O*. Déppe*i* are said to be used as spinach; but on this head I cannot speak. The breadth of the walks are in proportion to the size of the garden, and are kept in good order; the grass, though inferior to that of England, may be considered as a fair specimen in this country; and near its margins figures of various forms are cut out; and groups of salvias, fuchsias, verbenas, *G*ladìolus psittacìnus [natalénsis], salpiglossises, dahlias, and erythrinas, are planted out in summer. Between the palm-house and conservatory, and rather in front of the latter, is a neat little pond, with an island in the centre, planted with *S*àlix babylónica, *B*étula péndula, *J*uníperus virginiàna, and other graceful-growing trees. The pond is well stocked with aquatic plants, such as Thàli*a* dealbàta, sorts of Pontedèri*a*, Sagittària, *N*ymphæ'a, &c. The banks are ornamented, in summer, with Mùs*a*, *P*apỳrus antiquòrum, *C*ánna, Hedýchium, &c. The garden contains a collection of between 14,000 and 15,000 species, including those undescribed. There are more than 15,000 according to Professor Link's account. The whole of the houses together give a length of 1117 lineal feet, and have a surface inside of 256·169 square feet; namely, 123·269 square feet the hot-houses, and 132·900 square feet the cold-houses. The ground plan of the garden (*fig.* 41.) and the description are annexed. Little alteration has been made of late. You will easily see, from the narrowness of the grounds,

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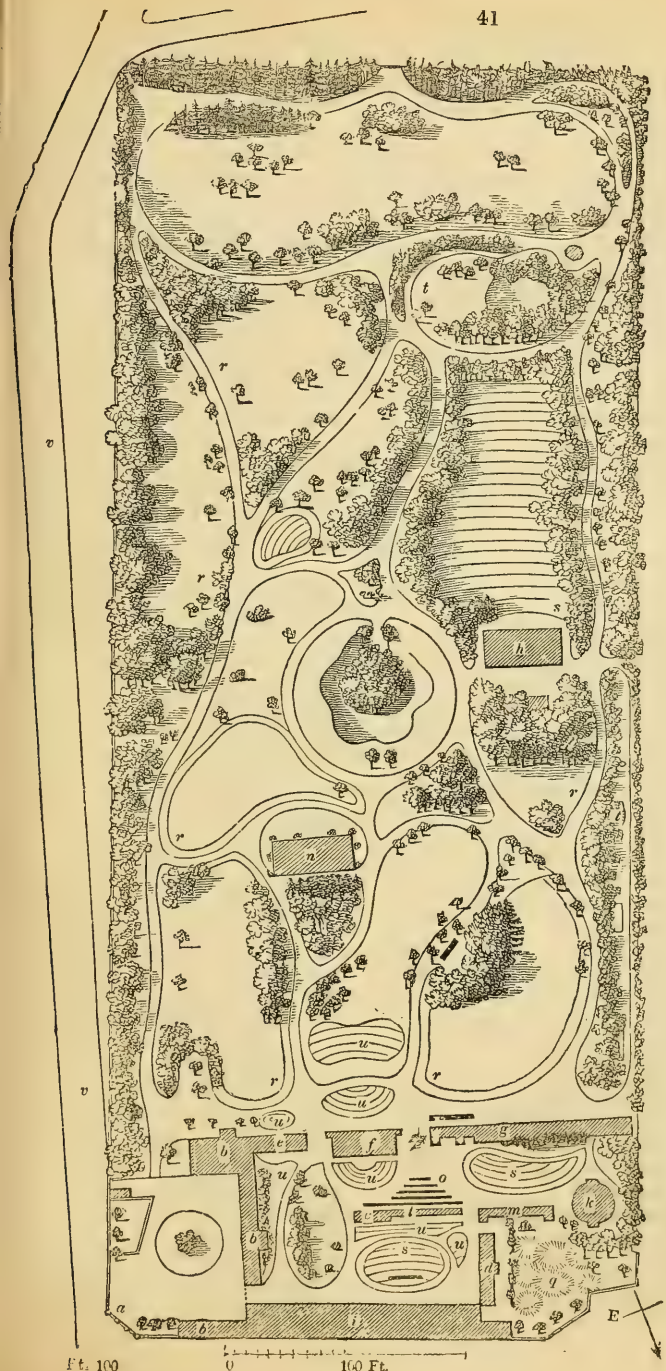

a, Entrance and fore court.
b, Lodgings for workmen and various offices.
c, Hot-house No. 1, for small and young plants.
d, Hot-house No. 2, for monocotyledonous plants.
e, Hot-house No. 3, for ferns and palms.
f, Hot-house Nos. 4 and 5, in two divisions.
g, Hot-house Nos. 6 and 7, in two divisions, together with the two green-houses, 4 and 5, for Cape and New Holland plants.
h, Hot-house No. 8, for large palms.
i, Hot-house No. 9, for large specimens of tropical plants, together with the two green-houses Nos. 6 and 7, for orangery plants.
k, Hot-house No. 10, for large specimens of *Pandanus*, Dracæna Dràco, Mùsa, &c.
l, Green-house No. 1, for Cape, New Holland, and Mexican plants.
m, Green-houses Nos. 2 and 3, for heaths and succulent plants.
n, Conservatory No. 8, for large specimens of New Holland and other plants.
o, Dung-beds for raising seeds.
p, Structure with props for twining plants.
q, Compost ground.
r r, Place for under-shrubs, hardy perennials, and biennials.
s, Place for annuals.
t, Place for water and bog plants.
u, Place for setting out the green-house plants, &c. during summer.
v, Road from Berlin to Potsdam.

that the views cannot be fine or extensive: the only one which may be considered as picturesque is seen from the lower end of the garden, where you have the pond with its island, on the right the conservatory, and on the left the palm-house, overtopped with stately trees; and between these, over the green, a perspective view of the other houses, which form the background.

The regulations for carrying on the work in the garden are admirable: every journeyman has his allotted division of houses, or other work, with which he is intrusted; and, according to the heaviness of his task, he receives a given number of apprentices, labourers, or boys, to assist him. This causes a sort of competition, who shall cultivate and keep his ground in best order; and according as any one distinguishes himself, so follows his promotion. The gardeners have also formed themselves into a society, which meets once a week, to discuss points of gardening; one of the oldest of the members being chosen president. They receive a copy of the *Prussian Horticultural Society's Transactions*, and *Gardener's Magazine*, gratis. Attached to the establishment is a kitchen, with servants for the cooking of victuals, and cleaning of the rooms; every gardener having his own private apartment, which is neatly furnished and fitted up. In providing for the comfort of the gardener, much more attention and expense are bestowed than in any other establishment which I have yet seen.

The garden is open to the public on Wednesdays, and is much visited by all classes of society, but especially by military men, who seem to be great lovers of Flora in this country. Strangers and practical men are admitted at all times.

§ iii. *List of Ferns cultivated in the Royal Botanic Garden, Berlin*, 1836; *arranged according to Link's* Hortus Berolinensis.

Order I. Hymenophy'lleæ.

1. Hymenophýllum tunbridgénse *Smith.*
2. Wilsoni Hooker.

Order II. *Polypodia'ceæ.*

3. Davállia canariénsis *Swartz.*
4. pyxidàta *Cavan.*
5. divaricàta *Schlechtendhal.*
6. Cibòtium Schiédei Schlechtendahl.
7. Dicksònia adiantòides *Willd.*
8. rubiginòsa *Kaulf.*
9. pilosiúscula *Willd.*
10. aculeàta *Spreng.*
11. Balántium glaucéscens *Kunze.*
12. Adiántum renifórme *Linn.*
13. pedàtum *Linn.*
14. curvàtum *Kaulf.*
15. brasiliénse *Raddi.*
16. fructuòsum.
17. pentadáctylum *Langsd. et Fischer.*
18. trapezifórme *Linn.*
19. pubéscens *Schkuhr.*
20. formòsum *Link.*
21. Capíllus-Véneris Linn.
22. æthiópicum *Linn.*
23. assímile *Swartz.*
24. cuneàtum *Langsd. et Fischer.*
25. concínnum *Willd.*
26. Adiántum glandulíferum *Link.*
27. sulphùreum *Kaulf.*
28. Ptèris longifòlia *Linn.*
29. costàta *Bory.*
30. grandifòlia *Linn.*
31. falcàta *Brown.*
32. argéntea *Langsd. et Fischer.*
33. pedàta *Linn.*
34. crética *Linn.*
35. stenophýlla *Hook. et Grev.*
36. denticulàta *Swartz.*
37. serrulàta *Linn.*
38. spinulòsa *Link.*
39. crenàta *Swartz.*
40. atropurpùrea *Linn.*
41. ternifòlia *Cavanill.*
42. calomélanos *Link.*
43. hastàta *Swartz.*
44. cordàta *Cavanill.*
45. nemoràlis *Willd.*
46. biaurìta *Linn.*
47. làta *Kaulf.*
48. sulcàta *Dr. Meyen.*
49. argùta *Vahl.*
50. decúrrens *Raddi.*
51. polìta *Link.*
52. defléxa *Link.*
53. allosòra *Link.*
54. pállida *Raddi.*
55. macróptera *Link.*

56. *P*téris aquilìna *Linn.*
57. chrysocárpa *Hooker et Greville.*
58. inframarginàlis *Kaulf.*
59. Cera:ópteris *th*alictröìdes *Link or Brongn.*
60. Allosòrus crìspus *Bernhardi.*
61. Cheilánthes auriculàta *Swartz.*
62. profùsa *Kunze.*
63. micrómera *Link.*
64. microphýlla *Swartz.*
65. tenuifòlia *Swartz.*
66. ferrugínea *Willd.*
67. spectábilis *Kaulf.*
68. marginàta *Kunth.*
69. ruféscens *Link.*
70. cuneàta *Link.*
71. hirsùta *Link.*
72. crenulàta *Link.*
73. odòra *Swartz.*
74. hírta *Swartz.*
75. tomentòsa *Link.*
76. lentígera *Swartz.*
77. viscòsa *Link.*
78. Nothochlæ'na lanuginòsa *Desvaux.*
79. sinuàta *Kaulf.*
80. Maránt*æ* Desvaux.
81. Acróstichum confórme *Swartz.*
82. callæfòlium *Blume.*
83. *s*colopendrifòlium *Raddi.*
84. aúreum *Linn.*
85. staphylèum *Link.*
86. alcicórne *Swartz.*
87. Gymnográmma palmàta *Linn.*
88. pedàta *Kaulf.*
89. rùfa *Desvaux.*
90. tomentòsa *Desvaux.*
91. Raddi*àna* Link.
92. *p*olypodiöìdes *Spreng.*
93. villòsa *Link.*
94. leptophýlla *Desvaux.*
95. *ch*ærophýlla *Desvaux.*
96. calomélanos *Kaulf.*
97. dealbàta *Link.*
98. peruviàna *Desvaux.*
99. dístans *Link.*
100. chrysophýlla *Link.*
101. *Céterach* Link.
102. cordàta *Schlechtendahl.*
103. Acrópteris septentrionàlis *Link.*
104. *A*splènium Nidus *Linn.*
105. serràtum *Linn.*
106. palmàtum *Swartz.*
107. oligophýllum *Kaulf.*
108. sérra *Langsd. et Fischer.*
109. marìnum *Linn.*
110. obtusifòlium *Linn.*
111. brasiliénse *Raddi.*
112. ebèneum *Ait. Kew.*
113. *A*splènium Otìtes *Link.*
114. trìste *Kaulf.*
115. aurìtum *Swartz.*
116. *T*richómanes *Linn.*
117. víride *Smith.*
118. Petrárch*æ* Dec.
119. melanocaúlon *Willd.*
120. flabellifòlium *Cavan.*
121. fontànum *R. Brown.*
122. pùmilum *Swartz.*
123. affìne *Swartz.*
124. *th*elypteröìdes *Fischer.*
125. præmórsum *Swartz.*
126. *A*diántum nìgrum *Linn.*
127. *R*ùta murària *Linn.*
128. alternifòlium *Jacq.*
129. angustifòlium.
130. decurtàtum *Kunze.*
131. rachirhìzon.
132. *F*ìlix fœ'mina *Hooker.*
133. disséctum *Link.*
134. Camptosòrus rhizophýllus *Link.*
135. *S*colopéndrium officinàrum *Swartz.*
136. Diplàzium acuminàtum *Raddi.*
137. Shephérd*i* Link.
138. Riedel*iànum* Fischer.
139. *r*umicifòlium *Fischer.*
140. dùbium *Link.*
141. coarctàtum *Link.*
142. pubéscens *Link.*
143. arboréscens *Swartz.*
144. obtùsum *Link.*
145. Didymochlæ'na sinuòsa *Desvaux.*
146. Allantòdia umbròsa *R. Brown.*
147. *B*léchnum lanceolàtum *Raddi.*
148. intermèdium *Link.*
149. grácile *Kaulf.*
150. triangulàre *Link.*
151. glandulòsum *Kaulf.*
152. occidentàle *Linn.*
153. falcàtum *Link.*
154. austràle *Linn.*
155. brasiliénse *Desvaux.*
156. stágnum *Raddi.*
157. hastàtum *Kaulf.*
158. Lomària boreàlis *Link.*
159. mìnor *Spreng.*
160. dénsa *Kaulf.*
161. attenuàta *Willd.*
162. Gilliès*i* Hooker et Grev.
163. Doód*ia* áspera *R. Brown.*
164. rupéstris *Link.*
165. Menìscium palústre *Raddi.*
166. Woodwárd*ia* radìcans *Swartz.*
167. onocleöìdes *Willd.*
168. virgínica *Swartz.*
169. *P*olypòdium lycopodiöìdes.
170. *t*eophýllum *Link.*

171. *Polypòdium dimórphum Link.*
172. *Brownià̀num* Spreng.
173. *percússum Cavan.*
174. *crassifòlium Linn.*
175. *Phyllítidis Linn.*
176. *brevifòlium Link.*
177. *rèpens Swartz.*
178. *cæspitòsum Link.*
179. *vacciniifòlium Langsd. et Fischer.*
180. *ciliàtum Willd.*
181. *phymatòdes Linn.*
182. *alternifòlium Willd.*
183. *terminàle Link.*
184. *lepidópodum Link.*
185. *peltídeum Link.*
186. *vulgàre Linn.*
187. *vulgàre* var. *cámbricum.*
188. *mænùrum Link.*
189. *látipes Langsd. et Fischer.*
190. *ramòsum Link.*
191. *herpeòdes Link.*
192. *vacíllans Link.*
193. *læ'tum Raddi.*
194. *aúreum Linn.*
195. *sporadocárpum Willd.*
196. *pulvinàtum Link.*
197. *attenuàtum Willd.*
198. *prolíferum Kaulf.*
199. *polýstichum Link.*
200. *Presli̇à̀num* Spreng.
201. *decúrrens Raddi.*
202. *crenàtum Swartz.*
203. *Phegópteris Linn.*
204. *concínnum Willd.*
205. *subtetragònum Schkuhr.*
206. *defléxum Kaulf.*
207. *compósitum Link.*
208. *alsóphilum Link.*
209. *inæquàle Link.*
210. *divérgens Willd.*
211. *effùsum Swartz.*
212. *Dryópteris Linn.*
213. *calcàreum Smith Bot.*
214. *hexagonópterum (N. Amer).*
215. *Microsòrum irregulàre Link.*
216. *Niphóbolus rupéstris Spreng.*
217. *pertùsus Spreng.*
218. *Aspídium trifoliàtum Swartz.*
219. *macrophýllum Swartz.*
220. *fraxinifòlium Spreng.*
221. *Lonchìtis Swartz.*
222. *acrostichòides Swartz.*
223. *sérra Swartz.*
224. *stenochlæ'num Kunze.*
225. *mólle Link.*
226. *violàceum Link.*
227. *pàtens Willd.*
228. *Kaulfússii* Link.
229. *Aspídium chrysólobum Link.*
230. *noveboracénse Swartz.*
231. *Oreópteris Swartz.*
232. *Thelýpteris Swartz.*
233. *rivulòrum Link.*
234. *concínnum Link.*
235. *cristàtum Swartz.*
236. *aculeàtum Swartz.*
237. *lobàtum Smith Bot.*
238. *angulàre Willd.*
239. *Fìlix más Swartz.*
240. *marginàle Swartz.*
241. *ctenìtis Link.*
242. *spinulòsum Swartz.*
243. *dilatàtum Swartz.*
244. *rígidum Swartz.*
245. *púngens Kaulf.*
246. *Nephròdium pectinàtum Willd.*
247. *tuberòsum Link.*
248. *exaltàtum R. Brown.*
249. *Tectària coriàcea Link.*
250. *Cyclosòrus gongylòdes Link.*
251. *Cystópteris bulbífera Swartz.*
252. *dentàta Hooker.*
253. *frágilis Bernhardi.*
254. *alpìna Swartz.*
255. *rhæ'tica Swartz.*
256. *montàna Swartz.*
257. *Pe*r*rini̇à̀na* Link.
258. *Woódsia hyperbòrea R. Brown.*
359. *ilvénsis R. Brown.*
260. *Physématum mólle Kaulf.*
261. *Polybótrya Ruddi̇à̀na* Link.
262. *acuminàta Link.*
263. *incìsa Link.*
264. *Struthiópteris germánica Willd.*
265. *pennsylvánica Willd.*
266. *Onoclèa sensíbilis Linn.*

Order III. OSMUNDA'CEÆ.

267. *Lygòdium circinàtum Swartz.*
268. *scándens Swartz.*
269. *vàrium Link.*
270. *polymórphum Kunth.*
271. *palmàtum.*
272. *microphýllum Link.*
273. *mexicànum Presl.*
274. *japónicum Swartz.*
275. *Anèmia Phyllítidis Swartz.*
276. *dénsa Link.*
277. *mandiocàna Raddi.*
278. *collìna Raddi.*
279. *rèpens Raddi.*
280. *Raddi̇à̀na* Link.
281. *fraxinifòlia.*
282. *Osmúnda regàlis Linn.*
283. *grácilis Link.*
284. *interrúpta Michaux*
285. *Claytoni̇à̀na* Linn.

286. Osmúnd*a* cinnamòmea *Linn.*
287. Tòde*a* africàna *Willd.*

Order IV. Marattia'ceæ.

288. Maráttia cicutæfòlia *Kaulf.*
289. læ'vis *Raddi.*

Order V. Ophioglo'sseæ.

290. Botrýchium Lunària *Swartz.*
291. virgínicum *Swartz.*
292. dissèctum *Muhlenb.*
293. Ophioglóssum vulgàtum *Linn.*
294. lusitánicum *Linn.*
295. pedunculòsum *Desvaux.*

Order VI. Salvinia'ceæ.

296. Pilulària globulífera *Linn.*
297. Marsíle*a* quadrifòlia *Linn.*
298. Salvíni*a* nàtans *Hoffman.*

Order VII. Lycopodia'ceæ.

299. Lycopòdium clavàtum *Linn.*
300. complanàtum *Linn.*
301. pùmilum *Schlechtendahl.*
302. annótinum *Linn.*
303. inundàtum *Linn.*
304. dendröídeum.
305. selaginöìdes *Linn.*
306. Selàgo *Linn.*
307. cuspidàtum *Link.*
308. stoloníferum *Swartz.*
309. brasiliénse *Raddi.*
310. helvéticum *Linn.*
311. denticulàtum *Linn.*
312. Bernhárdi*a* dichótoma *Willd.*

§ iv. *Notes on the Trees in the Berlin Botanic Garden in* 1835. Extracted from the Return Paper filled up under the direction of M. Otto, the Director.

[The Berlin Botanic Garden being unquestionably the richest in species on the Continent, we consider it will be of general interest to collectors of trees and shrubs, to be made acquainted with the species which stand in the open air there; with a view not merely to the increase of our knowledge generally as to botanic gardens and climates relatively to vegetation, but to facilitate exchanges of plants and seeds. Planters of trees in the coldest situations in Britain may safely calculate on the species which stand the open air in the Berlin Botanic Garden being quite hardy.]

Magnòl*ia* acuminàta, twenty-five years old, is 30 ft. high; the diameter of the stem 10 in., with a loose and spreading head. M. tripétala, about twelve years planted, is 15 ft. high; the diameter of the stem 5 in., with a loose and spreading head. M. glaúca is a fine tree, but does not flower here. M. macrophýlla, 10 ft. high, is well grown, and has stood the open air for about five years.

Liriodéndron Tulipífera, from fifteen to eighteen years planted, is from 30 ft. to 40 ft. high: in general, it stands the winter, but is sometimes killed down to the ground, by the frost.

*T*ília álba and *T.* glàbra, thirty years planted, are from 20 ft. to 25 ft. high; the diameter of their trunks 1 ft. 3 in., and of the heads 18 ft. *T.* americàna, eighteen years planted, is from 18 ft. to 20 ft. high, with a trunk 1 ft. in diameter. *T.* laxiflòra, eighteen years old, is 12 ft. high, and the diameter of the trunk 5 in.; but it is not particularly well grown.

A'cer dasycárpon, twenty-five years planted, is 3 ft. high, with a trunk 1½ ft. in diameter; the head loose. *A.* monspessulànum, eighteen years planted, is from 12 ft. to 14 ft. high. *A.* obtusifòlium, about the same. *A.* pennsylvánicum grows rapidly in height. *A. p*latanöìdes, thirty years planted, is from 20 ft. to 30 ft. high. *A.* rùbrum has a slight stem, but is tolerably high. *A.* sacchárinum, forty years planted, is 30 ft. high, with a trunk 9 in. in diameter. *A.* neapolitànum, six years planted, is 15 ft. high: it is a beautiful tree, which, however, is tender when young. *A. Negúndo*, twenty years planted, is from 18 ft. to 20 ft. high; and the diameter of the trunk 9 in., with a very loose head.

Æ'sculus Hippocástanum is quite hardy. *Æ.* rubicúnda grows rapidly: being grafted on *Æ.* Hippocástanum, it produces a beautiful head, and its flowers are a great ornament to the garden.

Pàv*ia* flàva, rùbra, and pállida, from fifteen to twenty years planted, are about 15 ft. high.

Kölreutèr*ia* paniculàta, at 16° or 20° of Reaumur [from 2°, to 13° below zero,

Fahr.], is sometimes killed by the frost, and requires protection from the north and east winds.

*P*tèlea trifoliàta grows from 15 ft. to 20 ft. high.

Ailántus glandulòsa is generally killed by the frost when young; yet one has been spared, which, in eighteen years, has attained the height of from 20 ft. to 30 ft., with a head 18 ft. in diameter.

*E*uónymus europæ'us, quite hardy.

I'lex *A*quifòlium, although it grows wild in a forest about twenty miles from Berlin, yet, in the Berlin Botanic Garden, must be grown in loam, and in a sheltered situation.

Sophòra japónica, thirty years planted, is 25 ft. high, with a trunk 9 in. in diameter. It has suffered from the frost, and has not yet flowered.

Virgília lùtea, six years planted, is 12 ft. high: it suffers from the frost.

*C*ytisus alpìnus, fifteen years planted, is 18 ft. high; it stands every degree of cold. *C. L*abúrnum, ten years planted, is 16 ft. high: diameter of the stem 8 in.: it is very frequently killed by the frost at 16° of Reaumur [4° below zero, Fahr.].

Robínia [P.-*A.*] viscòsa attains a considerable height in a short time, as do the other varieties. The seeds of these varieties, when sown, come up of the species *R.* Pseùd-*A*càcia.

Caragàna arbórescens is, here, aconsiderable shrub, which grows well in any soil.

Gledítschia fèrox, twenty years planted, is from 25 ft. to 30 ft. high; the diameter of the stem 9 in.; and the circumference of the head considerable. G. hórrida grows as fast, but was later planted; and the stem, consequently, is not so high. G. monospérma, the same. G. triacánthos and macracántha are considerable trees. G. inérmis grows as fast as G. hórrida.

Gymnócladus canadénsis is from 15 ft. to 20 ft. high, with stems from 3 in. to 4 in. in diameter.

*C*ércis *S*iliquástrum is tender, and suffers from the cold, unless protected. *C.* canadénsis has a head 20 ft. in circumference, and flowers beautifully every year: it often suffers from cold.

*A*mýgdalus orientàlis, and also a great many more species of this genus, stand the open air. *A. P*érsica, and two varieties of commùnis (amàra and frágilis), require a sheltered situation.

*C*ratæ'gus. Various species attain a considerable height and breadth. *C.* coccínea, cordàta, *p*yrifòlia, glandulòsa, flàva, grandiflòra, punctàta, nìgra, monógyna, and many others, are quite hardy, and very ornamental.

*M*éspilus and *P*ỳrus, the same.

*S*órbus (*P*ỳrus) americàna, twelve years planted, is 9 ft. high.

*S*órbus (*P*ỳrus) doméstica has acquired a considerable height.

*C*ydònia sinénsis and japónica grow well in sheltered situations, and become considerable-sized shrubs.

Halès*ia* díptera, tetráptera, and parviflòra, in eighteen years, attain the height of from 12 ft. to 15 ft.: they are hardy, flower freely, and are very ornamental in clumps.

*D*iospỳros does not stand the cold well.

*F*ráxinus. Many species, in thirty years, have become considerable trees; as *F.* epíptera, expánsa, acuminàta, *j*uglandifòlia, álba, &c. Only a few species, as *F.* ellíptica, Richárd*i*, conspícua, lùcida, and one or two others, are tender.

O'rnus grows here as a shrub, and somewhat tender.

Catálpa dies of cold at 20° or 25° of Reaumur [from 13° to 25° below zero, Fahr.]; yet one in a sheltered situation, in thirty years, has attained the height of 25 ft.

*L*aúrus nóbilis does not stand the open air. *L. Benzòin* and *Sássafras* grow here as shrubs.

Nýss*a* stands the air in a sheltered place; but is a weak plant.

*H*ippóphae stands the open air.

*E*læágnus sanguínea, latifòlia, argéntea, angustifòlia, and orientàlis, are tolerably hardy, and attain a considerable height.

Maclùr*a* stands the open air.

Broussonèt*ia* usually dies from severe cold, yet sometimes stands out, and flowers well. Shrubby.

*M*òrus tatárica, Morétt*i*, multicaúlis, macrophýlla, rùbra, and nìgra, stand our climate, and suffer little from frost; most of them being considerable trees.

*F*ìcus requires protection.

Plánera aquática (Gmelìn*i*) 18 ft. high, grows rapidly for a few years. P. Richárd*i* is tender.

U'lmus. A great many species and varieties, under an infinite number of names, attain the height of trees in a few years. *U.* campéstris, suberòsa, and effùsa, in ten years, have attained the height of 25 ft.; and *U. b*etulöìdes, gigantèa, pyramidàlis, álba, americàna, fúlva, and péndula, grow, under any circumstances, to beautiful trees. *U. p*runifòlia is killed by the frost, at 8° or 10° of Reaumur [from 9° to 14° Fahr.].

*C*éltis australìs, occidentàlis, Tournefórt*ii*, and sinénsis, are 25 ft. high, after having been fifteen years planted; but they suffer from the cold and moisture.

*J*ùglans nìgra and cinèrea grow rapidly. In forty years, their stems measure 2 ft. in diameter; and trees twenty-five years old are, sometimes, even as large. *J. f*raxinifòlia and pterocárpa are more tender, and of less rapid growth.

*C*àrya olivæfórmis, amàra, and falcàta, are now becoming very fine trees; but are tender when young.

*S*àlix. Many of the species, from cultivation, are of a height and size resembling trees, attaining, in twenty years, the height of 50 ft. or 60 ft. *S.* álba, triándra, Russell*iàna*, and Meyer*iàna*, are from 2 ft. to 3 ft. in diameter.

*P*ópulus canéscens, álba, trémula, nìgra, and monilífera, in ten years, acquire the height of forest trees; and, in twenty years, are 70 ft. high, with trunks 3 ft in diameter. *P.* grandidentàta, trífida, cándicans, heterophýlla, and angulàta, (the two last when young,) grew rapidly, but are not so strong as those before mentioned.

A'lnus incàna is a beautiful tree, which, in ten or fifteen years, attains the height and breadth of a forest tree. *A.* cordàta suffers in severe winters, but is seldom killed. *A.* undulàta and serrulàta are shrubs.

*B*étula nìgra, *p*opulifòlia, papyrífera, lénta, *c*arpinifòlia, and excélsa, twenty years planted, are from 30 ft. to 40 ft. high: the stems of some are 1 ft. 4 in. in diameter. The small shrubs are from 6 ft. to 8 ft. high. *B.* dahùrica, póntica, and excélsa, are moderately sized trees.

*C*árpinus orientàlis and americàna are about 25 ft high.

O'strya virgínica, the same.

*C*órylus *C*olúrna, a considerable tree; twelve years planted, with a trunk 4 in. in diameter.

*Q*uércus. The American oaks have been planted here since 1804, and they thrive on a bad soil. *Q.* coccínea, palústris, rùbra palústris, tinctòria, and díscolor, are from 25 ft. to 30 ft. high. The strongest of them measure 1 ft., and often more, across one of the branches. Many of the species have been retarded in their growth by the frost. *Q. i*licifòlia is a shrub: the southern and evergreen oaks do not stand in the open air; the attempt having often been made unsuccessfully.

*F*àgus, twenty years planted, is from 15 ft. to 18 ft. high. *F.* sylvática purpùrea, thirty years planted, is 25 ft. high. *F.* sylvática *a*splenifòlia, *q*uercifòlia, and crìspa, are only small trees.

*C*astànea vésca, in the neighbourhood of Berlin, is sixty years old, and 30 ft. high, with a trunk 2 ft. in diameter. *C.* pùmila and americàna are shrubs.

*P*látanus. The species of *P*látanus, especially the *P. a*cerifòlia and occidentàlis, grow to strong and beautiful trees, from 60 ft. to 70 ft. in height. *P.* orientàlis and cuneàta are tender, and are killed by the frost.

Liquidámbar, only one specimen, 20 ft. high, which died from cold in 1803.

*T*áxus is hardy, and grows to a considerable size.

Schubért*ia* [Taxòdium] grows to a good-sized tree: those twenty-eight years old are from 25 ft. to 30 ft. high, with trunks about 9 in. in diameter.

Juníperus virginiàna is very strong and high. *J. S*abìna and nàna are hardy; but *J. Ox*ýcedrus is killed by the frost.

*Th*ùja is hardy, and of compact growth.

Cunninghàm*ia* stands out under covering, but requires much protection.

*C*upréssus *th*yöides, ten years old, is 15 ft. high, in good soil.

*P*ìnus. The American species of *P*inus stand our climate, and thrive well; but we have not so much room as these trees require. *P.* álba and *S*tròbus, twenty-eight years planted, are from 25 ft. to 30 ft. high: the diameter of their trunks is 1½ ft. The new species, as *P.* Lambert*iàna*, excélsa, and ponderòsa, *A*bies Doúglas*i* and spectábilis, grow well; but we have only one specimen of each. The southern species, as *P. P*ícea, canariénsis, *P*ináster, and halepénsis, do not stand the open air.

*L*àrix europæ'a, e. sibírica, péndula, and microcárpa, particularly the last three, are but very poor specimens. They thrive well in our soil, when they have once taken root. The first mentioned has attained a pretty good height in twenty years.

*C*èdrus does not stand out well, and requires protection. We have only one small specimen.

Art. III. *Notices of Gardens, remarkable Trees, &c., in the Environs of Lichfield, Staffordshire.* By Mr. J. Grigor, Lichfield.

From the slight survey I have had of some gardens and pleasure-grounds, I am inclined to think that arboriculture and floriculture are not advancing so rapidly in this quarter as might be expected. A knowledge of these arts being now every where disseminated, I should not only expect to see trees and flowers already in cultivation under superior management, but the introduction, at least, of those finer species of trees, such as belong to the genera *C*ratæ'gus, *S*órbus, Pà*via*, *Æ*'sculus, *A*'cer, &c. I have, as yet, seen no arboretums here; and, in order to create a taste for them, I have taken a piece of ground close to this city, where I intend to plant one of each of the species of my favourite trees. All the sorts of the genus *C*ratæ'gus are most exceedingly beautiful, both when they flower, and when they bear their fruit; and, as I consider them to have been hitherto neglected, I have resolved to advance them in my little collection. I would earnestly recommend the gentlemen of this place, when in London, to visit the Horticultural Society's garden at Chiswick, and the arboretum of Messrs. Loddiges at Hackney, and to note the many new varieties of trees with which they might adorn their pleasure-grounds.

There do not seem to be many trees remarkable for their size in the immediate neighbourhood of Lichfield; but, as I am not yet altogether acquainted with the localities of the place, perhaps I may have overlooked some. "Johnson's Willow," as it was called, famous on account of its being planted by Dr. Samuel Johnson, attained a great size; but it was blown down in 1829. It stood by the side of the road leading from the city to Stowe, in a damp favourable situation. An offset of the old tree was planted on the same site, which is now above 20 ft. high, in a most vigorous state of growth. The admirers of Johnson had the trunk of his willow converted into pieces of household furniture, and snuff-boxes; and the young shoots were planted throughout the surrounding country. This tree, which was so much esteemed, appears to have been the *S*àlix álba.

Among the places I have visited are the following: —

Oldershaw, the Residence of the Rev. Burns Floyer. — This is apparently one of the most ancient seats in this part of the country; and it has all that dignity

about it which old and lofty trees usually confer. The proprietor has, of late, modernised and improved the pleasure-grounds, carefully preserving all the finer specimens, and tastefully blending with them those of more recent introduction. There is a handsome cedar of Lebanon here, which, though not remarkable for its size, is the most vigorous I ever saw; and a common beech, said to be the largest in this part of the country, about 60 ft. high; diameter of the trunk, at 1 ft. from the ground, 7 ft. 2 in.; and that of the space covered by the branches 110 ft. The soil, which is of rich sand, on sandstone, seems to be particularly favourable to the fir and pine tribes; for, in a grove of the *P*ìnus sylvéstris, I observed some trees almost as magnificent as they are to be seen on the mountains of Strathspey, their native abodes. I am convinced that magnolias, and other trees of America, would thrive well here. The few fine exotic shrubs which have been lately planted are in a most healthy state. *R*hododéndron pónticum grows to a great height at this place. The spirited proprietor, I am told, has expended some thousands of pounds, lately, in improving his pleasure-grounds and garden: they are still capable of being beautified; and it is to be hoped that the good work will be completed.

Armitage Park, —— *Leister, Esq.* — A splendid residence, with very varied and extensive pleasure-grounds. The family have been long from home, and there is an air of desolation stealing over the place, that I thought not altogether disagreeable. There is only one individual employed here, and his operations are principally confined within the walls of the kitchen-garden. In the park, there is a common hawthorn, 30 ft. high; diameter of the trunk, at 1 ft. from the ground, 4 ft. 2 in.; and the diameter of the space covered by the branches 45 ft. It is a handsome tree, and, when in flower, must form a very lovely object. In the shrubbery there is a cherry, 48 ft. high; diameter of the trunk, 2 ft. 10 in.

Beaudesert, the Seat of the Marquess of Anglesey. — The kitchen-garden is under the management of Mr. Hodson, who has been here for many years. I was sorry to think that this enthusiast in his profession should toil so ardently on a spot that produces such meagre crops. A great part of the garden lies much too high; and the crops planted in it are every year destroyed by the winds and frosts of spring. The wall trees, even now (May 1.), are thickly covered with laurel branches, to preserve the bloom; and, as Mr. Hodson observed, his neighbours in less elevated spots, though close to him, have fruits and vegetables some weeks earlier than he can possibly raise them. After having seen his plots of vegetables, I examined his pine-pits. The plants seem to be exceedingly healthy; but, as is generally the case, a portion of them is infested by that insect called the *scale*, which had been conveyed to him, he said, on some young plants he had got from His Lordship's gardener in Ireland. Mr. Hodson, I understand, is famed in this quarter for growing pines; and, from the appearance of his pits, it would seem that he is really eminent in this department of his profession.

On the way from the kitchen-garden to the mansion, there is a very large oak, the trunk of which is entirely scooped out by decay. There is a door, as it were, at one side; and the shell is sufficiently roomy to contain eight people standing within it. The late Lady Uxbridge often sat within this tree, and loved to hear

> "The spirit of the winds
> Growling among its boughs."

There is a circular hole in the bark, or shell, of this tree, through which she used to place a telescope, in order to amuse herself by looking at objects in the surrounding country. Though an extraordinary tree, it is by no means to be ranked among the largest in the estate. Being adjacent to the house, it is pointed out to strangers on account of its grotesque appearance, and its being, at one time, the favourite resort of this lady.

The flower-garden is in front of the mansion, and under the care of Mr. Birch. There is much of the magnificence of nature here. Art, too, hath

done her part. The lawn is kept exceedingly smooth, and already appears green and velvety. There are some curious old trees scattered over it (no one knows how old), peculiarly cared for by their noble owner. The flowers had not blossomed; but birds of foreign climes, in gaudy colours, sat here and there upon the grass, basking themselves in the sunshine. When I considered this place, I thought the general curse that was pronounced against the soil had fallen lightly here, it was all so beautiful. Every thing, in short, in this noble demesne bespeaks a refined taste, and almost unbounded wealth. Because the proprietor loves his trees, he will not have them cut down; no matter how great a price they might be worth: as they sprang of the earth, so they are allowed to return thither.

In front of the flower-garden there is a sweet chestnut, 65 ft. high; diameter of the trunk, at 1 ft. from the ground, 6½ ft. The largest trees on the estate are oaks: they stand in an open thinly planted spot, about a mile from the mansion. Near Newee Gate there is one of them, called the *Roan Oak*, of very singular appearance. The branches are almost all decayed, and the efforts of remaining vegetation have wrought all manner of fantastic shapes and figures at the top of the stem: among these, there is a figure of a twisted serpent, and a tolerable representation of a lion cowering. The trunk of this tree is 8 ft. 9 in. in diameter. The *Magu Oak*, which is connected, I believe, with some tale of enchantment, is in a like state of decay: the trunk, which measures 29½ ft. in circumference, is hollow and open. An old woman at an adjoining alehouse told me that the owls and all the spirits of the wilderness gather into this tree in particular, and hold conference in the darkness of the night. The other tree, which stands in a ravine called the *Gutter*, is the largest I ever saw, and, perhaps, the largest in England. The trunk, at 1 ft. from the ground, is 13 ft. 2 in. in diameter. Like the others, it is decayed and hollow, so that a person can walk into it; and it is so roomy within, that the man who accompanied me observed, that, with a little *fitting up*, it might be made to contain his wife and family comfortably!

Elford Park, the Seat of Colonel Howard. — This estate forms a portion of one of the richest plains in Staffordshire. The mansion and pleasure-grounds are beautifully situated on the banks of the Tame, and bear a striking resemblance to some of the pleasant residences on the river side at Richmond. The kitchen-garden is extensive and well kept, and particularly distinguished for its earliness. The flower-garden is laid out after the manner of ancient times, and exhibits a specimen of what is known amongst gardeners as the geometrical style. The scientific gardener here has become well known in this part of the country as a successful competitor at prize flower shows. His collections of auriculas, anemones, and polyanthuses, which are now in flower, are really splendid; and, had I seen them sooner, I should have certainly qualified my previous opinion regarding the culture of flowers in this quarter. In this, as in all the other places, however, the introduction of ornamental trees and shrubs is almost neglected: it would appear that a taste for such a thing has yet to be created. I trust that my endeavour to form an arboretum at Lichfield will be aided by all gardeners and lovers of trees, and that it will stimulate others in this quarter to similar undertakings.

In my next communication I shall enter more into the details of this place, and enumerate the remarkable trees which it contains.

Lichfield, May 1. 1836.

ART. IV. *Notice of a Range of Green-houses recently erected in Barratt's Subscription Botanic Garden at St. John's, Wakefield.* Drawn up from a Communication by Mr. BARRATT.

MR. BARRATT'S Botanic Garden consists of about three acres in the suburbs of the town of Wakefield. Three sides of the garden are bounded

by three streets; and on the remaining side is the large cemetery of St. John's Church, which is planted with trees, and has an excellent effect from the walks in the garden. The terms of subscription are exceedingly moderate:—"For a family (including visiters who live more than four miles from the town), 10*s.* 6*d.* per annum; single subscriber, 7*s.* Each of the above to be entitled to plants of half the amount of subscription. A subscriber of one guinea is allowed the whole in plants."

Fig. 42. is a perspective view of the range of green-houses, counting-house, and seed-shop, which Mr. Barratt has erected; and, in laying it before our

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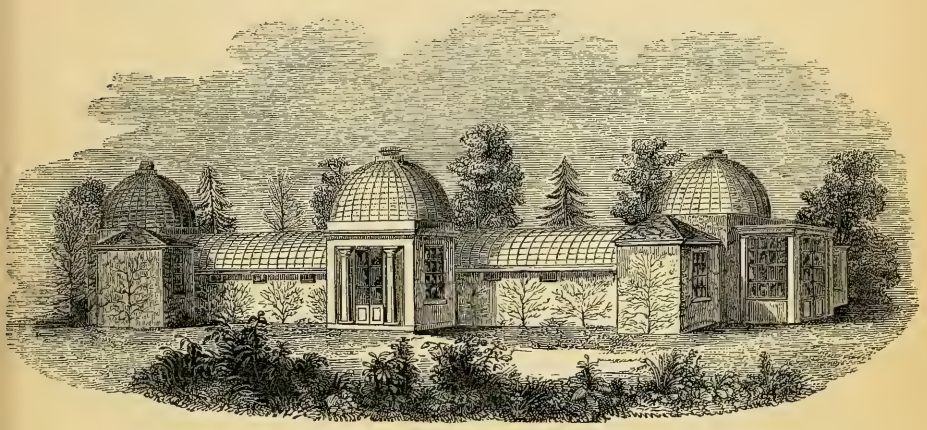

readers, we cannot help expressing our admiration at the general improvement of the taste of commercial gardeners in every part of the country. Thirty years ago, the commonest shed-looking structures were thought good enough for any nurseryman or florist; but now we find them, as in the case of Mr. Barratt before us, vying with the architectural plant structures of the gardens of our first nobility and gentry. The improvement which is taking place in every kind of building throughout the country is indeed astonishing. There is not a shop front, a public-house, a brewery, or a manufactory, pulled down, that is not rebuilt in a superior style; and, besides the effect of all this in contributing to the general ornament of the country, there can be no doubt that the individuals incurring the expense find their interest promoted by it. No improvement, indeed, can be considered as solid, where this is not the case.

We should like to see new nurseries and botanic gardens rising up all over the country like that of Mr. Barratt; and we hope, also, at no distant period, to see bills passed by the legislature, authorising the establishment of public gardens and public institutions in every part of the country, at the expense of all, and for the benefit of all.

In the view before us, *a* represents the entrance from St. John Street; *b*, a seed-shop, with warehouse under *a*, *b*, and *c*; *c*, green-house for ericas and select green-house plants, in flower, for sale; *d*, counting-house, with three windows commanding nearly the whole garden; *e*, centre dome, which is to be made larger than the two end ones, for a camellia and orange house for large specimens; *f*, green-house for camellias (nursing house), geraniums, fuchsias, cactuses, &c.; *g*, entrance from Margaret Street under the dome, filled with large plants; *h*, a reading-room for all the periodicals in gardening, &c.

The roofs of the green-house and domes are formed of iron rafters with wooden sash-bars; on these sash-bars the glass is laid, and the joints covered with lead lap; so that the roof appears, at a distance, as one sheet of glass.

The shape of the green-house roof is curvilinear, and pointed at top, something like a Gothic arch: the whole length of the range of houses is nearly 300 ft.

St. John's, Wakefield, May 2. 1836.

ART. V. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Sir William Jackson Hooker, LL.D., &c.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Paxton's Magazine of Botany, and Register of Flowering Plants; in monthly numbers; large 8vo; 2*s.* 6*d.* each.

Ternströmiàceæ.

2038. CAME'LLIA L. 18166 japónica [Bot. reg. t. 1854
var. *Donckelâ'eri Lindl. Donckelaer's ❀ ⌊_⌋ spl 10 f.my W.Pk Seedling ... I p.l

A remarkably beautiful variety, said to be a genuine Japanese kind, and to have been brought to Holland by Dr. Sieboldt. It is figured from the Clapton Nursery, where plants may be obtained. (*Bot. Reg.*, May.)

Leguminàceæ.

2136. LA'THYRUS 19289 rotundifòlius *Hort. Brit.* p. 313.
†*Synonyme:* *L.* rotundifòlius var. ellípticus *D. Don*, Swt. fl. gard. 2. s. 333.

This is a very beautiful plant; and, as Mr. Baxter has noticed, p. 213., not very common. Our plant at Bayswater, for which we are indebted to the kindness of Mr. Baxter, has this day (May 4.) expanded its first blossom; but, in ordinary seasons, it doubtless flowers some weeks earlier. (*Brit. Fl Gard.*, May.)

1985. LUPI'NUS *Tou.*
*texénsis *Hook.* Texas ○ or 1½ jl Dp.B San Felipe ... S s.l Bot. mag. 3492

This species closely resembles *Lupìnus subcarnòsus*; but it differs somewhat in the foliage, and in having rather a stouter habit. (*Bot. Mag.*, May.)

Rosàceæ.

12926. CRATÆ'GUS orientàlis *Lindl. Bot. Reg.* t. 1852

This sort of *Cratæ'gus* has very dark red fruit; and there are several fine plants of it in the gardens of Fulham Palace, and in the Fulham Nursery; and one as a standard in the southern boundary hedge of the Horticultural Society's garden. Dr. Lindley considers it "the genuine Oriental mespilus of Tournefort, with villous celery-like leaves, and a large purple five-cornered smooth fruit;" distinct from *C.* odoratíssima, and *C.* tanacetifòlia. It is a native of the Crimea, and of parts bordering on the Black Sea. To us it appears to differ from *C.* odoratíssima only in the colour of the fruit; and, as the plant bearing the latter name in British gardens is not at all remarkable for the

odour of its flowers, which are, in fact, less odoriferous than those of the common hawthorn, we think *C.* orientàlis flàva, or pállida, would be a better name for it.

C. *maroccàna* Dec., Sarrour in Arabic (*Bot. Reg.*, t. 1835), is a native of Mount Sinai and St. Katharine; and it is said, though Dr. Lindley knows not on what authority, to be a native of Barbary. Dr. Lindley adds that "it is not improbable that *C.* maroccàna is a mere variety of *C.* heterophýlla, to which it approaches very nearly in some respects. Independently, however, of the form and colour of the fruit, and of the shape of the leaves, by which these species are sufficiently distinguishable, the stipules of *C.* maroccàna are smaller, the growth less vigorous, and the fruit has usually two stones instead of one." (*Bot. Reg.*, May.) To us it appears to belong to *C. Azaròlus.*

Onagràceæ.

1183*a*. GODE'*TIA* Spach.
*rubicúnda *Lindl.* ruddy ○ or 2 jl.au P.Fla California ?1834 S s.l Bot. reg. 1856

A handsome species, found in California by Mr. Douglas; in many respects approaching to G. lépida; but differing from it in the leaves being green, and not glaucous; and in the flowers being twice as large, and of a bright flame-colour at the base of the petals. "It forms an agreeable contrast with G. Lindley*àna*, in consequence of the want of spots, and the peculiarly ruddy appearance of its petals. (*Bot. Reg.*, May.)

Compósitæ.

2335. *SENE'CIO L.*
*ampullàceus *Hook.* flask-*headed* ? ○ or 2 ... Y Texas ?1834 S co Bot. mag. 3487

"A handsome showy species, but too near, perhaps, in the appearance of its flowers, to some of our larger European groundsels, to become a general favourite." (*Bot. Mag.*, May.)

Apocynàceæ.

529. *NE'RIUM L.* [1830 L r.m Paxton's mag. of bot. t. 73.
*4367*a* thyrsiflòrum *Paxton's Mag. of Bot.* thyrse-flowered ❀ ⌴ or 4 to 5 jl.au Rich Pk Nepal

This species is figured from Mr. Tate's Nursery, Chelsea, where it flowered in July, 1835. It was raised from seeds sent, about 1826, from Silhet or Nepal, by Lady Amherst. Mr. Tate says, "upon the authority of several practical botanists, among whom is Mr. Smith at Kew, that it is a distinct species." Judging from the form of the leaves in the drawing, we should think it only a variety: but the flowers in the drawing are so badly coloured, that it is difficult from them to ascertain whether they are distinct from the common species, *N.* Oleánder; of which, in our opinion, *N.* odòrum and *N.* flavéscens are nothing more than varieties. In short, we think that there is only one species known in Britain of the genus *N*èrium. (*Paxt. Mag. of Bot.*, May.)

Hydrophyllàceæ

3292. EU'TOCA *R. Br.* 28077 multiflòra *Hort. Brit.* p. 471
†*Synonyme:* E. Menziès*ii* D. Don, 2. s. Sw. fl. gard. t. 334

Solanàceæ.

3464. *JABORO'SA* J.
*integrifòlia *Hort.* entire-leaved ⚘ or ♃ jl.au W Buenos Ayres ... D p.l Bot. mag. 3489

A creeping-rooted herbaceous plant, likely to prove perfectly hardy. (*Bot. Mag.*, May.)

Orchidàceæ.

2582. ZYGOPE'TALUM *Hook.*
22660*a* *cochleàre *Lindl.* spoon-*lipped* ⸙ ◰ or 1 au Wsh.B Trinidad ... D p.rw Bot. reg. 1857

"Beautiful as all the species of Zygopétalum are, without exception, this is, perhaps, upon the whole, the most attractive; not only on account of the delicate wavy surface of its petals and sepals, and the peculiarly rich veining of the lapis lazuli blue of its lips, but because of its delicious fragrance. If lilies of the valley were growing intermingled with the plants, the air could not be more perfumed with pure and delightful odour, than it is after these curious flowers have unfolded. The engraving was made from a specimen in Mr. Knight's Nursery. (*Bot. Reg.*, May.)

Musàceæ.

746. MU'S*A* 29028 ... chinénsis *Swt.*
†*Synonyme:* M. Cavendíshii Paxton Mag. Bot. t. 51.

This species of Mùs*a*, named, in Paxton's *Magazine of Botany* for April, 1836, M. Cavendíshii, in honour of the Duke of Devonshire, was previously named by Sweet, in the *Addenda* to his *Hortus Britannicus*, published in 1830, Mùs*a* chinénsis. We are informed, in the article accompanying the engraving, that the specific name Cavendíshii was given to it in November last, by A. B. Lambert, Esq., at a meeting of the Linnæan Society, at which he exhibited a copy of an old Chinese drawing, which he believed to be of a plant identical with the species of Mùs*a* now before us. We wrote to Mr. Cameron respecting this plant; and the following is an extract from his answer:—"In answer to your enquiries about the Mùs*a* Cavendíshii, I have to inform you that I have not seen Paxton's figure of the plant, but know from enquiries made of me that it is the same as was grown at Bury Hill. Two plants were sent from the Mauritius by Mr. Telfair, in 1829, to Mr. Barclay, both of which lived, and were the only plants of the species I ever heard of as being in the country, up to the time of my leaving Bury Hill. Mùs*a* chinénsis was the name which Mr. Telfair sent with the plants; and this name was communicated to Mr. Sweet, who published it in the *Addenda* to the second edition of his *Hortus Britannicus*. It was No. 578. Mùs*a* chinénsis, in the catalogue of sale at Bury Hill. Whether any other species had a right of priority to that name, or whether the specific characters of the species had ever been published so as to establish it, I cannot tell. Mr. Telfair mentioned in one of his letters, that he had collected a great number of both species and varieties of Mùs*a* at the Mauritius, to ascertain those most worthy of culture; and that he considered the Mùs*a* chinénsis to be the most desirable, for that purpose, out of all his collection; and, from its also fruiting when only 3 ft. high, he had very sanguine hopes of its being found to prove a valuable addition to the English stoves, where he expected it would fruit abundantly.—*David Cameron. Botanic Garden, Birmingham, May* 12. 1836."

M. Cavendíshii, having been the first name accompanied by a scientific description, must, therefore, according to the laws of botanists, be the future name of this most valuable new sort of Mùs*a*. It grows to the height of 4 ft. or 5 ft.; has a nodding spadix, with brown-red spathes, freckled with white spots; pale yellow petals, the upper one fringed, and the lower one reflexed. The plant at Chatsworth is 4 ft. 6 in. high, with leaves very short and thick, and short petioles. It began to show flowers in November, 1835; and in April, 1836, there were 100 fine fruit, which were swelling off.

Mr. Newman, the curator of the Botanic Garden at the Mauritius, writing to Mr. Cooper, the botanic gardener at Wentworth, in March, 1835, says that he has gathered, from a plant of this species, 240 fruit from a single raceme, in less than a year after planting; and that the fruit is of an exquisite flavour. Mr. Newman has offered plants to Mr. Cooper; and, as the Mùs*a* multiplies with tolerable rapidity by suckers, we have no doubt, from what is stated of it below, that, in a few years, it will be in as general cultivation as the pine-apple. The following passage concludes the account in Paxton's *Magazine*:—

"We have a very healthy plant, which we intend to grow with every possible care; and there is no doubt but a great crop of fruit will be gathered. If our anticipations should prove correct, what a valuable addition this will be to our exotic fruits! A pit 40 ft. long, 15 ft. broad, and 5 ft. high, will produce several hundred weight of fruit in a year, with no other care or attention than that of giving plenty of manure to grow in, and a good supply of heat and water. It will fruit at all seasons, and, no doubt, with easier culture than any kind of fruit grown under glass." (*Paxt. Mag. Bot.*, April.) Plants of this species are in Rollisson's nursery at Tooting, and are 5 guineas each.

Asphodelàceæ.

1053. *O*RNITHO'GALUM *L.* [O r.m Bot. reg. t. 1853
*chloroleùcum *Lindl.* greenish-white-*flowered* ♂ ⎽⎽ or 1 jl Gsh.W Valparaiso ? 1834

A frame bulb, introduced by Mr. Cuming, and other collectors; the figure is taken from a specimen supplied by Robert Mangles, Esq.

1052. GA'GE*A* Sal. 8747 uniflòra *G. Don*, Hort. Brit. p. 134
Synonyme: Orythỳia (the fabled wife of Boreas) uniflòra *D. Don*, Swt. fl. gard. 336

The following reasons are given by Professor Don for changing the name of this plant from Gàge*a* to Orithỳi*a*: —

" I have followed the suggestions of Professor Ledebour, in removing this species, and oxypétalum, from amongst the *O*rnithógala, with which they have been hitherto generally associated. They appear to form, alo g with Rhinopétalum, the connecting link between the *L*iliàceæ proper, and *A*sphodèleæ. They have entirely the habit, and many of the characters, of *Tùlipa*, from which they are principally distinguished by their distinct and elongated style. The present species has been even referred to *Tùlipa* itself by Gebler, under the trivial name of altàica; and, indeed, it is so like the single-flowered specimens of *T.* biflòra, that it might readily be overlooked for that species, which, moreover, exhibits, in the attenuated apex of its ovarium, a striking approximation to the style in this genus." (*Swt. Fl. Gard.*, May.)

We admit that this change is made in strict accordance with the theoretical canons generally acknowledged by botanists; viz. that the characters of a genus should be taken exclusively from the parts of fructification (Lindl. *Introd. to Bot.*, ed. 1. p. 367.); but, surely, there must be something defective in this system of forming genera, when a plant so obviously, to general observers, a tulip, and which, perhaps, after all, may prove to be only a variety of the common species (for, even according to botanists, it differs from the tulip principally in having a distinct and elongated style, doubtless very different from the common tulip, which has a sessile stigma), is made a separate genus. It appears to us, that there is almost no end to the genera that might be established on this principle, taken singly, unless it be controlled by some other principle or principles. Not to speak of plants in cultivation, such as the peach, in which the fruit, in some varieties, is smooth, and in others downy; in some rich in flesh, and in others, as the almond, with a mere husk; let us take the common hawthorn, which is found in a wild state with flowers having one, three, or five styles; and which ought, therefore, not only to be formed into three genera, but these genera ought even to be classed in three separate orders. Many instances of the same kind might be mentioned; but it is unnecessary to go into detail. What we would wish is, to see genera founded on the same general principles that tribes and orders are founded; that is, upon a totality of characters and their relations. Let the parts of fructification, as being the most important for the continuance of the species, be first considered, after its anatomy and physiology, but not before, for these are the most important for its existence. Thus, the branching, rooting, leafing, &c., would be taken into consideration as well as the flower and fruit. This would no doubt lead to very great changes: we should no longer have plants in the same genus both decidedly ligneous and herbaceous, as in *S*olànum; lofty trees and twining shrubs, as in *R*hús; plants with pinnated leaves, and simple leaves, as in *P*ỳrus, &c. We think this would contribute greatly to facilitate the knowledge of plants, and, as it were, effect for the practical botanist and gardener what the natural arrangement has done for the scientific student. In all this we may be mistaken; and we shall, perhaps, be told, that it is merely a question between the value of synthesis and analysis, or between botanic genera and natural genera. Be it so: but let it always be recollected, that we throw out hints of this kind as matter of speculation, and for the consideration of others, with the most perfect good feeling, and with all due deference to those who know more than ourselves on this subject.

Since writing the above, Mr. Denson has reminded us that Dr. Lindley has suggested something analogous to our speculation in the *Botanical Register* for September, 1826; to which we may add that something farther may be found on the same subject in that work, t. 1261., under the character and description of Lòwe*a berberi*fòlia.

REVIEWS.

Art. I. *Royle's Illustrations of the Botany, and other Branches of the Natural History, of the Himalayan Mountains, and of the Flora of Cashmere, &c.;* Parts VI., VII., VIII., and IX.; completing the work as far as p. 336. of the Illustrations of the Natural Orders; each part contains nine beautifully coloured plates. Folio. London. 20*s.* each part.

We are happy to find this admirable work brought near a conclusion, which will be effected, we believe, by Part x. The letterpress of No. ix. carries it on to Artocárpeæ, which is the 154th natural order. We propose, at some future time, to notice the information given under these different orders more in detail; at present, we shall confine ourselves to one or two short notices of facts stated in the work; one of the most remarkable of which is, that tobacco is actually grown in India, and sent to the London market, where it can be sold at as low a price as 8*d.* per lb.! This branch of industry alone, if pursued with vigour, will contribute wonderfully to extend the commerce of the East; and, whatever increases the commerce of any one country, necessarily influences in a beneficial manner the commerce and prosperity of every other.

Among the plants useful in Britain, the *R*hèum austràle is noticed. "The roots of rhubarb secrete the peculiar principle of rhabarbarin, possessing properties which make them useful as purgative medicines; but these are also accompanied by astringent properties, while the stalks secrete acid, chiefly acetic and tartaric, with oxalate of lime (Fée), oxalic acid (Turner). This is most fully developed in sorrel (*R*ùmex Acetòsa and Acetosélla); while the astringent principle dependent on the presence of gallic acid and tannin, in many of the roots of the *P*olygòneæ, is most fully secreted in Coccóloba uvífera." (p. 317.)

The buckwheat (Fagopỳrum esculéntum and tatáricum), which is grown in several parts of Europe, is cultivated in the Himalayas along with F. emarginàtum. "The two first are, no doubt, originally inhabitants of the mountains of Central Asia, and were first known in Europe under the name of 'frumentum Sarracenicum.' Both are much cultivated in Russia and Siberia: the first is usually preferred in other parts of Europe; but the second grows in every soil, and requires less time. Professor De Candolle says, it is preferred to F. esculéntum in Piedmont, in the Luzerne valley, because it ripens quicker; and, therefore, it is much grown in late years, and at high elevations in the Alps. In the Himalayas, Fagopỳrum esculéntum (paphra and kooltoo of the natives) is also most commonly cultivated; but F. emarginàtum (ogla), which comes very near the Linnæan specimens of F. tatáricum, is preferred in higher and drier cli-

mates, as in Kunawur. Thus, the more closely we examine the distribution of plants, and the agriculture of different countries, the nearer do we observe the correspondence in practical results among those that participate in the same peculiarities of climate; and we cannot but admire the bounty of Nature, which affords, even in what appear sterile wastes, some article fitted for the food of man, and suited to the climate, with others that are adapted for commerce; as buckwheat, borax, musk, and rhubarb, from the three kingdoms of Nature, in the cold, bleak, and arid plains and mountains of Tartary." (p. 317.)

This last quotation affords a specimen of the masterly generalisations which Mr. Royle occasionally introduces, when treating of plants common to the Himalayas, and other parts of the world.

Among the plates in Part IX. are, *Elæágnus* parvifòlia; four beautiful species of *Euphórbia*; *Pìnus Khútrow*, apparently a new spruce fir; *Quércus* dealbàta, of which beautiful species there are plants in the Horticultural Society's garden; *Pìnus* longifòlia and Geraldìàna, proper pines; and *Àbies Píndrow*, a splendid new silver fir. There are, also, the *Cròcus* of Cashmere, *Ìris* nepalénsis, and various other interesting plants.

Art. II. *The Use of crushed Bones as Manure.* By Cuthbert William Johnson, Author of "An Essay on the Employment of Salt in Agriculture," &c. Pamph. 8vo, pp. 16; third edition. London, 1836.

The use of bony matters as manures originated in the neighbourhood of Sheffield, towards the conclusion of the eighteenth century; the farmers being allowed, at first, to carry away the bone rubbish for nothing; but afterwards, when it was found of some value, a small charge per load was demanded by the manufacturers from whom the rubbish was obtained. The use of bones as manure did not become general till the Doncaster Agricultural Association published a circular letter of enquiry, about ten years ago, which directed the attention of the public to the subject.

Such is the essence of the historical introduction given by Mr. Johnson. He next examines, — 1. The composition of bones; 2. The component parts of bones found in vegetable substances; and 3. The effects of, and the modes of applying, bones, either broken, crushed, or in the state of powder, or bone dust.

1. "The bones of animals do not vary much in composition: they all contain phosphate of lime, and carbonate of lime, with a portion of cartilage or animal matter, with other minor ingredients." (p. 5.)

2. The cartilage of bones is composed of a substance nearly identical in all its properties with solid albumen.

One hundred parts of albumen are composed of

	Parts.		Parts.
Carbon	52·888	Azote	15·705
Oxygen	23·872		
Hydrogen	7·540		100·

It is perfectly needless to specify any vegetable substances into which the three first of these enter; for the vegetable world is almost entirely composed of them, and occasionally, though rarely, a portion of azote is also found in vegetable substances, but the three first are invariably present. The flour of wheat, the poison of the deadly nightshade, the oxalic acid of the wild sorrel, the narcotic milk of the lettuce, the stinking odour of the garlic, and the perfume of the violet, are, by the contrivance of their Divine Architect, only some of the results of the combination in different proportions of carbon, oxygen, and hydrogen.

But the chief constituent present in all bones, we have already seen, is the phosphate of lime; and how absolutely necessary this substance is for the healthy vegetation of plants, will be apparent from the following table, which contains the results of the examination by MM. Saussure and Vauquelin, and a few other distinguished chemists, of the ashes, or solid contents, of a number of vegetable substances.

One hundred parts of the ashes of the

	Parts.		Parts.
Grain of the oat yielded of phosphate of lime	39·3	Leaves of oak	24·
Straw of wheat, phosphates of lime and magnesia	6·2	Wood of oak	4·5
Seeds of wheat	44·5	Bark of oak	4·5
Bran of wheat	46·5	Leaves of poplar	13·
Seeds of vetches	27·92	Wood of ditto	16·75
Seeds of golden rod (Solidàgo Virgaúrea)	11·	Leaves of hazel	23·3
Plants of turnsole (Helián-thus ánnuus)	22·5	Wood of hazel	35·
Chaff of barley	7·75	Bark of hazel	5·5
Seeds of barley	42·5	Wood of mulberry	2·25
Seeds of oat	24·	Bark of mulberry	8·5
		Wood of hornbeam	23·
		Bark of hornbeam	4·6
		Seeds of peas	17·5
		Bulbs of garlic	8·9

Phosphate of lime has also been found in the common bean (*Vícia Fàba*), and in the pea pod, or husk, by Einhof; in rice, by Braconnot; in the Scotch fir, by Dr. John; in the quinquina of St. Domingo, by Fourcroy; in the fuci, by Gaultier de Claubery; and in many others. In fact, as Dr. Thomson remarks, *System of Chemistry*, vol. iv. p. 319., "phosphate of lime is a constant ingredient in plants."

The cultivator of the soil will not be incredulous as to the power of vegetables to dissolve and feed upon the hard substance of the crushed bones of animals, when he is reminded that the ashes of the straw of wheat are composed of 61½ per cent of silica (flint), a still harder substance than the hardest bone. And this is not a solitary instance; for the same earth abounds in a still greater proportion in the straw of other grain. Vauquelin found 60⅝ per cent of it in the ashes of the seeds of the oat; and the Dutch rush (*Equisètum hyemàle*) contains it in such abundance, that it is employed by the turner to polish wood, and even brass. (See *Mag. Nat. Hist.*, vol. v. p. 178.)

3. The returns received by the Doncaster Association established the efficacy of bones as manure, more especially on

light soils; and Mr. Johnson's pamphlet concludes with the following general directions for their use:—

The crushed bones have been invariably found more immediately beneficial as a fertiliser, when suffered to remain previously for some weeks, mixed with earth in heaps, exposed to the action of the atmosphere. By being thus fermented and dissolved, they are necessarily more speedily serviceable as food to the plants to which they are applied; and this observation more especially relates to the oat, barley, and other spring corn, since these do not remain on the ground for so long a period as other agricultural crops. The proportion is 50 bushels of bones, with five loads of earth or clay; or 40 bushels to five loads of common dung.

For wheat, and pasture lands, the previous fermentation of the bones is, for this reason, not so essential to the production of immediate benefit.

It is impossible to give any general directions for the quantity of bones to be applied per acre, since soil, situation, and climate, must all be taken into the farmer's consideration.

The following facts, however, have been ascertained by numerous experiments, at some of which I have personally assisted:—

1st. That crushed bones remain in the soil for a length of time proportionate to the size of the pieces; the dust producing the most immediate effect, the larger pieces continuing to show the longest advantage. On arable land their good effects continue for four years; on pasture land for eight.

2dly. On turnips, oats, barley, and wheat, the quantity applied has been from 25 to 30 bushels, per acre; on pasture land, from 25 to 40 bushels of bone *dust*, early in the spring.

3dly. The best mode of application is by the drill, with the seed corn.

4thly. The bones should, when first used, be always applied for the sake of correct information, in varying quantities per acre; and on no account should the farmer omit to leave, by way of comparison, a fair portion of the field without any manure.

Mr. Johnson deserves the thanks of the public for having produced this useful pamphlet. We wish we could impress upon gardeners the value of bones as a manure; because there is not a gentleman's gardener in Britain who cannot command a certain quantity of them, which are at present lost for every useful purpose. The bones could be deposited in the back sheds, and broken by the men during wet or inclement weather; and afterwards fermented in the compost ground with common garden earth. In the composition of vine borders, powdered bones, which have been fermented, form a most valuable ingredient.

ART. III. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the more interesting.*

CATALOGUE, et Prix-Courant pour 1836, *de la Collection de Plantes de L. Jacob Makoy, Horticulteur, Rue Neuville sur Avroy, à Liège*, contains 48 printed pages, and is chiefly rich in stove plants. Of Orchidàceæ alone M. Makoy reckons above 200 species, varying in prices from 2 to 100, and even 150, francs a plant; which last price is that charged for Oncídium macrobul-

bòsum. The collection of green-house plants is very considerable, and, we believe, one of the best on the Continent. There are some herbaceous plants enumerated, and a selection of roses and dahlias.

The Annual Catalogue of Fruit and Hardy Ornamental Trees, Shrubs, Herbaceous Plants, &c., which are cultivated for Sale in the Nursery of William Kenrick, Nonantum Hill, in Newton, near Boston, occupies 42 pages, and has an appendix of 4 pages on the culture of the mulberry and the management of the silkworm. The principal articles contained in this nursery are fruit trees, and showy ornamental plants and shrubs. The price of every article is given; a practice which, we think, might be advantageously imitated by British nurserymen.

The New American Orchardist, or An Account of the most valuable Varieties of Fruit Trees of all Climates, adapted to Cultivation in the United States, with their History, Modes of Culture, Management, Uses, &c.; and The Culture of Silk. With an Appendix on Vegetables, Ornamental Trees, Shrubs, and Flowers. By William Kenrick. Small 8vo; second edition, enlarged and improved. Boston, 1835.

We have before noticed the first edition of this work: that now before us appears to have been carefully revised, and to have received numerous additions and improvements from recent European works. A chapter on the use of fruits for food and health is added; and "the list of fruits, although so complete in the former edition, is yet in this greatly improved, and especially of those fine new Flemish kinds; and others now added, which have been so lately proved at Chiswick by Mr. Thompson, or, more latterly, approved with us." (*Advert.*) It is highly gratifying to find a nurseryman so thoroughly acquainted with the science of his art, and capable of producing so very useful a work.

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

A Measuring Chain of 50 ft., containing 100 Links of 6 in. each, in all respects on the same principle as Gunter's chain, except its length, has been found peculiarly useful in measuring ground for the purpose of making a plan of it. The reason is, that all the operations upon ground connected with gardening are measured by yards, feet, and inches. — *George Harland. Gateshead Nursery, April 23. 1836.*

A Pruning Hook for Vines (*fig.* 43.) has been sent us by Mr. James Bamford of Hendon, Middlesex, who has planted a vineyard at Hendon, and who finds the hooked part of this knife useful in preventing the point from injuring adjoining shoots. We hope Mr. Bamford will favour us with some account of

his vineyard, his mode of managing it, and the particular advantages he derives from this instrument.—*Cond.*

The common Bramble of our Hedges (*Rùbus fruticòsus*), and, doubtless, all the numerous varieties of it, are found to be as effective in tanning leather as the oak bark. That the genus *Rùbus* contained a good deal of the tannin principle, has long been known; but it is only lately that this knowledge has been turned to any practical purpose. A patent has been taken out for its use.

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A new Portable Flour-Mill has been invented, entitled *Hebert's Domestic Flour-maker*, which, for simplicity, durability, and for not being liable to go out of repair, appears far to surpass every thing of the kind that has hitherto been made public. For small farmers, for market-gardeners who grow a little wheat, and for emigrants, it will be invaluable. We have seen it at 20. Paternoster Row, London, and had some wheat ground in it. A description of this machine, accompanied by an engraving, is given in the *Mechanic's Magazine* for May the 7th, which may be purchased for 3*d.* by any reader who wishes for farther information.

Glass Tubes, instead of Cast-iron ones, have been used for circulating hot water in green-houses at Vienna. The tubes are about 3 in. in diameter, and 3 ft. long; and the glass, which is of the quality of British crown glass, is a quarter of an inch thick: the tubes are joined by bands of brass and cement. Their appearance is most elegant; and, if not broken by accident, there can be no doubt of their durability. Our correspondent, M. Charles Rauch, has sent us a design and description of a house heated in this manner, which we intend to publish in our next Number.

Nurserymen who are desirous of extending their connexions on the Continent, may now go from London Bridge to Frankfort on the Main, by steam and track-boats, in a week's time, and at an expense, every thing whatever included, under 10*l.* A correspondent, who has just been there and returned, states that the waiters and others speak English at every inn that he had occasion to stop at, except at one inn at Dusseldorf; so that there can be no difficulty in point of language.

Art. II. *Foreign Notices.*

BELGIUM.

Names of some of the principal Gardens and Gardeners in Belgium. — Nurserymen: M. Verleeuween has a fine collection of stove, green-house, and hardy plants, including a collection of *O*rchidàceæ, and a superior collection of the Belgian kinds of azalea, &c. Messrs. Van Geert have a fine collection of stove plants, including *O*rchidàceæ, and the rarer species of *C*actàceæ. There is also a fine collection of choice camellias; and the garden is rich in magnolias, azaleas, &c., and Australian and other choice green-house plants. M. Varschaffelt's very superior nursery contains many rare and handsome species of stove, green-house, and hardy plants. He has a fine collection of magnolias, azaleas, &c.; and has a house exclusively devoted to his collection of *O*rchidàceæ. These and several other nurserymen are very spirited, and cultivate with success large collections of choice plants: they are, in regard to extent and variety of rare and valuable species, superior to most of the London nurseries; of course excepting Messrs. Loddiges, and two or three other collections, which it would be erroneous to compare with them. Their nurseries have no pretensions to elegance or novelty in their arrangement; utility being the first object. In their hot-houses, green-houses, &c., they have their stages constructed so as to hold an immense number of small plants in 48-sized and 32-sized pots; and, except in very choice species, they do not allow space to large plants, the severity of the winters obliging them to shelter many evergreen shrubs which live and flourish in our gardens and shrubberies. In their love for and knowledge of plants they are happily very different from many who, in England, assume the name of nurserymen, grossly ignorant of the history and wonders of the vegetable kingdom, loving their plants as the coal-merchant loves his coals, merely as a source for procuring wealth.

M. Mechelyneck (a private gentleman) has a first-rate collection of plants, particularly of stove plants. His *O*rchidàceæ, and other expensive plants, must not be compared to the groups of hybrid *C*actàceæ, *P*elargònium, &c., which seem to be the only objects some collections can boast of. You may travel several English counties through, without meeting with as many really interesting species.

Mr. ———, near Mr. Maddison's, has a good garden, several houses for plants, and a handsome grafted specimen of *R*hododéndron arbòreum (true), which has produced numerous flowers during the last six or seven years, and will be very fine this spring. In the shrubbery near the dwelling-house are fine specimens of magnolias. Magnò*l*ia macrophýlla is equal to, if not larger than, the plant at Chiswick (Duke of Devonshire's); and there are several very large specimens of azaleas, rhododendrons, and other choice shrubs, in the shrubbery.

M. Buyck Vandermaersh (an amateur) has a fine collection of green-house plants, camellias, rhododendrons, pæonias, &c., in a very small garden; a real *multum in parvo*. Besides these, there is a great number of market-gardeners and nurserymen, chiefly growers of camellias.

Here they have a public sale, or auction, of plants almost every day, at certain times of the year; several good plants are offered, and, in general, sold, for more than they would bring in Covent Garden Market. There is in progress, and will soon be finished, an elegant and extensive building for the use of the Agricultural Society, its library, museum, &c., in outline not unlike the new National Gallery now erecting in Trafalgar Square.

In Ghent, the nurserymen, gardeners, amateurs, and all lovers of plants and gardening, frequent an inn in a fashionable part of the town, where they have a large room for themselves, and where, in good social company, they discuss matters connected with their profession, or pass an hour at card-playing or the like. With few exceptions, they all attend; and on Sunday nights as well as others.

At Brussels, a private gentleman, M. Vander Maelen, has two splendid stoves, with green-house, &c., richly stocked with choice plants (the plants of which you have, no doubt, seen), particularly palms and *O*rchidàceæ. They are attached and parallel to one side of his dwelling-house; and you enter from the large stove into a museum of natural history, containing collections of reptiles, corals, and insects; some beautiful specimens of butterflies, brought by his collector from Brazil; and also shells, a collection of minerals, fossils, &c., in beautiful order. In an adjoining room is a geographical library, with globe, maps, &c.; and in this room is kept a book for entering the names of all visitors. M. Vander Maelen showed us every thing himself with the greatest kindness. He had two artists taking drawings of two species of Stanhòpe*a*, which were then in flower in his large stove. His gardener is an intelligent young man; and, at the request of M. Vander Maelen, went to show us the botanic garden and other collections in the vicinity of Brussels. M. Vander Maelen's garden is first rate; his stoves are splendid, and he is enthusiastically attached to natural history. He is a correspondent of Mrs. Marryatt, Wimbledon; but is not acquainted with any of our leading men in botany and other branches of natural history. You will be delighted to visit his place, which is close to Brussels, à la Porte de Flandres. M. Vander Maelen had a collector two years in Brazil; and he showed me the young man whom he sent there, and who was working in one of his stoves. His green-house plants are also very fine.

M. Rynders, a private gentleman (St. Josse, Tennoode), has a fine collection of stove and green-house plants, and in most beautiful order; a splendid collection of camellias (more healthy handsome plants we have not seen); a very select collection of green-house plants, in the very best health and vigour; as Telòpea, Enkiánthus, Oxylòbium, Davièsi*a*, Bánksi*a*, Dryándr*a*, E*'*pacris, &c. Bánksi*a* Brówni was 8 ft. high, and most of the new species were very fine. His collection of *O*rchidàceæ, which fills a neat small stove, is surpassed by very few private collections in England; and is decidedly far superior to many collections we could name that are considered first-rate in this country. The appearance of this collection at once shows M. Rynders's gardener to be an excellent cultivator; and M. Rynders spares no money to accommodate his plants. Although his houses are not so large as many others, they are well adapted to the successful cultivation of good plants; an object often lost sight of by many in erecting hot-houses. M. Rynders is a very free and affable gentleman, and is much pleased by a visit from any one who understands his favourite study and amusement.

Baron Van Volder, near Brussels, has a good garden, which I did not see.

Botanic Garden, Brussels. In the large and splendid stove conservatory, which, with the adjoining house, forms a range of glass superior in effect to anything we have ever seen, and which, from the Boulevards, is particularly grand and imposing, there is an extensive collection of stove plants: the most remarkable to us are the following: — *Gomùtus* sacchárifer, 50 ft. high; *C*aryòta ùrens, 46 ft. high, stem 1½ ft. diameter, 15 ft. to the first frond, a very noble plant; *E*'late sylvéstris, large and handsome; Cárica *Papàya*, 40 ft. high, in flower; Cecròpi*a* peltàta, 25 ft. high; and *Bambùsa a*rundinàcea, which had grown 36 ft. in less than three months. The green-house and stoves generally are filled with plants now considered in England as of little value; and the want of funds is, no doubt, the cause of much that requires reformation in this fine place. The water to the houses is pumped from a pond at the bottom of the garden by a steam-engine, for which there is a fine engine-house erected; and we saw the engine at work. The grounds require considerable alterations to make them look suitable to this intended fine garden.

We had not time to see the king's collection at Läcken; and, when we tell you that we arrived in the morning, and left at four o'clock in the afternoon, you will excuse the dryness of the above remarks. We again passed through Brussels returning from Louvain, but had not time to see any gardens.

At Louvain, the botanic garden is rich in stove plants. The great circular stove conservatory has a fine effect; the plants are in good order, and contain many rare and interesting species. Here is a fine specimen of *Opúntia cochinillífera*, covered with the insects. The green-house contains several new and interesting plants; but the majority of the plants are from the Cape; and those from New Holland are of kinds now considered less valuable, although, to a botanic garden, all species are interesting. Want of time prevented our paying that attention to this rich collection which it deserves. M. Donkelaar, the curator, is son of the late curator, our excellent friend M. Donkelaar, sen., now curator of the botanic garden, Ghent. I was also recommended to call on Mynheer Dondegein, MM. Provis, Le Roi, and W. Mertens; but these I did not find time to see.

M. Schraymaker has a town garden containing many rare plants; a fine green-house, camellia-house, and small stove. His camellias are very fine; his green-house plants are, also, very neat and healthy; and his stove is filled with *Orchidàceæ* and the more rare species of *Cactàceæ*, much prized in the collections here and in Germany. This gentleman has also a fine collection of herbaceous plants, as *Gentiàna* bavárica, *G.* vérna álba; *Cyclamen*, rare species, &c.: a very interesting collection of plants, in a very small piece of ground.

The Botanic Garden, Ghent, is now undergoing a series of alterations and improvements under the skilful management of M. Donkelaar, sen., who has already got the extensive collection of stove plants in excellent order. This garden contains many species, the most interesting of which are among the stove plants. Dr. Sieboldt introduced from China and Japan several interesting species, which I will notice at another time. There are the finest specimens of *Chamæ'rops hùmilis* and *C.*? sp. we have ever seen: they must be very old. The trunks are 6 ft. high, or more, below the first fronds. The trees in the arboretum contain nothing that is very remarkable; but, in a few years, this will be much altered for the better.

Trees, as Objects of Ornament, in Belgium, are nothing to be compared to the same in England. There is little like landscape attempted; and the Belgians have no idea or ambition, in general, for such things, as far as I have seen. I met the Duc d'Aremberg's gardener, a German, at Louvain, who invited us to accompany him to Enghien, where there is a splendid park belonging to the duke. I intend writing to him soon, and shall then enquire the particulars. — *A. S. Jan.* 3. 1836.

NORTH AMERICA.

Albany, Nov. 25. 1835. — I have been to-day to see an exhibition of cheeses, of so extraordinary a character, that I venture to send you a brief account of them. There were ten of them, one weighing more than 1400 lb., and the other nine exceeding 700 lb. each. They were all, with others like them, from the dairy of Col. T. M. Meacham, of Oswego county, in this state. The largest one is destined as a present to the President of the United States; two of the others to the Vice-President and the Governor of this state; three to the cities of New York, Albany, and Troy; one to Daniel Webster; and the others to distinguished individuals. They are covered with cloth cases, fancifully decorated with devices, inscriptions, and paintings, and transported in boxes. The weight of the ten cheeses is between 7000 lb. and 8000 lb. Probably there was never so extraordinary a production of a single dairy exhibited in this or any other country. — *J. Buel.*

AUSTRALIA.

Most of our readers will, doubtless, have seen, in the newspapers, an announcement of the death of Mr. Richard Cunningham, the colonial botanist, while accompanying Major Mitchell's expedition into the interior. The first arrivals announcing this event, brought few or no particulars respecting it; and, therefore, we refrained from saying anything on the subject in our last Num-

ber, till we could obtain an authentic account. Such an account has, however, not yet arrived in England; but we are enabled to give some particulars from the *Literary Gazette* of April 2., by which it appears that this amiable man may, possibly, be yet alive. In the report which first reached England, it was stated that Mr. Cunningham was killed; but it is most gratifying to learn, that there is no evidence whatever to prove that this has been the case. It appears that, in an early stage of the expedition, Mr Cunningham wandered from the party, in pursuit of plants, near the head of the Bogan river. "After an anxious search," says Major Mitchell, "of twelve successive days, during which period the party halted, his horse was traced till found dead, having still the saddle on, and the bridle in his mouth. It appeared, after losing his horse, he had directed his own steps northward: we traced them into the Bogan, and westward along the bed of that river, for twenty miles, and until they appeared near a recent encampment of natives. There a small portion of the skirt of his coat was found, also some fragments of a map, which had been seen in his possession. There were two distinct tribes of natives on the Bogan; but from those with whom the party had communication we could learn nothing of his fate. Whether Mr. Cunningham really survives, or not," adds the surveyor-general, "his absence has made a melancholy blank in our party, and has certainly caused a serious loss to science.

The report the surveyor-general gave, upon his return to head-quarters, of the loss of the botanist of his expedition, did by no means satisfy the numerous friends of that unfortunate gentleman in the colony. Letters appeared in the colonial prints, calling upon the local authorities to prosecute a farther search for Mr. Cunningham, who, it was firmly believed, from his known benevolence of disposition, his conciliatory manners, and philanthropic feeling towards the aborigines in the settled colony, might still exist. The tact he had, on all occasions, so abundantly at command, to influence the savage into whose hands he might at any time fall, in his wanderings in pursuit of plants, by identifying himself with him, and adopting his habits, fully confirmed this hope. A long month, however, elapsed before the colonial government, urged by the pressing and repeated calls of the inhabitants, and by the public prints, thought it necessary to prosecute another enquiry. Sir Richard Bourke, we learn, has now directed another and a stronger party to proceed to the Bogan river, to search far and wide for Mr. Cunningham; His Excellency conceiving that (as he had heard the story of a white man, named Buckley, a runaway convict of 1803, having been recently discovered at Port Philip, with a numerous body of natives, among whom he had lived thirty-three years, and had become an influential chief) it was just possible the colonial botanist might be detained a prisoner by one of the Bogan tribes, and, therefore, might be recovered to civilised society, and to the duties of the appointment he held. The party were to proceed on this interesting service in November last; and the next arrival from New South Wales may bring us the results of the second search that had been instituted." (*Literary Gazette*, April 2. 1836.)

The above account contains nearly all the particulars regarding Mr. Richard Cunningham that are at present (April) known in England. An undoubted authority, however, adds, "I would just correct a little error regarding a date that will be seen at the close of the account in the *Literary Gazette:* the party despatched in search of Mr. Richard Cunningham (of whom the belief was prevalent in Sydney that he might be still living, and recoverable,) consisted of an officer of mounted police, and a detachment of his men; and they proceeded on that anxious service early in October last (not November); but, at the date of the last communication from Sydney (the 17th of November), no tidings had been received at head-quarters of their success. We are looking daily for the arrival of ships that left in December, to give us the result of the second search: by which vessels the government will, doubtless, receive despatches to say that Mr. Richard Cunningham still lives, and has been restored to the society of his friends; or, that evidences were discovered

in the wilds where he had separated himself from the party, at the head of the Bogan river, of his having entered on

> 'That undiscover'd country, from whose bourn
> No traveller returns!' "

March 14. 1836. — Since the above was set up in type, an arrival from our distant colony has taken place, by which the Right Hon. the Secretary of State has received a despatch from the governor, Sir Richard Bourke, dated 30th of November last, from which the following paragraph is extracted: —

" I have now to inform Your Lordship, with great regret, that I have ascertained, by means of a party sent out to seek for Mr. Cunningham, that he was murdered by the black natives soon after his separation from his companions. The circumstances of the case have not been yet (officially) reported to me, but will be communicated as soon as received. — *R. Bourke.*

Art. III. *Covent Garden Market.*

	From £	s.	d.	To £	s.	d.
The Cabbage Tribe.						
Cabbage, per dozen:						
White	0	1	6	0	2	6
Plants, or Coleworts	0	4	0	0	6	0
Broccoli, per bunch:						
White	0	2	6	0	4	0
Purple	0	2	0	0	3	0
Legumes.						
Peas, forced, per punnet	0	5	0	0	7	0
Kidneybeans, forced, per hundred	0	3	6	0	5	0
Tubers and Roots.						
Potatoes, per ton	6	0	0	7	10	0
Potatoes, per cwt.	0	6	0	0	7	6
Potatoes, per bushel	0	3	0	0	4	0
Kidney, per bushel	0	3	0	0	3	6
Scotch, per bushel	0	3	0	0	4	0
New, per pound	0	2	0	0	2	6
Carrots, old, per bushel	0	2	6	0	3	6
Young, per bunch	0	0	10	0	1	0
Horn, per bunch	0	1	0	0	1	6
Parsneps, per dozen	0	1	0	0	2	0
Red Beet, per dozen	0	0	9	0	1	6
Skirret, per bunch	0	1	6	0	0	0
Scorzonera, per bundle	0	1	6	0	0	0
Salsify, per bunch	0	1	6	0	0	0
Horseradish, per bundle	0	1	6	0	4	6
Radishes, Red, per dozen hands (24 to 30 each)	0	0	6	0	0	8
White Turnip, per bunch	0	0	1	0	0	1½
The Spinach Tribe.						
Spinach, per sieve	0	0	9	0	1	3
Spinach, per half sieve	0	0	6	0	0	9
Sorrel, per half sieve	0	1	6	0	2	0
The Onion Tribe.						
Onions, old, per bushel	0	15	0	1	0	0
Onions, when green (Ciboules) per bunch	0	0	5	0	0	6
Garlic, per pound	0	0	8	0	1	0
Asparaginous Plants, Salads, &c.						
Asparagus, per hundred:						
Large	0	5	0	0	6	0
Seconds	0	2	6	0	3	6
Middling	0	1	6	0	2	0
Small	0	1	0	0	1	6
Lettuce, per score:						
Cos	0	1	0	0	1	6
Cabbage	0	0	6	0	0	9
Celery, per bundle (12 to 15)	0	1	6	0	2	0
Small Salads, per punnet	0	0	2	0	0	3

	From £	s.	d.	To £	s.	d.
Pot and Sweet Herbs.						
Parsley, per half sieve	0	3	6	0	5	0
Tarragon, dry, per doz. bun.	0	4	0	0	0	0
Fennel, green, per dozen bunches	0	2	0	0	0	0
Thyme, green, per doz. bun.	0	3	0	0	0	0
Sage, green, per doz. bunches	0	3	0	0	0	0
Mint, green, per dozen bun.	0	4	0	0	0	0
Peppermint, dry, per dozen bunches	0	1	0	0	0	0
Marjoram, dry, per doz. bun.	0	4	0	0	5	0
Savory, dry, per dozen bun.	0	3	0	0	0	0
Basil, dry, per doz. bunches	0	6	0	0	0	0
Rosemary, green, per dozen bunches	0	4	0	0	0	0
Lavender, dry, per doz. bun.	0	2	6	0	0	0
Tansy, green, per doz. bun.	0	1	6	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Rhubarb Stalks, per bundle	0	0	5	0	0	9
Edible Fungi and Fuci.						
Mushrooms, per pottle	0	0	6	0	0	9
Morels, dry, per pound	0	14	0	0	0	0
Truffles, dry, per pound:						
English	0	12	0	0	0	0
Foreign	0	12	0	0	0	0
Fruits.						
Apples, Dessert, per bushel:						
Reinette grise	1	10	0	2	0	0
Golden Pearmain	0	12	0	0	0	0
Baking	0	15	0	0	18	0
French	0	6	0	0	8	0
Peaches, per dozen	2	2	0	3	3	0
Nectarines, per dozen	2	2	0	3	3	0
Almonds, per peck	0	7	0	0	0	0
Cherries, per pound	1	0	0	1	10	0
Gooseberries, per half sieve	0	12	0	0	14	0
Gooseberries, per pottle	0	0	9	0	1	0
Cranberries, per gallon	0	4	0	0	0	0
Strawberries, forced, per oz.	0	1	0	0	2	0
Filberts, English, per 100 lb.	1	15	0	2	10	0
Pine-apples, per pound	0	10	0	1	0	0
Hot-house Grapes, per pound	0	6	0	0	12	0
Cucumbers, frame, per brace	0	5	0	0	10	0
Oranges, per dozen	0	1	0	0	3	0
Oranges, per hundred	0	8	0	1	4	0
Bitter, per hundred	0	5	0	1	10	0
Lemons, per dozen	0	1	0	0	2	0
Lemons, per hundred	0	6	0	0	16	0
Sweet Almonds, per pound	0	3	0	0	3	6
Brazil Nuts, per bushel	0	16	0	0	0	0
Barcelona Nuts, per bushel	1	0	0	0	0	0
Spanish Nuts, per bushel	0	16	0	0	18	0

Observations. — The protracted state of the season will, in a measure, account for the extreme prices quoted of some articles, in comparison with those stated in former lists at the same season: a difference of fourteen days may be fairly considered as existing between the present and the preceding seasons of 1834 and 1835. Asparagus is now the principal article in supply; which, owing to the setting in of dry and warm weather, will be forced into the market, as the season for it is somewhat advanced. Cabbages, owing to the high prices which have been obtained, are brought rather freely, but very small; consequently, a large space of ground must be cleared, which will prevent the supply from being more than is wanted for some time to come; added to which, the space occupied about London (owing to the very depreciated state of produce for the last three years) for the growth of vegetables is materially reduced; especially that portion of Essex from which our markets have been extensively supplied with the leading articles for many years past. The stock of potatoes is necessarily much reduced, without any possibility of a further considerable supply from the coast, as the season is now nearly over. Broccolis are now nearly out of season: some late white, dwarf Russian, or cream-coloured variety of late brimstone, are as yet supplied sparingly. Cauliflowers are not, as yet, come in, except some few that have been prematurely forced by the recent hot weather. Of fruits we have but little left of last year's supply. Some apples are yet produced, but very sparingly. Forced fruits are now pretty generally furnished. Strawberries are scarce, owing to the plants not having (technically) trussed well: I presume, from the extreme drought during last season. Pine-apples are by no means plentiful; but the present hot weather will soon produce a supply. Grapes are abundant, and very fine. Cherries, as yet, scarce. Some few peaches and nectarines have been supplied. French beans are in demand: peas forced in moderate supply. — *C. G. M. May* 14. 1836.

Art. IV. *The London Horticultural Society and Garden.*

Meetings in Regent Street. — The council of the Horticultural Society, having found it expedient that some alterations should be made in the existing arrangements regarding the ordinary meetings in Regent Street, have drawn up the following regulations upon the subject: —

The meetings are to be held, as heretofore, on the first and third Tuesdays in every month, except November, December, and January; on the first Tuesday only in the months of November and December; and on the last Tuesday only in the month of January.

The chair will be taken at 3 o'clock in the afternoon during the months of March, April, May, June, July, August, September, and October; and at 2 o'clock in the afternoon during the months of November, December, January, and February, instead of 1 o'clock, as heretofore.

At these meetings, it is the practice of the Society to award medals for such specimens of horticultural productions as may be exhibited, provided they possess sufficient merit to deserve such a distinction; no subjects being excluded, except such as may have gained medals at some of the garden exhibitions within a short time previously.

It is, however, to be observed, that as hitherto, except on special occasions, the object of the council has not been to excite at these meetings a spirit of rivalry among the exhibitors, by giving medals to the best only of those whose specimens may have been placed before the Society, but, on the contrary, to reward merit wherever it has been sufficient to justify such a measure; so it is the intention of the council to adhere to this practice, by confining, in future, the days of competition to the great exhibitions at the garden.

The medals which the Society has the power of granting are, — 1. The Banksian; a new die for which has been recently executed by Mr. Wyon. 2. The Knightian; now in the course of preparation by Mr. Wyon. 3. The

large medal; of which a new and far superior die by the same artist will, it is hoped, be completed in a short time. These will be given in silver, at the discretion of the judges, as nearly as possible according to the following rules, from which the judges have no power to deviate, except on very special occasions.

The Large Medal, for remarkably handsome ornamental plants of recent introduction, which have never been exhibited previously.

The Knightian, for specimens of eatable fruits, and of ornamental stove or green-house plants.

The Banksian, for specimens of the ornamental hardy plants, and for culinary vegetables.

All persons, whether Fellows of the Society, or not, may exhibit for these medals; but no person can gain more than one medal of the same description at any one meeting.

As it is possible that exhibitors may, in the course of time, acquire a right to many medals of the same description, they will be allowed the option of either receiving their medals immediately after they have been awarded, or of waiting until there shall be a sufficient number due to admit of their exchanging their silver medals for gold ones, or the latter for objects of a higher value, according to the following scale: — A silver Banksian medal is valued at 25, a silver Knightian at 50, a large silver at 100, a gold Banksian at 200, a gold Knightian at 300, a large gold at 500.

Thus two awards of silver Banksian medals will entitle an exhibitor to a silver Knightian; two silver Knightian, or four silver Banksian, to a large silver; two large silver, or four silver Knightian, or eight silver Banksian, to one gold Banksian medal; and so on. The greatest prize is the large gold medal; but the council do not limit themselves to this as the highest mark of distinction which they have it in their power to confer. A person entitled to it may exchange it for a bound copy of the *Transactions* of the Society; or the large medal itself may remain at the credit of the exhibitor, who may finally arrange with the council the exact nature of the prize to which he may eventually be entitled. [We were not aware of this determination of the council, when we threw out a suggestion to the same effect in our last Number, p. 274.]

In order to insure correct, and, as far as is possible, satisfactory, awards, a committee will be named, of which three will form a quorum, with the power, in case a sufficient number should not be present, of calling others in to assist them in their decision.

The award of the judges will always be announced at the meeting on which the objects are exhibited.

All objects intended for examination by the judges must be delivered two hours before the time of meeting; that is to say, by 1 o'clock in summer, and by 12 o'clock in winter. Objects sent in at a later hour may be exhibited, but the Judges will not be expected to take cognizance of them.

As the proposed exhibitions are not for competition, the names of the exhibitors may be attached to the specimens before they are inspected by the judges.

These regulations are to be observed from Tuesday, the 3d of May, inclusive, until further notice. — 21. *Regent Street, April* 16. 1836.

April 19. 1836. — *Read.* A Notice of two Species of Insects which are found injurious to the Pear Tree; by T. A. Knight, Esq., President. At this meeting it was announced, that the meetings of the society in Regent Street would henceforward be held at 3 o'clock in the afternoon, during the months of March, April, May, June, July, August, September, and October; and at 2 o'clock in the afternoon, during November, December, January, and February, instead of 1 o'clock, as heretofore.

Presented. Osservazioni Fisico-Geognostiche fatte in un Viaggio per diversi Luoghi delle Provincie di Terra di Lavoroezoli Abruzzo, nella State del 1834; by Signor M. Tenore.

Exhibited. Plants. *A*cácia decúrrens, longifólia, pubéscens, undulàta, *c*itrifórmis, lævigàta, longíssima, and a seedling; Wistàr*ia* sinensis, Magnòl*ia* conspícua, Nemóphila insígnis, Brugmáns*ia* bícolor, Pròte*a* *r*òsea, sp., from Mrs. Marryatt; *R*hododéndron arbòreum, from Lady Farnborough; Brugmáns*ia* bícolor, from S. C. Palmer, Esq.; Camélli*a* japónica *r*òsea, from J. Allnutt, Esq.; Camélli*a* japónica corállina, and a sp. of hyacinth, from E. Johnston, Esq.; and nine sorts of camellias, from Messrs. Chandler. Magnòl*ia* conspícua, from Sir A. Hume, Bart.; *R*hododéndron Noble*ànum* (a hybrid between *R.* caucásicum and *R.* arbòreum), from Mr. J. Duncan, gardener to J. Martineau, Esq. Beckmánn*ia* sinénsis, from Mr. Jas. Young; a box of heartseases, from Mr. Glenny. — *Fruits.* Apples, from J. M. French, Esq.; two seedlings raised from an apple of the Newtown pippin, from J. Allnutt, Esq.; gooseberry pippin apple, from Mr. Jas. Young; and nonpareils, from Mr. Hollist.

The Plants from the Garden of the Society were, Epidéndrum crassifólium, Oncídium altíssimum, Acanthophíppium bícolor, *A*ristolòchia trilobàta, *S*olànum áspero-lanàtum, Azàlea *l*edifólia, *A*cácia pubéscens, Camélli*a* japónica Colvílli, j. imbricàta, j. Gray's invincible, and *m*aliflòra; Nemóphila insígnis, *Verónica* pérsica, Douglàs*ia* nivàlis, *Ribes* aúreum præ`cox, sanguíneum, s. dark var.; *Bérberis* *A*quifólium.

At the Annual Meeting of the Society on May 2., a general statement of the accounts was given, by which it appears that the outstanding debt of the Society is now reduced to 15,847*l.* 12*s.* 2*d.*; that the amount of income for the past year was 6,856*l.* 3*s.*, and the expenditure 4,602*l.* 8*s.* 8*d.*; leaving a balance of income over expenditure of 2,253*l.* 14*s.* 4*d.* This statement was received with general approbation. Officers for the year ensuing were elected.

May 3. 1836. — *Read.* A Paper on the Means of destroying the Red Spider in Melon Frames; by T. A. Knight, Esq.

Exhibited. Plants. *R*hododéndron arbòreum, Hòve*a* Célsi, and *Er*ìca erubéscens, from E. Johnston, Esq.; three seedling cinerarias, a basket of seedling mimuluses, and *Er*ìca transpàrens, from Mr. J. Henderson; five seedling *C*actàceæ, and a sp. of *O*rnithógalum, from Mr. R. Buck; Azàlea índica púlchra, Tropæ`olum trícolor, Nemóphila insígnis, 2 vars.; *A*cácia lanàta, and *A.* brevifólia, from Mr. James Young: Pelargònium var. Dennis's perfection, six fine healthy plants of this beautiful var., from Mr. Dennis; *A*rbutus procèra, and heartseases, from Mr. Glenny; a seedling *M*ímulus, Pròte*a* speciòsa, Eschschóltz*ia* *c*ròcea, and Helònias bullàta, from Mrs. Marryatt; three trays of flowers of camellias, from Mr. Chandler; Oncídium altíssimum, from Mr. Pratt, gardener to Wm. Harrison, Esq.; seedling *C*actàceæ, and Gongòr*a* maculàta, from the Earl of Derby; and Brás*sia* maculàta, from the Duke of Devonshire.—*Fruits.* Mùs*a* Cavendíshii (M. sinénsis *Swt.*): a fine specimen of this newly introduced and most valuable addition to our stove fruits, the produce of a plant 3½ ft. high, from the Duke of Devonshire, was exhibited, and found in great perfection. Keen's seedling strawberry, and pippin apples, from Mrs. Marryatt; and Sweeny nonpareils, from J. N. Parker, Esq.

The Plants from the Garden of the Society were, Oncídium divaricàtum, bifólium, carthaginénse; Maxillària aromática, Galeándra grácilis, Acanthophíppium bícolor, Cattlèy*a* Forbès*ii*, Physosìphon Loddigès*ii*, Sarcánthus paniculàtus, Nemóphila insígnis, Beckmánn*ia* sinénsis, *A*cácia pulchélla, Lasiopétalum *s*olanàceum, *C*ássia sp., Ramónd*a* pyrenàica, *C*otylèdon corúscans, *S*olànum áspero-lanàtum, *M*ímulus variegàtus, Mahòn*ia* rèpens, *Ribes* níveum, cèreum, tenuiflòrum, and the double-blossomed French cherry.

Prizes. A Knightian Medal to His Grace the Duke of Devonshire, for the before-mentioned Mùs*a* Cavendíshii; one to Mr. Pratt, for the previously noticed Oncídium altíssimum; and one to Edmund Johnston, Esq., for his fine specimen of Hòve*a* Célsi.

Banksian Silver Medals were given, one to Mr. Dennis, for his pelargoniums; to Mrs. Marryatt, for the specimen of Helònias bullàta; and one to

Mr. Young, for the *Arbutus procèra*, which was a grafted plant, growing in a pot.

May 14. 1836. — The exhibition at the Horticultural Society's garden was attended by between 3000 and 4000 persons. There were many finely grown specimens of *Cactàceæ*, *Orchidàceæ*, rhododendrons, calceolarias, and various other plants; and some good grapes, pines, melons, and other fruits. The medals given away were as follows: —

Gold Knightian Medals. To Messrs. Rollisson, for the best stove *Orchidàceæ*; and to Mr. Green, gardener to Lady Antrobus, for stove or green-house plants, in collections of ten varieties.

Large Silver Medals. To Mr. W. Smith, for green-house azaleas; to Mr. Green, gardener to Lady Antrobus, for cactuses in flower; to Robert Gibson, Esq., for melon cactuses; to John Allcard, Esq., for ferns; to Mr. Davis, gardener to Lady Clarke, for grapes; to Messrs. Luccombe and Pince of the Exeter Nursery, for heaths; to Messrs. Rollisson, for Asiatic *Orchidàceæ*, for American *Orchidàceæ*, and for a collection of stove and green-house plants; to Mr. Lane, gardener to J. H. Palmer, Esq., for a collection of stove and green-house plants; to Mr. James Young of Epsom, for a New Zealand plant (*Clianthus puniceus*); and to Mr. Green, gardener to Lady Antrobus, for a Chinese plant (*Ixòra coccínea*).

Silver Knightian Medals. To Messrs. Wather, for hardy azaleas; to Mr. W. Smith, for green-house azaleas; to Mr. James Young, for ditto; to Mr. Salter, for *Amaryllídeæ*; to Mr. Fielder, for ditto; to Mr. Green, for calceolarias; to Mr. Glenny, for ditto; to Mr. John Wilmot, for cucumbers; to Mr. Lane, gardener to J. H. Palmer, Esq., for ditto; to Mr. Falconer, gardener to A. Palmer, Esq., for cactuses in flower; to Messrs. Rollisson, for melon cactuses; to Mr. Redding, gardener to Mrs. Marryatt, for ferns; to Mr. Wilmot of Isleworth, for grapes; to Mr. Mountjoy of Amwell Nursery, Ealing, for a collection of heartseases; and to Mr. Glenny, for ditto.

The arrangement of the plants and other articles, on the stages, was rather more to our satisfaction this day than it has hitherto been. One of two principles ought to be the guide on occasions of this sort, viz. general effect or particular beauty; or, in language applicable to the open garden, the picturesque or the gardenesque. In working for general or picturesque effect, the plants should be placed so as almost to touch each other; and should form one irregular sloping surface of brilliant colours backed by green. In working for individual beauty, or gardenesque effect, every plant ought to be completely detached; and no part of its branches or leaves ought to come within 6 in. or a foot of any part of any adjoining plant. The object, in this latter case, is to give effect or display to every individual plant by itself; in the other case, the object is to give effect by combination. The very same principles apply to planting flower-borders and shrubberies; and, wherever they are deviated from, there will be found an indefinite and unsatisfactory result. The perfection of the gardenesque mode of exhibition, if there were sufficient space, would be attained by placing the plants on tables or benches, in single rows, leaving space enough between the tables for persons to walk along, and examine each plant individually. This is, however, altogether impracticable in the case of such exhibitions as take place at the Horticultural Society's Garden; and, therefore, the next best thing that can be done is, to distribute the plants thinly and regularly, the lowest always nearest the front; in such a manner as that at least the whole of one side of each plant should be seen by the spectator in the front of the stage; or, in other words, that the ground plan of the plants on the stage should form a right-angled zigzag line, somewhat in the manner shown in the engraving in Vol. VII. p. 361. As the stages are double, and the light admitted from both sides of the tent, a back-ground, formed by a single row of evergreen shrubs, or by a partition of boards covered with green cloth, placed along the centre of the stage, would be a desirable addition, more especially when the full glare of light is admitted by drawing up the side curtains of the tent.

THE

GARDENER'S MAGAZINE,

JULY, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *A Notice of the Garden of Canonmills Cottage, the Residence of Patrick Neill, Esq., LL.D. F.L.S., &c., with Lists of the rare Plants contained in, or figured and described from, it.* Drawn up from Communications received from Professor DON, Mr. C. H. SMITH, and others.

CANONMILLS COTTAGE has been the residence of Dr. Neill's family for upwards of a century. It is situated close by the mills which formerly belonged to the canons of Holyrood House, about a mile from the city of Edinburgh, on the north shore of the Loch, and contains, in all, not more than half an acre and three poles of ground; but in this limited space there is included a greater store of botanical riches than, we believe, is to be found in any other suburban garden, of even much greater extent, in any part of Britain, or, perhaps, in the world. It is for this reason that we have been long anxious to lay a plan of it before our readers, accompanied by a list of the more remarkable plants at present growing in it, and of the new and rare plants that have been figured from it at various times. The plan of the garden (made by Mr. C. H. Smith, landscape-gardener and garden architect, mentioned in Vol. XI. p. 673.), with its explanation, and a list of the more remarkable hardy ligneous plants growing in the garden, will be found in p. 336, 337.; and *fig.* 44. in p. 334. is a perspective view of the whole, as seen from the door of the dwelling-house, late in the autumn. For the drawing from which this view was engraved we are indebted to that eminent botanist, and elegant draughtsman, Dr. Greville.

On the other side of the dwelling-house is a bank fronting the north, where alpine plants are grown, and on which there is a large frame for the more rare plants of that description.

The surface of the ground of this garden falls towards the lake; so that the point A in the ground plan is 10 ft. higher than the

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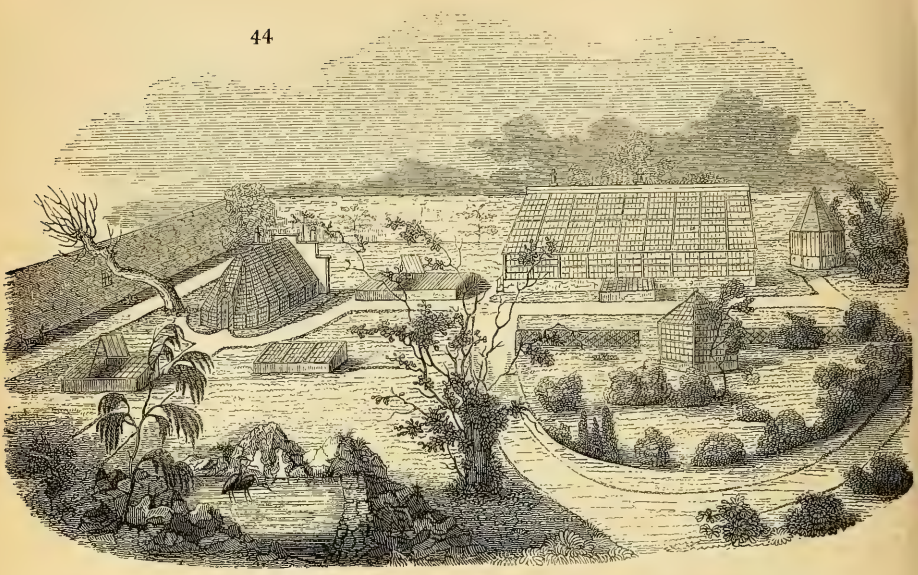

a, A span-roofed green-house, shown in the ground plan (*fig.* 44.), at K.
b, Hot-house, or stove, marked F in the ground plan.
c, Vinery and orangery; in which last is a fine specimen of *P*enélope obscùra, and turtle doves.
d, Frames heated with stable dung, or with tan.
e, Cold-frame.
f, Frame for *O*rchidàceæ.
g, Rockwork and small pond, with a couple of tame herons.
h, House for an eagle, *A*'quila *Haliæ*'etus, marked D in the ground plan.
i, Very large willow (*S*àlix Russell*iàna* fœmínea), overhanging the garden wall and the loch, or pond

surface of the water at M; and there is nearly the same declivity from the point V to the dining-room (C). The latter declivity forms a steep bank, which is planted with select trees and shrubs, having herbaceous plants next the edges of the walk; the whole of which has a very interesting appearance from the dining-room window. The soil is a deep dry sand.

A List of the more remarkable hardy ligneous Plants, with the situations indicated in which they stand, is given in p.336., as part of the explanation of the plan.

A List of the remarkable Plants which, in 1835, *were growing in the Stove.*

*C*innamòmum *C*ássia, 9 ft. high, which has ripened fruit from which young plants have been raised.
C. nítidum and *C.* vèrum, each 7 ft. high.
Brugmán*sia* sanguínea.
*N*epénthes distillatòria. Both sexes of this plant have flowered, and seeds have been matured, from which many plants have been raised.
*E*uphórb*ia* Poinsett*iàna* Grah. (See p. 256.) This plant flowered here in December, 1835.
Bréxia spinòsa.
Solándr*a* guttàta.
Swietèn*ia Mahágoni.*
Mantísia saltatòria.
Russèl*ia* grandiflòra.
Ceropègia élegans.
Dionæ'*a* Muscípula.

*S*ida venòsa.
Sinníng*ia* guttàta.
Blèt*ia* pállida.
Fernandès*ia* élegans.
Oncídium papílio.
Vánd*a* rostràta.
Catasètum semiapértum.
Renanthèra coccínea.
Brás*sia* caudàta.
Stanhòpe*a* élegans.
Epidéndrum ciliàre.
Gloriòsa supérba. This plant has repeatedly flowered here.
Dillèni*a* speciòsa; a very large specimen.

List of Plants, hardy and tender, figured and described from the Garden of Canonmills Cottage, from 1826 *to* 1836.

*R*ùta albiflòra, Hooker's *Exotic Flora.*
Arthrostémma nítidum, figured in *Bot. Mag.*, t. 3412.
*A*strágalus decaphýllus, figured in *Bot. Mag.*
A'rbutus pilòsa, figured in *Bot. Mag.*
Prímula pusílla, Hooker's *Ex. Fl.*
Francò*a* appendiculàta, figured in *Bot. Mag.*
*s*onchifòlia, *Bot. Mag.*
Gardoquì*a* Gilliès*ii*.
Piptánthus nepalénsis, Hooker's *Ex. Fl.*
Mílla uniflòra, figured in *Bot. Mag.*
Manétti*a* cordifòlia, *Bot. Mag.*
Eucròsia bícolor, Hooker's *Ex. Fl.*
Nierembérg*ia* grácilis, figured in *Bot. Mag.*
Nierembérg*ia* filicaúlis, Sweet's *Br. Fl.-Gard.*
aristàta.
intermèdia.
calycìna.
Nicoti*àna* longiflòra.
Prímula amœ'na, *Bot. Mag.*
Physiánthus álbens, *Bot. Mag.*
Rulíng*ia* corylifòlia.
*S*isyrínchium macrocéphalum, *descr.*
Tropæ'olum pentaphýllum, figured in *Bot. Reg.*
*L*upìnus incànus, *Bot. Mag.*
bimaculàtus, Sweet's *Br. Fl.-Gard.*
Gaillárd*ia* pícta.
*P*hlóx Drummóndi.
Callióps*is* Drummóndi.
Agrostémma Bunge*àna*.

List of Plants described in the Edinburgh New Philosophical Journal, from Canonmills Cottage Garden; and most of which were figured in Curtis's Botanical Magazine, from 1826 *to* 1836.

Alstrœmèri*a* pállida.
Neíllii.
Arthrostémma nítidum.
*A*strágalus decaphýllus.
A'rbutus pilòsa.
Begòni*a* diversifòlia.
Brachystélma críspum.
Calceolària thyrsiflòra.
Leucocárpus alàtus.
*E*rýngium comòsum.
Ferrària elongàta.
Francò*a* appendiculàta.
Gardoquì*a* Gilliès*ii*.
Habenària obtusàta.
Lophospérmum erubéscens.
Mílla uniflòra.
Manétti*a* cordifòlia.
Nierembérg*ia* grácilis.
intermèdia.
aristàta *Don.*
Nicoti*àna* longiflòra.
Piptánthus nepalénsis.
Prímula amœ'na.
Physiánthus álbens.
*R*ùta albiflòra.
Rulíng*ia* corylifòlia.
*S*isyrínchium pedunculàtum.
macrocéphalum.
Stylídium *j*únceum.
Tropæ'olum pentaphýllum.
*T*eùcr*ium* lævigàtum.

List of rare and interesting Plants cultivated in the Garden of Canonmills Cottage.

A'rbutus (Pernétti*a*) mucronàta.
sibírica.
Andrómed*a hypnoïdes*.
tetragòna.
*e*ricoïdes.
Alstrœmèri*a* aúrea.
pulchélla.
trícolor.
5 other species.
Aubrièt*ia* Colúmnæ.
Adenóphora stylòsa.
*A*nthýllis Webb*iàna*.
*A*strágalus Benthami*à*nus.
Agrostémma pyrenàica.
Bellevàli*a* operculàta.
Begòni*a* monóptera.
pícta.
bulbífera.
Béllium crassifòlium.
*b*ellidoïdes.
Calánthe *v*eratrifòlia.
Calandríni*a* grandiflòra.
Cologòni*a* heterophýlla.
*C*ýtisus purpùreus flòre álbo.
Cypripèdium spectábile.
Calcèolus.
pubéscens.

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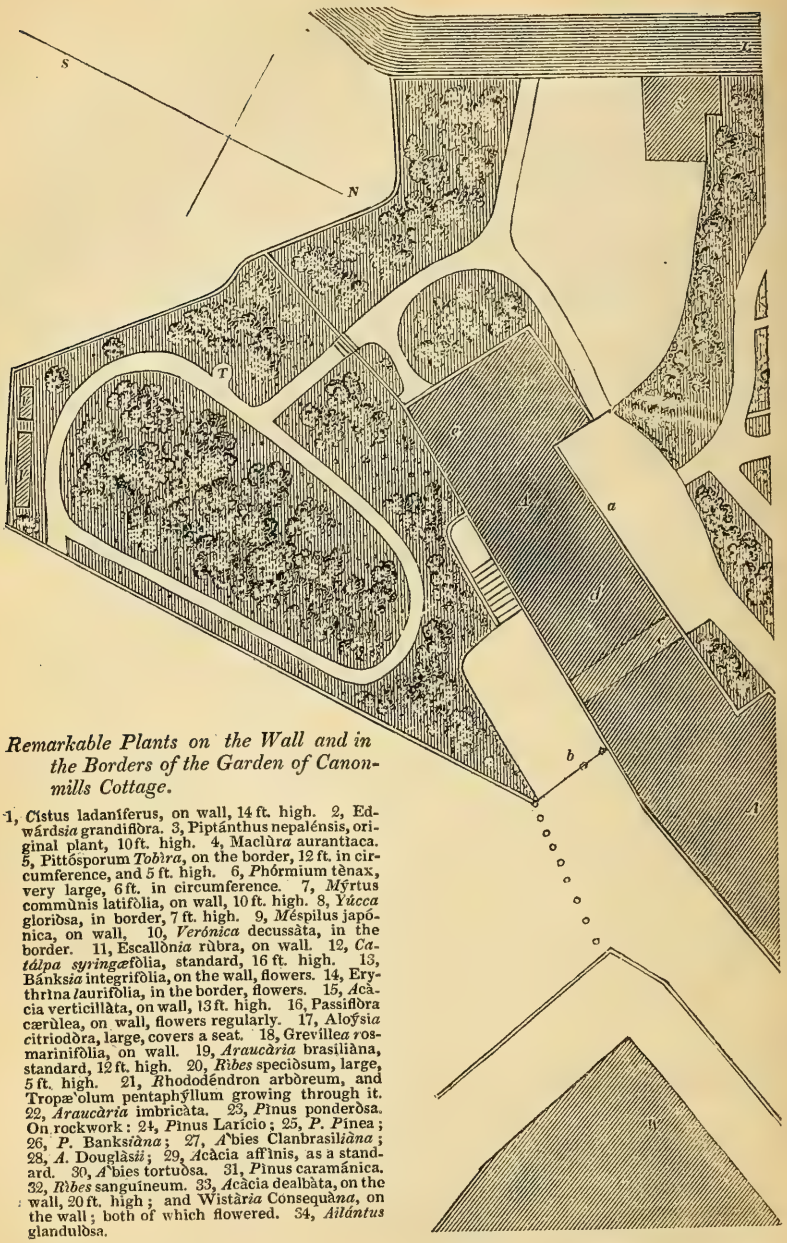

Remarkable Plants on the Wall and in the Borders of the Garden of Canonmills Cottage.

1, Cistus ladaníferus, on wall, 14 ft. high. 2, Edwárds*ia* grandiflòra. 3, Piptánthus nepalénsis, original plant, 10 ft. high. 4, Maclùr*a* aurantiaca. 5, Pittósporum *Tobìra*, on the border, 12 ft. in circumference, and 5 ft. high. 6, Phórmium tènax, very large, 6 ft. in circumference. 7, Mýrtus commùnis latifòlia, on wall, 10 ft. high. 8, *Yúcca* gloriòsa, in border, 7 ft. high. 9, Méspilus japónica, on wall. 10, *Verónica* decussàta, in the border. 11, Escallòn*ia* rùbra, on wall. 12, *Catálpa syringæfòlia*, standard, 16 ft. high. 13, Bánks*ia* integrifòlia, on the wall, flowers. 14, Erythrìna *l*aurifòlia, in the border, flowers. 15, Acàcia verticillàta, on wall, 13 ft. high. 16, Passifòra cærùlea, on wall, flowers regularly. 17, Aloý*sia* citriodòra, large, covers a seat. 18, Grevíll*ea r*osmarinifòlia, on wall. 19, *Araucària* brasiliàna, standard, 12 ft. high. 20, *Ribes* speciòsum, large, 5 ft. high. 21, *R*hododéndron arbòreum, and Tropæ'olum pentaphýllum growing through it. 22, *Araucària* imbricàta. 23, *P*inus ponderòsa. On rockwork: 24, *P*inus Laricio; 25, *P.* Pinea; 26, *P.* Banks*iàna*; 27, *A*bies Clanbrasili*àna*; 28, *A.* Douglàs*ii*; 29, *A*càcia affìnis, as a standard. 30, *A*bies tortuòsa. 31, *P*inus caramánica. 32, *Ribes* sanguìneum. 33, *A*càcia dealbàta, on the wall, 20 ft. high; and Wistàr*ia* Consequà*na*, on the wall; both of which flowered. 34, *Ailántus* glandulòsa.

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A, Canonmills Cottage. The principal entrance is from the garden front (*a*), and is approached from the outer gate (*b*) through a wide passage (*c*). *d*, Library. *e*, Dining-room, with drawingroom in upper flat: the windows of both command a view of the principal part of the garden.
B, Poultry-houses and yard.
C, Pigeon-houses.
D, Eagle-house: a fine specimen of *A'quila Haliæ'etus*.
E, Orangery. Cages; in one a fine specimen of *Penélope obscùra*, and in others turtle-doves.
F, Stove. *f*, Back-shed.
G, Frame for Cape bulbs.
H, Pits.
I, Apiary.
J, Owl-house; *Strix Nýctea*, fine specimen.
K, Green-house. *k*, Shed.
L, Lake.
M, Auricula stage.
N, Orchidaceous frame.
O, General frame.
P, Seat covered with ivy.
Q, Seat beneath weeping ash.
R, Space for green-house plants during the summer season.
S, House for peacocks.
T, Pump-mill.
V, Alpine frames.
W, Parish school.

Cyprip. parviflòrum.
arietìnum.
hùmile.
venústum.
insígne.
Dendròbium speciòsum.
*D*odecàtheon Mèad*ia*
flòre álbo.
Mèad*ia* élegans.
Dionæ'*a* Muscípula.
*D*elphínium chinénse
flòre álbo.
*E*uphórb*ia* aléppica.
spléndens.
Epigæ'a rèpens.
Enslèn*ia* álbida *Nuttall.*
Epidéndrum noctúrnum.
ciliàre.
fuscàtum.
10 other species.
Fritillària ruthénica.
kamtschaténse.
Gratiola tetragòna.
Gloriòsa supérba.
Galánthus plicàtus.
*G*enti*àna* vérna flòre
álbo.
Gypsóphila sabulósa.
Houstòn*ia* cærùlea.
*s*erpyllifòlia.
purpùrea.
Hunnemàn*ia* *f*umariæfòlia
*I*sopỳrum *t*halictröìdes.
Játropha *Mánihot.*
Kennèd*ia* Comptoni*àna*
var. quinquefòlia.
*L*eóntice altàica.
Lobèl*ia* odoràta.
Lycopòdium stoloníferum.
*L*ílium tenuifòlium.
philadélphicum.
*L*ýchnis chalcedónica
flòre plèno álbo.
Dabœ'*cia* (Menziès*ia*)
*p*oliifòlia flòre álbo.
Phyllódoc*e* (Menziès*ia*)
*e*mpetrifórmis.
cærùlea.
Mahòn*ia* nervòsa.
fasciculàris.
*A*quifòlium.
Mantísia saltatòria.
Nuttáll*ia* pedàta.
digitàta.
*N*epénthes distillatòria.
*O*rnithógalum aúreum.
caudàtum.
O'xalis Déppe*i.*
Bowiè*i.*
29 more species.
Prímula sibírica.
carniólica.
longiflòra.
glaucéscens.
hirsùta.
farinòsa flòre álbo.
pusílla.
Prím. Colúmn*æ.*
21 other species.
*P*arnássia caroliniàna.
*a*sarifòlia.
sp. nova, Drummond, N. A.
*P*ortulàca Gilliès*ii.*
grandiflòra.
Potentílla nívea.
glàbra.
Clusi*àna.*
*R*anúnculus Thòra.
*f*umariæfòlius.
12 other species.
*R*uéll*ia* strèpens.
Sarracèni*a* psittacìna.
adúnca.
Silène règia.
Scutellària cordàta.
altàica.
Schizánthus Gràham*i.*
retùsus.
Tropæ'olum tricolòrum.
*T*halíctrum *a*nemonöìdes
flòre plèno.
*Tacsòni**a* pinnatistípula.
Vellèl*ia* lyràta.
*V*ìola flabellifòlia.
primulifòlia.
pedàta.
Wedèl*ia* aúrea.
Xylòbium squàlens.
Zephyránthes mesóchloa.
Zigadènus glabérrimus.

List of Animals kept in the Garden of Canonmills Cottage.

Léstris *Illiger* *C*ataráctes, synon. *L*àrus *C*ataráctes *L.* This gull (the skua) is quite tame, and has walked about in the garden, at large, for the last seventeen years.

A'rdea cinèrea *L.* The heron. The two specimens indicated in the view (*fig.* 44.) have been at large in the garden for the last fourteen years.

*L*àrus fúscus *L.*, the brown gull, is quite tame, and goes about with the poultry.

*L*àrus marìnus *L.*, the great black-backed gull, once tamed at Canonmills, has revisited the garden every year for the last thirteen years; remains through the winter, and goes off again in the spring. (See Audubon's *Biog. of Birds*, vol. iii.)

*P*elecànus *C*árbo *L.*, the corvorant, or shag, has been tame, and at large in the garden, for the last fourteen years.

*S*trix *N*yctea *L.*, the snowy owl, sent to Dr. Neill from the Orkney Isles, in May, 1835; where it had arrived during a strong north-west gale, with flocks of wild fowls, snow-flakes, &c., indicating an Icelandic or Greenland origin. (See *Mag. Nat. Hist.*, vol. viii. p. 508.)

A'quila *H*aliæ'etus, the grey eagle, from the Western Islands, is kept in a large eagle-house, where it has been for the last seven years, in good health.

*P*enélope obscùra *Illiger*, syn. *P.* cumanénsis *L.* The yacou. This bird is kept in the conservatory.

*C*olúmba sp. The exotic turtle-dove. Several specimens are kept in cages in the conservatory.

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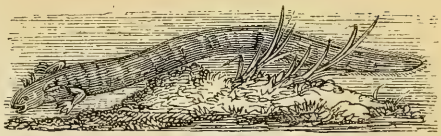

*S*iren *l*acertìna *L.* (*fig.* 46.) This lived in the stove for more than six years; being the only one ever kept alive, for any length of time, in Europe. This reptile was sent from the marshes of South Carolina to Dr. Monro, in 1825, and was by him soon afterwards confided to the care of Dr. Neill, who kept it in a box of water and moss in his green-house, till April, 1827; when it was put in a hot-house, and there became more lively, soon beginning to croak like a frog. It lived on earth-worms, but did not care for food oftener than once in a week or ten days. On one occasion, it remained for several hours together out of water; and it has often been observed to remain for several hours at a time under water, being truly amphibious, and capable of breathing either by means of external branchiæ or internal lungs. (See *Mag. Nat. Hist.*, vol. i. p.171.)

*R*àna arbòrea *L.*, the tree, or green, frog (*fig.* 47.), is green above and whitish beneath, with a yellow curved line on the side. In elegance and activity, it is superior to every other European species. It is a native of the south of Germany and of France; in which country it resides in the woods, and mounts the trees in quest of insects, which it approaches on its belly, in the same manner as a cat approaches a mouse, and, at length, seizes it with an elastic and instantaneous spring. It is particularly noisy on the approach of rain. In winter, it takes up its abode in the bottom of ponds or other pieces of water, remaining till the spring in a state of torpor. The noise of this frog is, by many, considered musical; and it is often kept in houses in Germany, both as a curiosity and as a weather guide. When kept in a house, it is placed in a crystal jar, 6 in. or 8 in. in diameter, and 1 ft. or 18 in. high, the bottom of which is covered to the depth of 2 in. to 3 in. with water. In the jar is placed a small ladder, or a rod of wood, leaning to one side, up which the animal mounts, and remains near the top, when the weather is fine; while, on the approach of rain or thunder, it descends to the bottom, utters a peculiarly shrill cry, and plunges up and down in the water. To prevent it from getting out, and, at the same time, to admit air, the jar is covered with gauze. [We brought a frog of this species from Carlsruhe, in 1828, which remained in a glass jar, covered with gauze at the top, living on flies, till the spring of 1832, when it died.]

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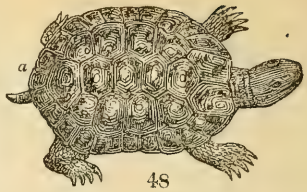
*R*àna *B*ùfo *L.*, the toad, is kept in the frames, pits, and stoves, for destroying ants, which the toad devours greedily; and, also, for keeping under wood-lice, and other insects, and slugs and worms. The common frog is encouraged for the same purpose.

*T*estùdo græ'ca *L.*, the Greek, or common, tortoise. (*fig.* 48.) This species abounds in the countries surrounding the Mediterranean, especially in Greece, where it is much used as food. In September or October it buries itself under the soil, where it remains torpid till February, when it reappears. In June it lays its eggs, in holes exposed to the full beams of the sun, by

which they are matured. Tortoises are of a most extraordinary longevity; and one was ascertained to have lived in the gardens of Lambeth to the age of 120 years. They answer, in some measure, the purpose of a barometer, and uniformly indicate the fall of rain before night, when they take their food with great rapidity, and walk with a sort of mincing and elate step. The tortoise appears to dislike rain extremely, and is discomfited and driven back only by a few, and scarcely perceivable drops.



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Erinàceus europæ'us L., the European, or common, hedgehog, is found useful in the open garden, for clearing the ground of snails and slugs, and the houses of beetles, cockroaches, &c.

In the spring of the present year, a railroad was projected between Edinburgh and Newhaven, and the line of direction laid down was unfortunately through Dr. Neill's garden. It may easily be conceived what an appalling circumstance this must have been to one so completely devoted to his plants, birds, and hothouses as Dr. Neill; for, though it was proposed, in order to injure the garden as little as possible, to carry the railroad under it in a tunnel, yet, the soil being a deep dry sand, there was every reason to fear that its execution would be impracticable, without opening the ground (as the miner's phrase is) "to the day." Dr. Neill petitioned parliament on the subject, and came up to London to watch the progress of the bill through the house; but, though some concession in his favour was made by the committee to whom the bill was referred, yet he was obliged to submit, and allow it to pass through his grounds. The following extract from the printed petition presented by Dr. Neill on this occasion presents a summary of the contents of the garden, drawn up by his gardener, and will form a very suitable conclusion to this article.

"*Extent of Glass, and Number of Plants in Pots, at Dr. Neill's, Canonmills, April*, 1836. — A span-roof conservatory, or cool green-house, 30 ft. long, 17 ft. wide, and 14 ft. high, containing upwards of 500 pots. A stove, or hot-house, 20 ft. long, 15 ft. wide, and 12 ft. high; above 400 pots. A vinery, or warm greenhouse, of same dimensions as stove; 320 pots. A large brick-built forcing, or warm, pit, 20 ft. long, with five double lights; 400 pots at present, often above 100 more. A Cape bulb-frame of three sashes; plants in the border. An orchis frame of four sashes; plants in the border. An alpine frame, of four sashes; 210 pots. A glazed house 10 ft. high, for protecting plants in winter. The amount of pots with plants, at present, is above 2030; and the number of species and varieties of plants, including trees and shrubs, in the open ground, greatly exceeds 1000. — *W. Lawson.*"

It thus appears that the total flora of Canonmills Cottage exceeds 3000 species; an immense number, when we consider the limited area in which they are grown, and the considerable size which some of the specimens have attained.

Dr. Neill's present gardener is Mr. Wm. Lawson: his predecessor was Mr. Brackenridge, now in the Berlin Botanic Garden, and the author of the description of that garden in p. 295. Mr. Brackenridge succeeded Mr. Scott, now in the Exeter Nursery; an excellent botanist, and one of the best cultivators of Orchidàceæ in England.

Of Dr. Neill himself we shall only say that he is one of the best friends that gardeners and practical botanists ever had in Scotland. To his love of gardening and plants, his urbanity and conciliating manners, and to the great respect in which he is held by all classes of society in Scotland, is to be attributed the establishment of the Caledonian Horticultural Society; and to the same cause, and his exertions as secretary, its present flourishing state. Dr. Neill is the author of *A Tour through the Islands of Orkney and Shetland, with a View chiefly to Objects of Natural History, but including also Husbandry and Political and General Economy:* 8vo, 1806. He is also the author of papers on the Fishes of the Frith of Forth, on the Siren, on the extinct Beaver of Scotland, on the Whale, and on other subjects, in the *Edinburgh New Philosophical Journal*, in *Nicholson's Journal*, the *Magazine of Natural History*, the *Gardener's Magazine*, &c. He drew up the *Journal of a Horticultural Tour*, &c., by a deputation of the Caledonian Horticultural Society; a most interesting work, published in 1823; and he is the translator of *Daubuisson on Basalt*, to which he added notes. Dr. Neill is also author of various articles in the works published by Sir John Sinclair, and in the Edinburgh *Encyclopædias;* and he has the merit of having been the first to treat horticulture in a scientific manner, in the article on that subject published in the seventh edition of the *Encyclopædia Britannica*, in 1818. This article, and another by Dr. Neill on Scottish Gardens and Orchards, suggested to us the mode of treating subjects historically, theoretically, practically, and statistically, adopted in our *Encyclopædia of Gardening*, and in subsequent works.

ART. II. *Design for a Cemetery proposed to be formed at Bristol.* By Mr. P. MASEY, jun.

THE advantages of public cemeteries are now too generally admitted to require any comment; and, as most of the churchyards in Bristol are closely surrounded by houses, and so full as to have become dangerous masses of

corruption, the time seems to have arrived when one ought to be commenced here. The plan now offered was designed in 1831, for your *Encyclopædia of Landscape-Gardening*. Since that work has been in abeyance, I have been urged to publish it separately, and should have done so, had there been any disposition manifested in the public mind here likely to have given support to the measure. But the want of encouragement to such an undertaking as the proposed suspension bridge at Clifton, and the design for a public garden published in the second number of your *Illustrations of Landscape-Gardening*, showed to me how useless it would be to bring forward any design for a cemetery. I now venture to introduce the subject through your Magazine, in consequence of a more liberal feeling being manifested here for the support of public works. My intention is only to introduce this design to public notice, in the hope of its being the means of directing the attention of some more influential person to the subject; and, also, for the purpose of giving my promised support to your useful work. I have experienced more difficulty than I expected in selecting a piece of ground in our vicinity, suitable, in every respect, for the purpose; and find that which I have fixed upon the most favourable, except Tindal's Park, which I hope never to see diverted from its present purpose, except for a botanic garden. As a matter of choice, I should have preferred the ground round Redland Chapel, including the field on the south side, the common, and the whole of the glen on the north and east side. The capabilities of this site are very great. There are some interesting views from it, and the features of the ground are very suitable for creating pictorial effect. The chapel, being already erected, would prevent the necessity of what generally forms an expensive outlay in such undertakings; and the distance from the city is just that of a pleasant walk. But I understand the ground is too wet for the purpose, so much so, as not to be rendered eligible even by draining. The site I have selected, originally a nursery, is situated between Wellington Place and St. Paul's; which parts of the city I propose connecting by a carriage-road through the cemetery.

The churchyards and burial-grounds of Bristol, at present occupied for interment, contain in all rather more than 15 acres; two thirds belong to the church, and one third to dissenters. The spot I have selected would furnish 30 acres; but, as it would be desirable to have another cemetery on the Clifton side, I should think from 15 to 20 acres would suffice.

It has been objected, that the lower part of this ground would also be too wet; that it would be likely, in the course of twenty years, to be as much surrounded by buildings as our present churchyards; and that it does not possess a single natural picturesque advantage. The first objection would be remedied by the manner in which I purpose carrying the plan into effect, by which the ground bounded by Wilden Street would be raised 5 ft., still leaving a 4 ft. current [an inclination of 4 ft.] on the surface; and admitting of underdraining into courses, which would carry the water off into the river Froome. The next objection is by no means a reasonable one; for, allowing the city to extend in this quarter, still the site cannot be fairly subject to a comparison with the confined state of any of our churchyards. There would not be any buildings within 140 ft. of three fourths of the ground, and, in the remaining part, not near enough to cast a shadow on it; and, so long as it remains sufficiently open, its immediate vicinity is a very great advantage. With respect to the latter objection, I should certainly have preferred a site possessing some natural picturesque features; but, I trust, my design will show that the want of them is not an insurmountable objection. The working of such a piece of ground only requires a little more creative genius in the artist. For my own part, I do not at all regret the absence of every natural feature of beauty or interest, because it aids one very material object I have in view; which is, as it bears so strong an analogy to most of our churchyards, to show that they may still be laid out with some degree of taste and interest, and, at the same time, with due economy in the occupation of the ground. As an illustration, I

refer to the new churchyard at Clifton, in the arrangement of which I consider my design would have afforded some useful hints. It has been a matter of much surprise to me, that so little attention has been paid to this subject, particularly in laying out the ground of so many new churches. I contend that laying out the ground of the churchyard is of as much importance in giving effect to the church, as laying out the ground of a residence is in giving effect to the house: the landscape-gardener has the opportunity of giving quite as much effect to the one as to the other. This would be evident, if, in viewing the finished side of St. Matthew's Church, Kingsdown, the imagination were brought to contemplate it, as it would be if surrounded by a portion of St. James's churchyard: it would then serve as an illustration how much such a building may be disfigured. The same observation will apply to the new church at Frenchay, the effect of which will be entirely destroyed, if due attention be not paid to laying out the churchyard. That of St. Mary, Redcliffe, furnishes another illustration: its former state detracted considerably from the grandeur of that noble pile. I consider there is much credit due to Mr. Hall, not only for his taste and judgment, but for his perseverance in effecting the alteration amidst so much opposition and difficulty. But, although as much has been effected as, perhaps, circumstances would admit, yet it falls very short of the effect that might have been produced, if the ground had been originally laid out so as to harmonise with, and give effect to, the building.

In designing the plan now presented, I bore in mind the want of some interesting public resort at that end of the city; and I have endeavoured to arrange my plan so as to create such an interest as might compensate for the want of any natural feature of the picturesque; and, to render the intended cemetery suitable for a public promenade, I purpose giving it that botanic character which would render it always sufficiently interesting and attractive. For this purpose, I intend the shrubs and trees surrounding the principal walks to form an arboretum; the mass of rockwork covering the catacombs to be suitably arranged for a display of rock shrubs and plants (particularly those that are indigenous); and the pond for a display of aquatics. The union of such distinct characters in my design would require much taste and judgment in carrying them into effect: if arranged in too gay a manner, the place would not be in unison with the feelings of those whose visits are directed to the tombs of their friends and relations; and, if too sombre, it would not be sufficiently accordant with the feelings of those who visit it for promenade, or for purposes of botanical research. The arrangement, therefore, should be such as to produce that degree of simplicity and hallowed peacefulness which would be most likely to harmonise with the feelings of each class. This object I have endeavoured to attain; but, a ground plan not affording sufficient illustration of my views, I will briefly describe the leading features I wish to realise.

The entrance from St. Paul's (1, in *fig.* 49.) is intended to be in a line with Dean Street, and connected by a straight road with the entrance (2) in Wellington Place, having suitable lodges at each. To the mason's yard (3) there is a private entrance from Adam's Court, Stokes Croft; and to the gardener's yard (4), from a road leading out of Moon Street. Both of these departments can thus be provided with every convenience, without creating any unsightly appearance. In arranging the ground for a general promenade, there should still (as far as circumstances will admit) be created a certain degree of privacy for those visiting the remains of their friends. With this view, I have divided the ground into sections, so that each may form, in some measure, a distinct part, enclosed by a shrubbery, without destroying the connexion in the general plan. The designs for the arrangement of the graves in each section are not intended (in carrying the plan into effect) to be confined to the section now drawn; my object has been to produce a series of designs that will admit of being adapted to any situation that circumstances may render desirable. The graves in sections 5, 6, 7, and 8 are common ones, covered

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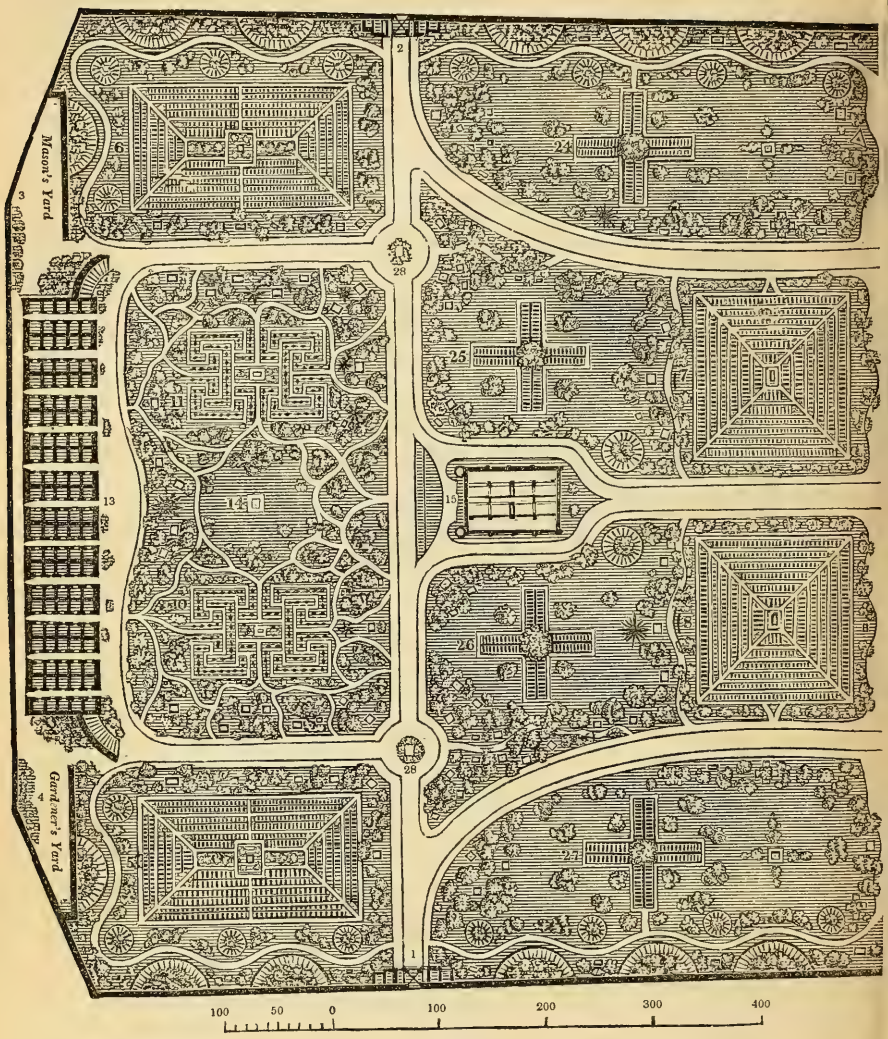

with a flat stone; each of those in 10 and 11 are the same, with only a diamond tablet let into the turf. The paths between the graves in each section, and in the part allotted to the poor (12), form an accommodation much wanted in our churchyards; where persons attending a funeral in unfavourable weather, with the head uncovered, and the feet standing on a wet sod, are fortunate in escaping a chill that may lead to very serious consequences: in fact, the fear of it often prevents persons from attending funerals altogether.

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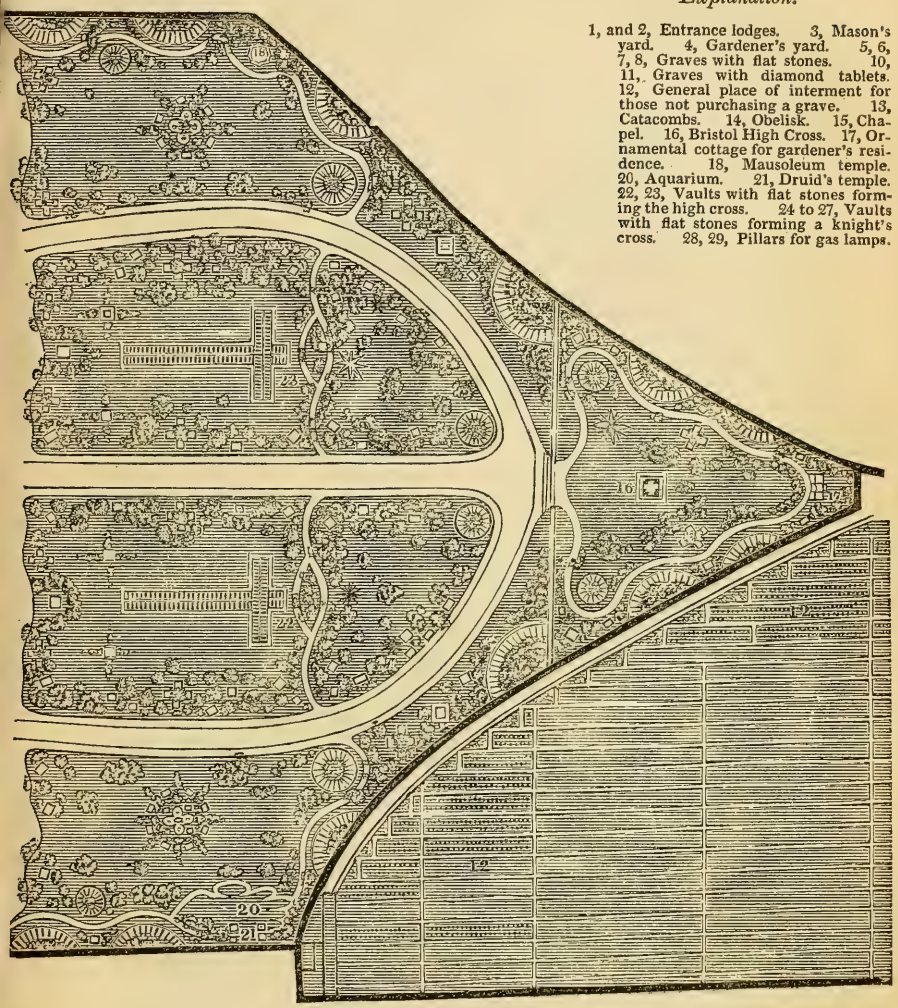
Explanation.

1, and 2, Entrance lodges. 3, Mason's yard. 4, Gardener's yard. 5, 6, 7, 8, Graves with flat stones. 10, 11, Graves with diamond tablets. 12, General place of interment for those not purchasing a grave. 13, Catacombs. 14, Obelisk. 15, Chapel. 16, Bristol High Cross. 17, Ornamental cottage for gardener's residence. 18, Mausoleum temple. 20, Aquarium. 21, Druid's temple. 22, 23, Vaults with flat stones forming the high cross. 24 to 27, Vaults with flat stones forming a knight's cross. 28, 29, Pillars for gas lamps.



The evil may be partially remedied by the sexton providing dry planks to stand upon; to insure which, the public ought to consider it a gross neglect in the attention of any undertaker who does not have such accommodation provided. The severe chills that this evil occasions, arise, too often, from the want of due precaution on the part of the mourners, in not being duly fortified against it by suitable clothing. For instance, on a cold damp day in November, and after a week's hard rain, I recently saw four young females, lightly clad about the head and shoulders, with silk stockings and

thin shoes, carry a child over about 90 yards of wet turf, and stand on it during the service. Some persons, from a less cause than this, would have been returned, in a short time, a corpse to the same grave, or have become subject to rheumatic pains, or perhaps crippled for life. In a cemetery, this evil can and ought to be remedied. Section 13 is a range of catacombs, built with Hanham or Stapleton stone, and cased with natural rock, *en masse*. The flight of steps at each end is intended to lead to a terrace in front of a second range, in the centre of which a chasm may be formed, through which a path should lead to a flight of steps ascending to the top of the rock, in which irregular paths should be cut, with such a boundary on the outside as would serve for a parapet. If this is carried into effect with judgment, and planted in good taste, it may be rendered very attractive; and the catacombs would amply repay any extra expense it would occasion. The spot in front is intended, chiefly, for forest trees, and the margin is intersected with walks leading into two sections (10 and 11), with range of graves in each. The walks in the margin would also lead to suitable retired spots for monuments: the centre (14) should be reserved for a handsome cenotaph or obelisk, and the space around it should be kept open as a lawn. On the other side of the road, in front of this range, should be erected the chapel (15), for which I offer no design at present: it must, of course, depend on the amount of the sum allowed for the purpose. The leading feature of my design, internally, should be for monumental display. The road from the back of the chapel should present, in the distance, a very interesting view of the Bristol High Cross (16), which, I am informed, the present liberal owner would again spare to us, if a suitable site were fixed upon to insure its preservation: but, if the original could not be obtained, I should recommend erecting a model. This spot may then be made the most interesting in the cemetery. I purpose raising it on a sort of dais, or platform, of about 4 ft. in height: the ascent would be by a flight of steps, a path from which would branch off right and left, and lead to an ornamental cottage (17) for a gardener's residence; the centre room of which should be a public saloon, from which the cross on the lawn would have an interesting appearance. At the back of the cottage should be small separate gardens for ladies and gentlemen; and in the front an ornamental flower-border. The whole of this spot I propose reserving for the repose of those ennobled by birth or merit: those of the army or navy to be interred in the vaults forming the half circles, with laurels planted within, so that the branches may wave over them; literary characters the same, with bays planted within the circle, as well as laurels; those whose merit has been manifested by their benevolence should be interred in the circles with the weeping ash or willow planted in the centre, to represent the feelings of the widows and orphans they have benefited; and those whose merit entitled them to a public funeral should be interred in a suitable vault under the cross. On the east side of this spot (12), separated by a wall, is the ground allotted for the interment of those who could not afford the expense of a separate grave. This part should also be so arranged, that persons may have a dry footpath to each grave, which, of course, would afford accommodation for standing with more comfort than at present during the service, and would enable them more seriously to attend to it: such an advantage would occasion a decided preference over any other place of interment. On descending the flight of steps from the dais, the chapel (15) would present itself as a very interesting object: the footpath on the right would lead to a mausoleum temple (18), with a vault underneath; continuing from this, the path would lead to the entrance lodge, Wellington Place (2). The footpath on the left would lead to the aquarium (20), and a druid's temple (21), which I should wish to be composed of the stones, supposed originally to have been devoted to that purpose, but now lying in our neighbourhood, quite neglected; three or four, for instance, at Stoke Bishop. Continuing this path, it would lead to the entrance lodge, St. Paul's. Each of the walks just named may be rendered very interesting, by the variety of evergreen and

flowering shrubs, and devices formed in the stones laid on the graves. The annexed ground plan (*fig.* 50.) will suffice as an illustration of the circles; in forming which, the whole of the ground between the outward and inner circles should be excavated at once, and then formed into separate graves, with 9-in. brickwork, which would be only half the ordinary expense. The shape would necessarily partake of that of the coffins. The space within the inner circle should be planted with the weeping ash or willow; or filled with peat earth for the tribe of azaleas, rhododendrons, &c. The whole of the crosses (22, 23, 24, 25, 26, and 27) are for vaults: the flat stones on which to form the shape, around which is a gravelled path. Each cross, when formed, should be excavated, and built up in the necessary divisions, all together, which would effect a saving of one half. In the shrubbery, at the head of the cross of Christ (22 and 23), should be planted Christ's thorn (*Paliùrus aculeàtus*) and the Judas tree (*Cércis Siliquástrum*); and over some trellis-work across the path should be nailed the passion flower (Passiflòra cærùlea). The wall between each half circle, on the St. Paul's side, should be covered with the varieties of ivy; marble slabs set in which would have a neat appearance. The open space of wall on the opposite side of the ground (having a good south aspect) should be reserved for such plants as the Australian acacias, Eriobótrya japónica, pomegranate, bignonia, camellia, magnolia, &c. In the centre of each section, I would wish to see erected either the original, or a model, of the principal ornamental crosses from various parts of the kingdom: such a collection, erected in suitable parts of a cemetery, would be highly interesting and ornamental; and, if erected with vaults underneath, might turn out a not unprofitable speculation.

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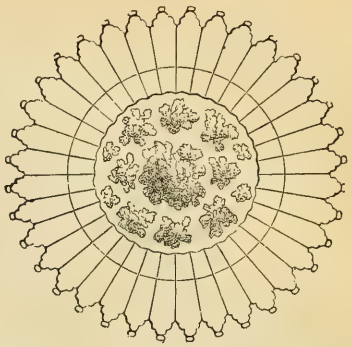
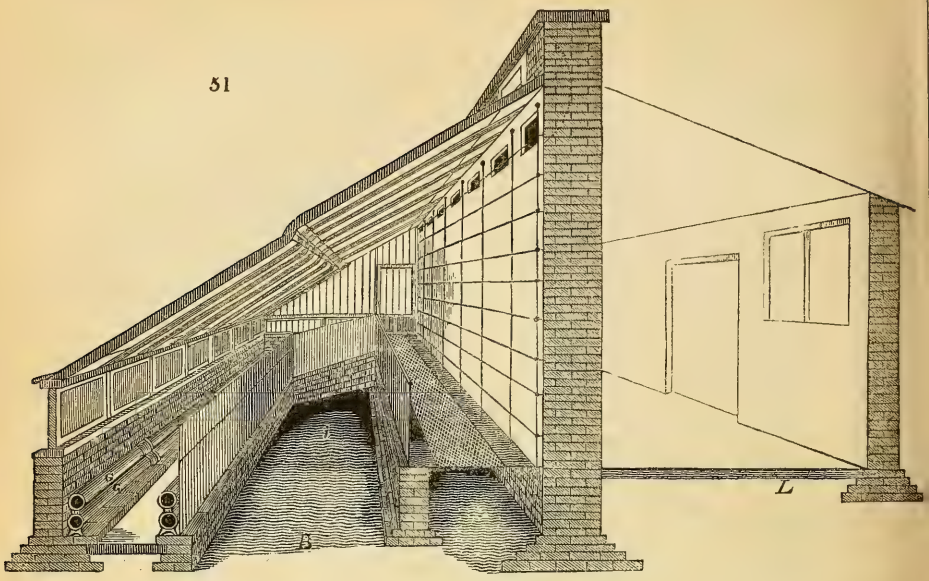


The description already given, I trust, will afford a sufficient outline of the general features I wish to create, without entering into further details. I shall therefore only remark, in conclusion, that the formation of a cemetery of this class would not only be promoting the health and comfort of the citizens of Bristol, but prove, also, a profitable speculation to those disposed to embark in such an undertaking.

Bristol, Nov. 18. 1835.

ART. III. *Descriptive Notice, accompanied by Plans and Sections, of a Range of Forcing-houses, including a Green-house, erected for William Constable Maxwell, Esq., at Everingham Park, near Pocklington, Yorkshire, by Mr. W. Crosskill, Iron-Founder and Hot-house Builder, Beverly.* Drawn up from various Communications, forwarded by Mr. MAXWELL, his Gardener Mr. INGRAM, Mr. CROSSKILL, and others.

HAVING heard much respecting the range of hot-houses at Everingham Park, as being the handsomest in that part of Yorkshire, we applied to Mr. Crosskill for some particulars respecting them; when he kindly favoured us with a loan of



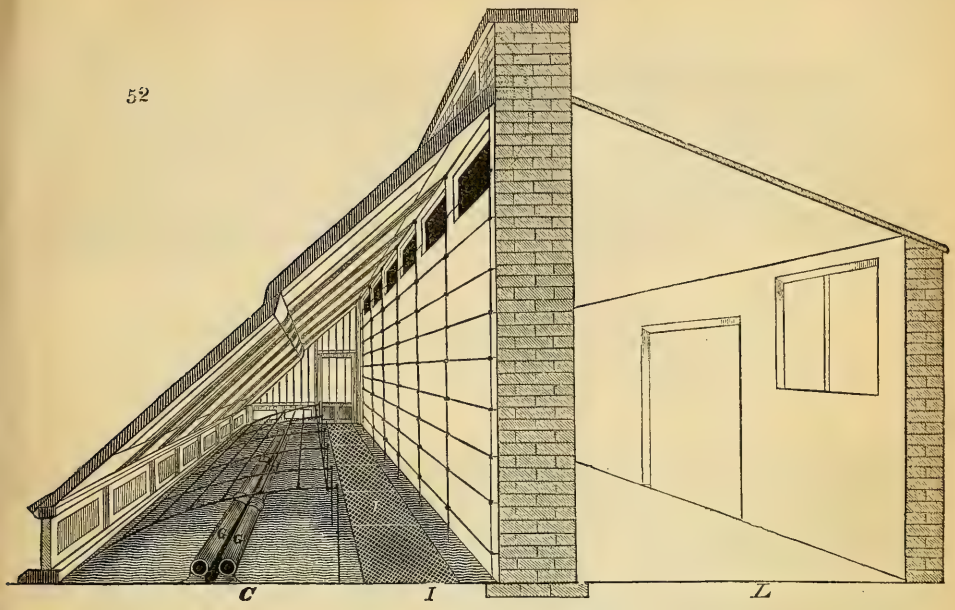
Perspective Section of the Vineries.

i, The floor of the pine pit; *L*, the back shed; and *G G*, the hot-water pipes.

the plans, from which the accompanying engravings are taken; and also sent us some particulars respecting the construction of the houses, and ample testimonials from Mr. Maxwell and his gardener, of the success which has attended their use after eighteen months' trial.

Mr. Maxwell says: "The hot-houses which you erected for me have fully answered my expectations; your system of heating them with hot water has proved most successful, and I can strongly recommend it to the adoption of any one. — *W. C. M. Everingham Park, May* 6. 1836."

Mr. Ingram, Mr. Maxwell's gardener, who is well known to Mr. Mackintosh of Claremont, Mr. Knight, Mr. Lowe, and other London nurserymen, as a highly respectable man, and an excellent gardener, says: "When you erected the hot-houses in the gardens of W. C. Maxwell, Esq., I promised you that, after a twelvemonth's trial, I would give you my candid opinion in regard to their merits; and, now that eighteen months have passed by, I consider that I am fully warranted to lay it before you. It affords me much pleasure to be able to assure you that these houses are, in every respect, to my satisfaction, and answer every purpose for which they were intended. Your plan of opening the ventilators is excellent, and I hope it will, some day, not far distant, be generally adopted. I can command a



Perspective Section of the Peach-houses.

G G, the hot-water pipes, over which is the peach trellis; *I*, the cast-iron footpath, and *L*, the back sheds.

sufficient degree of heat to force vines and peaches, and grow green-house plants at any season, even were the thermometer, out of doors, to fall below zero of Fahrenheit. Your mode of laying the footpaths, and fixing the iron framework round the pits is so good, that it cannot escape the eye of the most superficial observer. Upon the whole, I consider that Mr. Maxwell's hot-houses, on a small scale, are second to none.—*John Ingram. Everingham Park, April* 2. 1836."

The engravings, which form *figs.* 51—56., are separately explained under each, and, therefore, will require no further notice here.

From the descriptive notice sent by Mr. Crosskill, we learn that the roof and front framework, and in general all those parts usually made of wood, are here formed of iron, with the exception of the sashes; that the copings of the walls are iron, and also the walls of the pits and the pathways. By the walls of the pits being made of iron, any pit, however small, is increased in width and length by the difference between the thickness of a plate of iron, and that of a 9 in. or a 5 in. brick wall, a 3 in. flagstone set on edge, or plates of slate set on edge.

Mr. Crosskill never makes the sashes of iron, knowing from experience that wood is lighter, and slides with greater ease;

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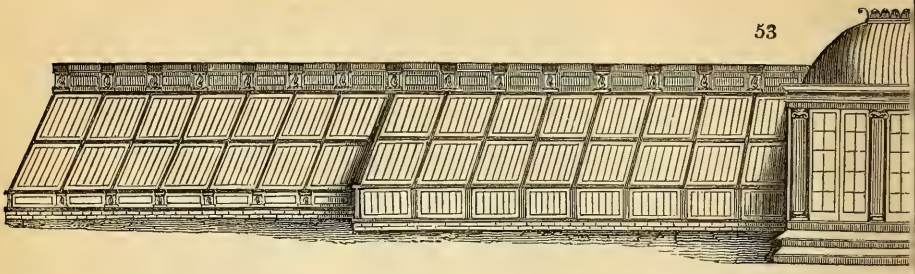

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also that, in putting up, they can be fitted more accurately to the rafters, so as effectually to exclude the weather. Another advantage of wooden sashes and iron rafters is, that, while the latter

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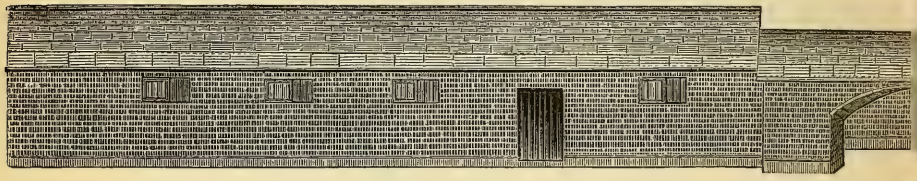

Elevation o

expand in a slight degree by the excessive heat of the sun in summer, the former contract in a very slight degree from the same cause. When Mr. Crosskill forms curvilinear roofs, he

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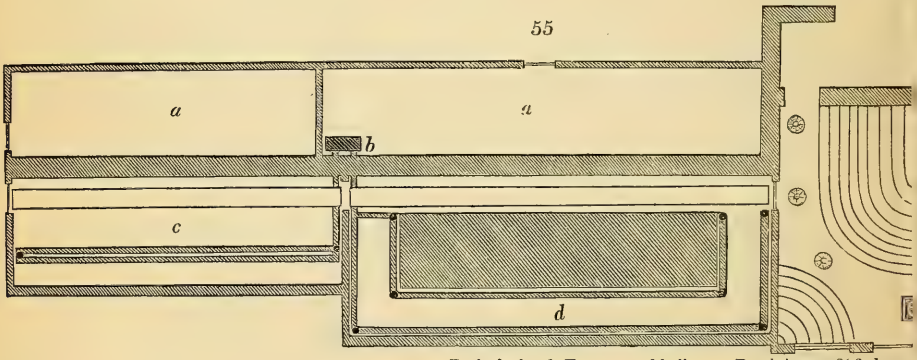

a, Back sheds; *b*, Furnace and boiler; *c*, Peach-house, 24 ft. long; long; *g*, Peach.

uses wrought-iron sash-bars, and makes the roof a fixture; by which means he never finds the slightest breakage of glass.

The expense of the whole of this range, which is 130 ft. long,

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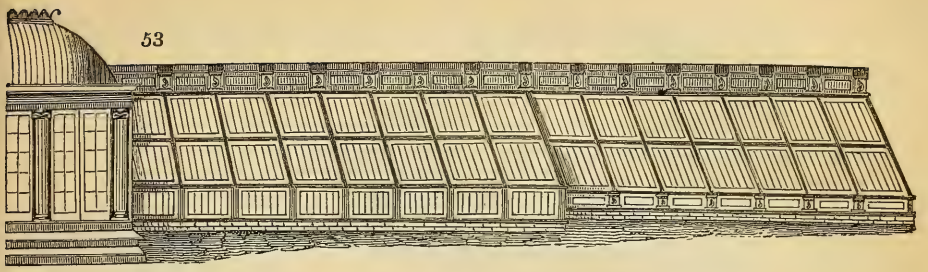

Elevation.

completed and ready for use, exclusive of bricks and brickwork, was only 1100*l.*, delivered at Hull.

Mr. Crosskill informs us, that he has erected another range

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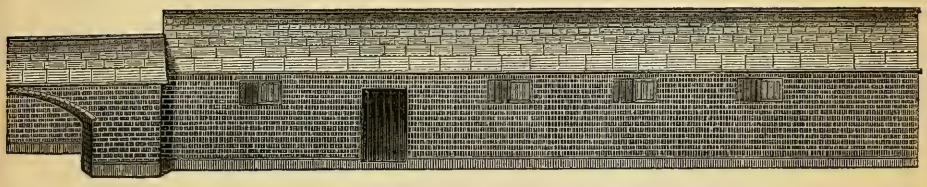

the Back Sheds.

of glass for E. H. Reynard, Esq., at Sunderland-wick, and a greenhouse and two vineries, of the same dimensions as those at Everingham Park, for Edward Steer, Esq., of the Ham, near

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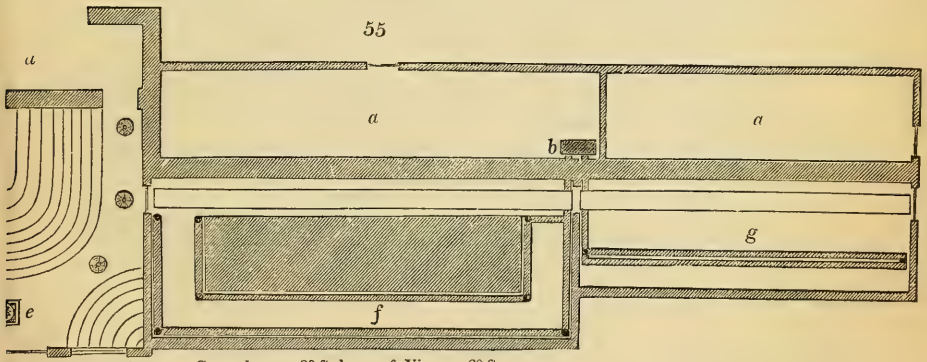
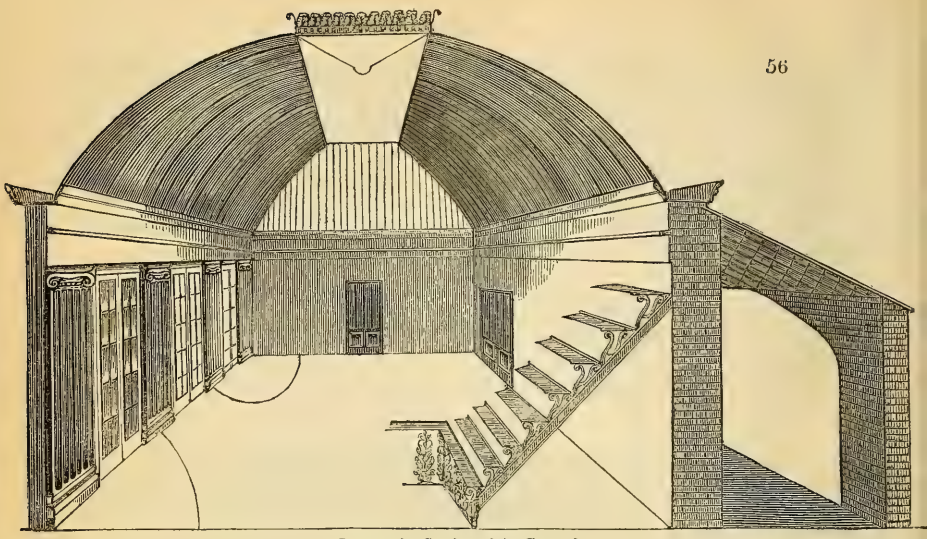


d, Vinery, 30 ft. long; *e*, Green-house, 20 ft. long; *f*, Vinery, 30 ft. house, 20 ft. long.

Hamburg. Mr. John Booth of the Floetbeck Nurseries, near Hamburg, who is now in England, and who called on us at the time we were preparing this article, states to us, that these



Perspective Section of the Green-house.

Stage, curvilinear roof, and back sheds.

houses have been much admired. We have also a testimonial of Mr. Reynard, who declares that he considers the houses which Mr. Crosskill erected for him "to be in every respect most complete, both as regards the workmanship and the design." He adds, addressing Mr. Crosskill, "They reflect much credit upon yourself and workman, there never having been one screw out of order, or one broken pane of glass, since they were put up. — *E. H. R. Sunderland-wick, May* 8. 1836."

[To us, the most remarkable feature in Mr. Crosskill's iron hot-houses is their cheapness, as compared with the price of iron hot-houses either in London or Birmingham. Whether the workmanship is equally good, or not, can only be ascertained by a minute comparison; which we, of course, have no opportunity of making. We have done our duty, in having brought Mr. Crosskill's claims as a hot-house builder fairly and impartially, as we think, before the public.]

ART. IV. *On removing the White Scale from Pine Plants.* By Mr. CHARLES PULLEN, Gardener to J. L. Goldsmid, Esq.

THE method employed to remove the scale which particularly infests pine plants are various; and some are not only laborious

and complicated, but not always effectual in the destruction of the insects; while they are frequently injurious to the plants.

Many gardeners, however, are successful in cleaning their plants; and, at your request, I give you an account of the plan I adopted with the stock under my charge, which has removed all the scale from the plants and pits, as none have been seen for more than a year and a half past, although I found them in the state your correspondent refers to, p. 160.

The intended existence of the pine plant is only of short duration; and, when arrived nearly at its full size, in a state overspread with the scale, it is then doomed to undergo some severe treatment, to make it appear more comely. Rather, I would say, take the young crowns and suckers, before ever being in pots at all, and rear them up through their successive stages in a clean and healthy state.

I put them all into a tub sufficiently large to contain the plants, and fill the tub with soapsuds from a laundress, and one sixth of good tobacco-water, the mixture being warmed to 90°; and, if thought too strong for the plants, it may be reduced by adding water. I tried a few first, to see how they would bear it; and I allowed them to remain in the liquid for five or six hours; I then took them out, and, after washing them in cold water directly on taking them out, I put them on a dry back shelf in the pine-pit, top downwards, till they were sufficiently dry, and then potted them, and plunged the pots in a hot-bed frame, with a good heat. In this way I have obtained a clean healthy stock of pine plants from those originally infested with myriads of the scale.

The old stock I fruited off, and kept all the others infested with the scale separate from those that I had operated upon. The pits, as they were emptied, I had well washed with hot water, afterwards with hot lime, mixed with a portion of blue black, and a little sulphur. The black was to take off the white appearance in the pits above the tan, and to make the walls nearer the colour of the bloom which is on the plants when they are in a healthy state. The stock now consists, for the greater part, of queens, including a few Envilles, globes, and white Providences; all of which have gone through the same process, and all are now clean.

Champion Hill, Camberwell, May 24. 1836.

ART. V. *On the Mode in which Hyacinths are grown in the Neighbourhood of Berlin.* By Mr. W. D. BRACKENRIDGE, now in the Berlin Botanic Garden.

HAVING lately paid a visit to the hyacinth growers in Berlin, I was so much struck with the vast quantities of well-grown bulbs

cultivated by them, that I cannot refrain from remitting for your perusal the few notes which I made on the spot.

You are well aware, that the Dutch, of all other nations in the world, are the most successful in cultivating bulbs for sale. I might say, that they carry this art to perfection; but the rapid strides which the growing of the hyacinth has of late years made in Berlin, gives me every reason to think that, in a very few years, that city may rank with Holland both as to quality and number. On the east side of the town of Berlin, within the walls, is a large tract of land, commonly called the Köpenicker Feld; formerly old pasture ground. Here a vast number of market-gardeners have of late years established themselves; and among them men of capital and taste are to be found, who, to enlarge the former, and gratify the latter, have betaken themselves to the cultivation of bulbs for the market. Among the most important of these may be reckoned M. Krause in the Fruchtstrasse, who has not less than seven acres planted with hyacinths; and, from a calculation which I made, above one million of flowering bulbs, and half as many seedlings. From the immense number grown of one sort, this field (for so I must call it) has a very grand appearance; the colours being so arranged as to resemble a rainbow; beginning with a light shade, which rises gradually to a dark blue, backed with red, which is lightly led away into a pure white; and so on, in alternate shades, to the end of the field. Just as I was entering the grounds, I found his Majesty the King of Prussia, who had honoured M. Krause with a visit, retiring, after having examined all the different kinds very minutely, and having expressed himself highly satisfied with the grandeur of the scene; which certainly exceeds any thing of the kind I have ever witnessed. The kinds which I observed he cultivates in large quantities are as follows:—

Single Reds. — Aimable Rosette, Gellert, Madame, l'Honneur de Sassenheim, Reine de Rouge, Riche en Fleurs, Rose à la Reine, Acteur, Superbíssima rubròrum, la belle Rose.

Double Reds. — Euterpe, Grossfürst, Hugo Grotius, Il Pastor fido, Rosenkranz von Flora, Superbe Royal.

Single Blues. — La belle Violette, Staaten General, Appius, l'Ami de Cœur, Manteau, Vulcain.

Double Blues. — A la Mode, la bien aimée, Nigritienne, mon Ami, Duc de Penthièvre, Perle brillante.

Single Yellows. — Aurore d'Or, Bouquet d'Orange, Jaune Merveille, la Pluie d'Or, Aidonia.

Double Yellows. — Bouquet d'Orange, la Favorite, Ophir.

Single Whites. — Impériale, Vainqueur, la jolie Blanche.

Double Whites. — Hermine, Pass Virgo, Raath van Staaten.

M. Krause had also, I observed, about four acres of early tulips, in a very vigorous state: the late ones were not in flower.

Those which appeared to me to be the finest grown, and in greatest quantity, were, Duc von Tholl, Grande Duchesse, Grootmeester von Maltha, Wit en rood borde, Standart, Tournesol, Rex rubrorum, Beauté parfaite, Braut von Harlem, Cerise royale, Aurora Arachne; with an immense quantity of fine seedlings, too tedious to mention. The next in rank as a bulb-grower may be reckoned M. Limprecht in the Koppenstrasse. His collection of hyacinths, though not so large as the last, consists of bulbs, which are extra well grown. M. Limprecht forces, on an average, every year, from 12,000 to 15,000 hyacinths, in pots, for the market. The early tulips were splendid. M. Limprecht has raised a variety of the Duc von Tholl from seeds, which he calls Duc de Berlin: it is much larger, and finer-coloured, and is said to force better than the original. Both of the establishments which I have mentioned are kept in a very orderly and business-like manner. In fact, the market-gardeners and florists in Berlin are rather a superior class of individuals: of the former you shall hear more at another opportunity. It would occupy too much room to enumerate here all the different gardeners that have turned their attention to this branch of floriculture, it having become general; but I cannot pass over the collection of M. D. Bouchi in Blumenstrasse; it being one of the most select and numerous in Berlin as to sorts. M. Bouchi has long been celebrated as a florist; and, certainly, his garden is worth visiting, not only for the neat and orderly manner in which it is kept, but for the rich collection of auriculas which it contains, and, above all, the original and interesting habits of its owner.

The Berlin growers generally begin to plant their hyacinth bulbs about the latter end of October, or beginning of November; the ground having been, the previous spring, trenched to the depth of 2 ft., and enriched with good short dung; which is planted, in summer, with cauliflowers, kohlrabi, or stocks, the seeds of which are made an article of trade. The bulbs are planted about 6 in. deep, in rows parallel with the beds; the distance between the rows being regulated according to the habits of the kinds; so that they stand free of each other when in flower. Many fine sorts have been raised from seeds here; and, in general, the seedlings flower the third year. The beds are covered, in winter, with a thick layer of stable litter, which is removed early in spring. The ground appeared to be composed of two thirds of brown sand, with a portion of black vegetable earth; and the subsoil is a moist white sand. Although an immense quantity of hyacinths is required to supply the demand in Berlin itself, yet the greatest part of those grown in that city is sold to the Vienna and Saxony growers. In passing along the streets in Berlin, scarcely a dwelling-house window is to

be seen that is not decorated with flowering bulbs from January till May; and the hyacinths grown in the open ground are cut, and sold at so much per basket to the retailers, for making garlands, &c. There is, however, a great want of a regular vegetable market; flowers, fruits, and vegetables being, in general, exhibited for sale in the streets or open squares: a thing very incommodious. — *Royal Botanic Garden, Berlin, May* 4. 1836.

ART. VI. *On a Mode of producing Two Crops of Grapes from the same Vines in One Year.* By Mr. JAMES WALDRON, Gardener to the Archbishop of Armagh.

I NOW send you the short sketch I promised you of my mode of treating the vines that were under my care at Elmgrove, Roehampton, and which produced two crops in the year. I shall not attempt to give a detailed account of the management of all the houses there, but I shall confine myself to two pits, each 52 ft. long. When I went to Elmgrove on the 15th of April 1833, I found that my predecessor had been forcing the vines in those pits since Nov. 1832; and that the grapes in both pits did not exceed 5 lb. In Nov. 1833, I began to force the west pit; and by the end of March, 1834, I had a pretty good crop of grapes, according to the strength of the vines, fit to cut; and by the end of April all the grapes were gathered. The other pit then succeeded. I immediately threw open the west pit, after pruning the vines, and filled the border with night soil. About June, the buds began to push, and they appeared very strong. I then shut up the pit, and gave very little air, and plenty of water, but no fire; and on Dec. 1834, I had a fine crop of grapes, fit to cut, and well coloured; besides my vines having made good wood, and the other pit coming in, as before, in succession. In the autumn of 1835, I had another still larger crop of finer fruit, with better wood; and the other pit in succession; and, if my employer had not been so very much alarmed at the expense of about 12*l.* for coals, I should have had another crop fit to cut this last February, which would have been four crops in one year and eleven months; and the vines as strong again as they were when I first had the care of them, and producing double the quantity of fruit.

Palace Gardens, Armagh, April 11. 1836.

ART. VII. *On a new and economical Method of preserving Endive through the Winter.* By Mr. JAMES CUTHILL, Gardener to Capt. Trotter, Dyrham Park.

As the season for endive is fast advancing, I send you the following account of a mode of preserving that plant, which I tried

last year through necessity, on account of our new pits having been built too late in the autumn to receive the endive plants for forcing in due time. I covered about one thousand full-grown green curled endive plants over with pans similar to those generally used for strawberries in the forcing season; and, knowing that the pans would neither keep out the frost from the plants, nor the rains from the border, without some additional protection, it struck me that leaves would be better than any other covering, on account of their absorbing the moisture. I accordingly covered the whole border with tree leaves to the thickness of 9 in., after getting the border as dry as the autumn would allow. Nothing more was done. The green curled endive, so treated, was much better than I have ever had it in frames; and two heads went nearly as far as four, on account of every leaf being well blanched. I am quite certain, that those gardeners who have the command of fine light ground will have no occasion to use frames at all. The ground here is nearly as stiff as any I have ever seen; and it is more liable to damp. I am also certain, from the nature of leaves, that, where people cannot command pans, by taking the best dry leaves, the plants would keep nearly as well without as with pans.

Dyrham Park Gardens, June 4. 1836.

ART. VIII. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Sir William Jackson Hooker, LL.D., &c.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Maund's Botanic Garden, or Magazine of Hardy Flower Plants cultivated in Great Britain; in monthly numbers, each containing four coloured figures in one page; large paper 1*s.* 6*d.*, small 1*s.* Edited by B. Maund, Esq., F.L.S.

RANUNCULÀCEÆ, *Clematídeæ*, § *Anemoneflòræ*. *Clématis *azùrea grandiflòra* Sieboldt was in flower at Messrs. Loddiges's on the 13th of May last; and *fig.* 57. is reduced to the scale of 2 in. to 1 ft., from a drawing taken of it by Mr. Francis Rauch,

May 15. This species has a large and beautiful blue flower, nearly 4 in. across. It belongs, apparently, to the division *A*nemoneflòræ; but has 8 petals instead of 4. Messrs. Loddiges received the plant, about seven months ago, from Holland; and, as it is a native of Java, it will probably be found half-hardy, or, perhaps, quite hardy. We delayed taking any notice of it last month, hoping that it would have been figured and described in some of the botanical periodicals. Further details respecting it will be given in the *Supplement* to our *Arboretum et Fruticetum Britannicum*, which will appear very shortly, with the last Number of that work.

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Papaveràceæ.

3370. ESCHSCHO'LTZ*IA* 28369*a* cròcea *Benth.* Bot. mag. t. 3495.

In speaking of the beauty of the specimen figured of this plant, Sir W. J. Hooker says: — "It has been remarked by several of my English friends, that the many beautiful hardy herbaceous plants, which have been lately introduced to our gardens by the indefatigable Douglas, succeed better in the humid climate of Scotland, than in the vicinity of London: they remain longer in perfection; the flowers are frequently larger, and the colours brighter." (*Bot. Mag.*, June.)

Every practical gardener must be a aware of the truth of this remark. Some alpine and American and Russian shrubs succeed better in the cold moist climate of Glasgow, than they do in the comparatively dry climate of Edinburgh; and many succeed admirably at Edinburgh, which do not thrive in the gardens about London, and which cannot be kept alive in the neighbourhood of Paris. *Rù*bus Chamæmòrus may be referred to as a proof of what we state; and, also, Oxycóccus palústris, and some indigenous vacciniums, heaths, ferns, &c.

Leguminàceæ, or F*abàceæ.*

2144. KENNE'DY*A* [1862
?19384*a* * macrophy̆lla *Lindl.* long-leafed ♄ ⊔ or 15 ... P Swan River 1835 C s.p Bot. reg.

"A beautiful green-house twining shrub, introduced by Sir James Stirling from Swan River in New Holland. It was raised in the garden of Robert Mangles, Esq., at Sunning Hill; whence specimens were received in the course of last summer. A pretty mode of managing such plants is that practised in the garden of Mrs. Lawrence, of twining the stems round and round to stakes fixed into the sides of the pot, so that the plant is compelled to grow round itself. The result of this is the collection into the compass of a bush of hundreds of clusters of flowers, which would otherwise be scattered over the roof of a green-house, and too far removed from the eye to enable the beautiful form and colour to be distinctly seen." (*Bot. Reg.*, June.)

Rosàceæ.

[Brit. No. 12900

1506. *CRATÆ'GUS* Crús-gálli *prunifòlia* *Lindl.* Bot. reg. 1868; synon. *C. prunifòlia* *Bosc.* Hort.

Spec. Char. Leaves oblong, unequally serrate, somewhat glabrous; spines not very long, straight; peduncles villous; fruit oblong, 2-stoned.

Dr. Lindley considers this as "apparently a distinct species of thorn, in the way of *C.* Crús-gálli ovalifòlia; from which it is readily known by its shaggy flower stalks, and its less pear-shaped fruits; each of which contains two, instead of three, stones." The genus *C*ratæ'gus is one of the very few that we have been able to study, and make up our mind as to what are species, and what varieties, in the collection of the London Horticultural Society, and in that of Messrs. Loddiges. We have been able to do that chiefly in consequence of most of the sorts having produced fruit last summer, and, also, from having seen old plants of some of the more rare species at White Knights, Farnham Castle, and Ham House. Perhaps another reason why we have arrived at satisfactory conclusions is, that, of all the genera of hardy, deciduous, ligneous plants, *C*ratæ'gus is that which we like the best. We know of no genus that is so interesting at all seasons, and that produces so much variety in the course of the year. It is among hardy trees and shrubs what *E*rìca is among green-house plants, and the oak and the pine among forest trees. From the thorns, the bark, the leaves, the fruit, and something in the general aspect of the plant, which is more easily felt than described, we are convinced that this very handsome kind of thorn is only a variety of *C.* Crús-gálli. Nevertheless, we fully admit the accuracy of Dr. Lindley's description, and agree with him, that it is a very distinct sort.

var. ovalifòlia *Lindl.* Bot. reg. 1860.; synon. *C.* ovalifòlia *Horn.* Hort. Brit. No. 12904

Distinctive Characteristics of the Variety. — Leaves obovately wedge-shaped, shining, glabrous, falling off late; spines strong, very long; pedicels glabrous; fruit pear-shaped, 3-stoned.

1531. *KE'RRIA* 1702 * japónica *Dec.*

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The double-flowered variety of this handsome early-flowering hardy shrub is well known to most gardeners; but the single state of the species is comparatively rare. There is a plant of it, however, in the Chelsea Botanic Garden, which flowered this spring, and which has been figured in the *British Flower-Garden* for June. *Fig.* 58. is a reduced copy, to the scale of 2 in. to 1 ft. This figure appeared rather too late for publication in our *Arboretum Britannicum;* but it will be found in the *Supplement* to be given with the last number of that work.

Onagràceæ.

Fúchs*ia* díscolor *Lindl.*, Bot. Mag., t. 3498., is never injured by the winters, even of Scotland.

Fuchsias and veronicas, with large woody stems, were seen by Mr. Anderson (who accompanied Captain King in his late

voyage for the purpose of surveying the southern extremity of South America, Terra del Fuego, and the Strait of Magelhaens) at Port Famine, in full flower, within a very short distance of the base of a mountain, covered for two thirds down with snow, and with the temperature at 36° Fahr.

" The Fúchs*ia*, certainly, was rarely found but in sheltered spots; but not so the veronicas; for the beaches of the bays on the west side of St. John's Island, at Port San Antonio, are lined with trees of the latter, growing even in the very wash of the sea. There is no part of the strait more exposed to the wind than this; for it faces the reach to the west of Cape Froward, down which the wind constantly blows, and brings with it a succession of rain, sleet, or snow; and in the winter months, from April to August, the ground is covered with a layer of snow from 6 in. to 2 ft. or 3 ft. in depth. There must be, therefore, some peculiar quality in the atmosphere of this otherwise rigorous climate which favours vegetation; for, if not, these comparatively delicate plants could not live and flourish through the long and severe winters of this region." (*Journal of the Geographical Society*, as quoted in the *Bot. Mag.*, June.)

Mr. Low of Clapton was the first who raised this kind of Fúchs*ia* in England.

Grossulàceæ.

719. *RIBES* [California ?1832 C co Sw. fl.-gar. 2. s. 340
5906*a* *m*alvàceum *Benth.* [? Smith, in Rees's *Cyclop.*] Mallow-*leafed* ☙ or 5 my Pa P

There in an account of this kind in our p. 38, 39. Professor Don and Mr. Bentham seem to consider it as a distinct species. We may be mistaken; but, from having observed *R. m*alvàceum, *R.* glutinòsum, and *R.* sanguíneum, in the London Horticultural Society's garden, and in various nurseries; and having, besides, a healthy vigorous-growing plant of each in our garden, we have not the slightest doubt of the three sorts being only varieties of one species. Professor Don recommends a soil composed of peat and loam; but we have seen it, in several places, growing in common garden soil as vigorously as the black currant.

" The leaves emit, on being passed through the hand, an agreeable balsamic odour." (*Brit. Fl.-Gard.*, June.)

G*enti*anàceæ.

794. *GENTIANA*
6363*a* quinquefiòra *Pers.* 5-flowered ○ or 1½ o Li New York ?1834 S s.l Bot. mag. 3496

This very pretty annual, which was raised at the Botanic Garden, Edinburgh, from seeds sent, without a name, by Mr. Thomas Churnside, nurseryman, New York, is considered by Sir W. J. Hooker to differ from the *G.* quinquefòlia of Linnæus, Willdenow, Lamarck, and Sprengel; because these authors all refer to the figure given of a plant under this name in the *Flora Danica*, which differs from the plant figured in the *Bot. Mag.*, in having the leaves ovate, instead of acuminated, and the flowers axillary as well as terminal. (*Bot. Mag.*, June.)

Labiàceæ.

3380. PHYSOSTE'GIA [Bot. mag. 3494
*truncàta *Benth.* truncate-*calyxed* ○ or 1 ... Pa Pk San Felipe de Austin 1834 S lt.l

Seeds of this handsome annual were sent from San Felipe de Austin to Europe, by Mr. Drummond, in 1833 and 1834; and plants flowered in the open borders of the Glasgow Botanic Garden in 1835. (*Bot. Mag.*, June.)

*Euphorb*iàceæ.

1460*a*. POINSE'TT*IA* Gra.
pulchérrima *Gra.* fairest ❀ ▭ or 1 ja.mr Bt. S Mexico 1834 C s.l Bot. mag. 3493

This plant has been repeatedly noticed in our pages. See in p. 209. 256. The engraving exhibits a splendid display of bright scarlet bracteas, which measure nearly a foot across; and the circumstance of the plant flowering in winter, must render it a desirable object in every garden where there is a stove, whether for ornamental plants or pine-apples.

" The rose-like whorls of bracteas which terminate the branches have been seen, on the large plants cultivated at Philadelphia, as much as 20 in. across, and equal in colour to the finest tints of *H*ibíscus *R*òsa-sinénsis." (*Bot. Mag.*, June.)

Orchidàceæ.

2503*a*. *CRY'BE *Lindl.* (*Kruptō*, to conceal; whence *krubeis*, concealed; in allusion to the manner in which the column is hidden by the floral envelopes. — *Lindley.*) [reg. 1872
**r*òsea *Lindl.* rose-*coloured-flowered* ⚘ △ or 1 ju P G Mexico 1834 D p.r.w Bot.

This plant is remarkable for never expanding its singular club-shaped flowers, the edges of the lip turning inwards, and forming a sort of disk at the end of the flower. It requires the same management as Blèt*ia* verecúnda. (*Bot. Reg.*, June.)

2521. RODRIGUE'Z*IA*
*22632*a* Bárker*i* Hook. Barker's ⚘ △ cu 1 ja Pa G Brazil 1835 D p.r.w Bot. mag. 3497

" Imported by George Barker, Esq., of Birmingham, and communicated to us, in full flower, January, 1836, by Mr. Cameron of the Birmingham Botanic Garden. The whole flower is of a uniform pale green colour, and nearly destitute of fragrance." (*Bot. Mag.*, June.)

2530*b*. *MORMO'DES *Lindl.* (*Mormō*, a frightful-looking object, a goblin; in allusion to the strange appearance of the flowers. — *Lindley.*) [D r.w Bot. reg. 1861
**atropurpùrea *Lindl.* dark-purple-*flowered* ⚘ △ cu ¾ d D P Coast of the Spanish Main 1834

Sent to Dr. Lindley from the garden of John Willmore, Esq., of Oldford, near Birmingham, with whom it flowered for the first time.

" A tender stove plant, requiring the same treatment as Catasètum, Cycnòches, &c. With reference to orchideous plants, with this habit, it may in general be observed, that they require to be kept cool and dry when not in a growing state; to be forced gently into growth; and, when in the full vigour of their vegetation, to have a copious supply of moisture. They will at that season even introduce their roots into water, if they are allowed, and flourish the more under such treatment." (*Bot. Reg.*, June.)

2537*a*. *TRICHOPI'LIA *Lindl.* (*Thrix*, a hair; and *pilion*, a cap. The anther of this genus is concealed below a cap surmounted with three tufts of hairs. — *Lindl.* [p.r.w Bot. reg. 1863
**t*órtilis *Lindl.* twisted-*petaled* ⚘ △ cu ¾ ja W blotched with C Mexico 1835 D

" A beautiful and highly curious plant, communicated, in January last, by George Barker, Esq., of Springfield, near Birmingham. From the habit of this plant, it may be conjectured that it will thrive in the stove, under the same treatment as maxillarias." (*Bot. Reg.*, June.)

2547. DENDRO'BIUM 28806 macrostàchyum.

In the *Bot. Reg.* for June, 1836, D. Lindley mentions a very curious circumstance connected with this plant. Dr. Lindley had received a dried specimen of it from Ceylon; on examining which, he "found a minute blanched portion of it that seemed still alive: this was fastened by a nail and shred to a damp shady wall in a stove in the garden of the London Horticultural Society, where it gradually recovered its green colour, and began to grow. By tending it carefully, and not feeding it until it had recovered the effects of its long fast, while buried between two sheets of brown paper in a dry chest, it gradually recovered, and grew into a plant, the offspring of which has been distributed." (*Bot. Mag.*, t. 1865.)

2554. EPIDE'NDRUM [Bot. reg. 1867
*22741. *armenìacum Lindl.* apricot-*coloured-flowered* £ ⍓ pr ¾ ju Ci Brazil 1834 D p.r.w

This species was imported by Messrs. Rollinson of Tooting; and it is readily increased by division of its tufted stems.

"It was first seen in England, in flower, in the year 1835, at one of those splendid exhibitions in the Garden of the London Horticultural Society, which attest more strongly than even the country residences of our nobility and gentry the skill and perseverance of English gardeners. There, in the midst of the dazzling scarlet or pink of various kinds of *C*actàceæ, and surrounded by the brilliant plumes of Chinese azalea flowers, that weighed down their graceful branches, which really seemed as if they were proud of the lovely burdens, from a basket of humble moss, a little tuft of stems of this species was seen to rear its modest head, as if in hopelessness of attracting notice in so gay a company. The neatness, however, of its tiny flowers, the pleasing tint of its apricot-coloured petals, the elegant form of their slightly nodding, or even drooping, clusters, and the novelty of their form is so well-known a genus as Epidéndrum, arrested the curious observer, who soon found the symmetry and simple elegance of the little blossoms of Epidéndrum *a*rmenìacum compeñsate for the absence of those more obvious beauties that adorned its gaudier rivals." (*Bot. Reg.*, June.)

[reg. 1870
*Skinneri Bateman MSS. Skinner's £ ⍓ cu ¾ jl G W Cumana 1834 D p.r.w Bot.

Found in August, 1834, near Cumana, by Mr. Skinner.

"It is not a pretty species, but it is very distinct from any previously described, and is remarkable for its stems being dilated at the upper end, like some of the species of Dendròbium." (*Bot. Reg.*, June.)

2483. HABENA'RIA [reg. 1858
22506*a* *procèra *Lindl.* tall-*stemmed* ⅄ ⍓ cu 2 au W G Sierra Leone 1835 D p.r.w Bot.

"This plant must have the heat of a damp stove, when in a growing state; but will doubtless partake of the habits of its kindred species, in requiring a longer period of coolness and dryness, while its roots are at rest, after the leaves have perished." (*Bot. Reg.*, June.)

Liliàceæ.

1080. *HYACI'NTHUS*
*spicàtus *Smith* spike-*flowering* ♂ △ or ¼ f Bluish Zante 1826 O l.p Bot. reg. 1869

"Ripe seeds of this plant were gathered in April, 1826, in the island of Zante, by H. F. Talbot, Esq., and were raised in his garden at Laycock Abbey, Wilts. As a species, it is well marked by its crowned sessile half erect flowers, and the double membranous bracts that subtend it." (*Bot. Reg.*, June.)

Pontederàceæ.

959. PONTEDE'RI*A*
*7758*a* cærùlea *Maund* blue-*flowered* ≦ △ or 2 au B N. America 1830 D h Bot. gard. 551

"From the unexpected loss of the specimen from which our drawing was taken, we are unable to determine whether or not it be more than a variety of P. cordàta. When the plant flowers again this shall be noticed." (*Bot. Gard.*, June.)

MISCELLANEOUS INTELLIGENCE.

Art. I. *Foreign Notices.*

SPAIN.

(*Continued from* p. 208.)

" *Section across the Castiles, between Valencia and Gijon.*—The *P.* halepénsis is found on the sands of the Albufera to the very brink of the Mediterranean, and extends, probably uninterruptedly, across the Sierra de Cuenca, in following the course of the Xucar. Above it, on the southern verge of the Sierra, I have every reason to believe is the *P.* hispánica, as before stated; and on the north side are the *P. Pinaster* and *P.* sylvéstris. The Alcarria and district near the junction of the Tagus with its great western branch the Guadiela, where there is a considerable mass of pine, have, to my knowledge, no other species than the *P.* halepénsis. This locality, in the vicinity of Sacedon, is, as far as my observation extends, the northern limit of this species, as the Sierra de Cuenca is the southern limit, certainly in Europe, of the *P.* sylvéstris.

" Reaching the foot of the Guadarrama, which is in the line of section, the *P. Pinaster* is seen forming the lower zone, but has nearly disappeared; and above it is a vast mass of *P.* sylvéstris, which forms the noble forest of S. Ildefonso ; and, no doubt, the same order prevails in those of the Tietar, in the neighbourhood of Talavera, and in the same range; where pitch and tar are made in considerable quantities.

" It will be observed that the same order exactly prevails on the opposite sides of the plain of New Castile, in ascending the Sierra de Cuenca and Guadarrama. After crossing this central range, the scanty remains of forest in Old Castile, between the Guadarrama and Valladolid, are of the *Pinea*, according to information I have received. In approaching the chain which divides Leon from Asturias, the oak, *Q. prasina* ?, is topped by the beech, which is at the Puerto of Pojares, on the road to Oviedo; and below it, on the other side of the range, are other oaks, elms, and chestnuts, to the sea. I could not ascertain that any pines exist in the elevated range of Asturias, the beech occupying, as in the Abruzzi, the highest level. The *P.* pectinàta, which is next in the series, does not appear until you reach the Western Pyrenees.

" The districts not included in these sections are Catalonia, in which, from the coast as far as my observation has extended, there is only the *P.* halepénsis, which is in large quantities, every hamlet and village having a proportion, which would be much more valuable, but for the barbarous practice of polling, or cutting off the branches, so fatal to the fir tribe, and which completely defeats the purpose meant to be obtained by it, of procuring a larger quantity of timber on a given extent of ground. There are said to be three kinds of pine on Monserrat; but they escaped my observation the more easily, as it is impossible, in the manner the trees are cut, to distinguish a species from individuals with only a small bunch of branches at the top of a trunk twenty or thirty feet high. It is not improbable that the *P.* hispánica may be found in the upper region of the mountain; and a desideratum, in this part, would be, to follow the line from the coast to the forests of *P.* hispánica on the Essera, to ascertain (which I have not had the opportunity of doing) whether there is a species or more interposed between the *P.* halepénsis and *P.* hispánica, in ascending from the coast level. [From a commuuication from the author, dated Dec. 9. 1835, we learn that, after more muture consideration, he is inclined to place the *P.* hispánica above the *P. Pinea*, but still without considering the point as quite settled.]

" In the Pyrenees, on the confines of Aragon and Navarre, and on the river which gives the name to the former kingdom, is a valley named Roncal, which produces the timber used at Zaragoza, and which they assured me was of excellent quality. I could obtain no certain information about the species

of the tree, which is, most probably, either *P.* uncinàta, or *P.* sylvéstris; most likely the latter. The adjoining country to the west, the Roncesvalles district, is clothed with the *P.* pectinàta, like the opposite side of the French Pyrenees. Along the whole coast of the Tierra Caliente, as far as the Serrania de Ronda, I believe no other species to exist than the *P.* halepénsis. On the western coast of Andalusia are *P.* halepénsis and *P. Pínea.* The latter forms a forest, through which the old road passes from Uterra to Seville, which is still followed by horsemen and muleteers. In the Sierra Morena I saw no native pines; but I believe the species which properly represents that region, and which is found cultivated, is the *Pínea*, which probably extends into the southern provinces of Portugal. In Lower Estremadura I am unacquainted with any pinares or pine forests.

Forest Section across the Castiles.

S. B Sea of Biscay. *a*, Oak, chestnut, hazel, &c., of Asturias. P. P, Puerto de Pajares. *c*, Beech. *d*, Oak of Castile (*Q. prásina*). V, Valladolid. *e*, *P. Pinea* (stone pine). G, Guadarrama range. *f*, *P.* sylvéstris, forming the upper zone of the range. *g*, *P. Pináster.* *h*, Oak (*Quércus Tôza, Encina*, &c.) M, Madrid. *i*, *P.* halepénsis, *Encina*, &c., of Alcarria. *g*, *P. Pináster.* *f*, *P.* sylvéstris, of Val de Cabras. S. C, Sierra de Cuenca. *k*, *P.* hispánica? *h*, *P.* halepénsis. V, Valencia. M, Mediterranean.

"The respective lines of vegetation of the pine as to altitude, established by these observations, give, in the ascending series, *P.* halepénsis, hispánica, *Pináster*, *Pínea* (in Old Castile), pectinàta, sylvéstris, and uncinàta. The *Pínea* also occupies a much lower range in the flat of the Guadalquivir, where it is equal with the halepénsis, thus varying its native habitats considerably. The value for economical purposes is nearly in the ratio of the ascent, the order increasing being, halepénsis, *Pináster*, *Pínea*, hispánica, pectinàta, sylvéstris, and uncinàta.

"It may be necessary to observe, that, in naming these species, the only certain mode of distinction has been followed, which is that founded on the fruit or cones; the other characters, of colour, of length of spicula, and other artificial methods, only tend to mislead, and, even to the experienced eye, should be viewed with extreme caution. The difficulty of obtaining accurate information is so great as to be nearly insurmountable. The subject has been little attended to, scarcely at all; and the observations even of the translator of Linnæus, in the imperfect state of knowledge of that period, in this department, only mislead.

"It is far from being meant to be asserted, that the species in this vast country are confined to those in this list; it is possible more may exist, but they require examination and proof, and more than the idea held by many people in Spain, that every thing and every species is to be found on their soil.

"In examining the forests, care must be taken not to be misled by local names, which are exceedingly varied in the different provinces, and often do not apply to species at all. In the Sierra de Cuenca, for instance, they have a term applied to a tree in a particular state of foliage, and of stunted form, or what the French call 'rabougri,' in distinction from a sound and well-growing tree.

"*The Oaks.* — The evergreen oak is one of the leading vegetable features of nearly all Spain. The native woods of Aragon, of the greater part of Catalonia, of the Castiles, Estremadura, Andalusia, Valencia, and Murcia, are formed in a great measure of a species which has been little noticed, and has acquired an unfortunate appellation, that of gramuntia, from having been observed in a remnant of a wood near Montpelier, which is a kindred soil and climate to the middle and southern regions of Spain. This species is quite distinct from the *Q. Ilex*, its nearest congener. The leaves are thicker, more rounded at the point, of a dull glaucous green, and the tree altogether of a more compact and less graceful form than the Italian ilex. The great and

essential difference, however, consists in the acorns, which are edible, and when in perfection are as good as, or superior to, a chestnut. To give this sweetness they must be kept, as, at first, they have a considerable taste of the tannin, like the other species, which disappears in a few days, and accounts for the scepticism of some writers, who assert that both sweet and bitter are the produce of the same tree, and that their sweetness is no character. These are the edible acorns of the ancients, which they believed fattened the tunny fish, on their passage from the ocean to the Mediterranean; a fable only proving that they grew on the delicious shores and rocks of Andalusia, which, unhappily, is no longer the case. Remains of them may, however, still be traced in the west, and they produced the celebrated salted meats of Malaga, and that vicinity. These are the bellotas, which Teresa, the wife of Sancho, gathered herself in La Mancha, where they grow in the greatest perfection, and sent to the duchess, wishing, instead of their being only the best of their kind, they were the size of ostrich eggs. I have frequently seen them produced by individuals and offered to the company, as bonbons are in some countries, with a sort of apology for their small intrinsic value, from their size and flavour. This species is beyond question very hardy, I believe even more so than the *Ilex* of Italy. It ascends the sides of the Sierras, in the inclement region of the centre of Castile, and in Aragon is seen within the limits of the *Pinus sylvestris* and *uncinata*, as also in the cold and wintry valley of Andorre. The widest forests of it are now in Estremadura, where the best sausages and other salted meats are made from the vast herds of swine which are bred in them. This species [*Q. gramuntia*] ought to be denominated *Q. hispanica*, instead of a weak and obscure name from a wood, which I have heard no longer exists, where the tree may possibly not have been a native, although the climate and soil of Lower Languedoc very much resemble that of the two regions of Spain to which this tree is confined.

Q. Ilex. The genuine *Quercus Ilex* grows in the first, or humid, region, and alone would serve to indicate the difference of climate of that part of the peninsula. It may be seen in the neighbourhood of Bilboa, Santander, and Asturias, where, no doubt, it was once much more abundant. The *Quercus hispanica* [our *gramuntia*] is not found in that division, but appears the instant you cross the boundaries assigned to it; nor is the *Q. Ilex* found in either of the other two. The habitats would indicate a dry climate as best suited to this valuable species.

"A beautiful species was observed by Cavanilles, in the eastern part of the kingdom of Valencia, and named by him *Q. valentina*. A good plate is given in the *Icones Plantarum*, which is, unfortunately, the only tree he has figured. He mentions its having the valuable property of ripening the acorns a month sooner than the other species. They are however bitter, and fit only for animals. This species is not far spread. The district, it was observed, is in the Tierra Caliente; but I saw the branches of it in a *corral* in La Mancha, near Valdepeñas, where it had been brought from the adjoining hills for fuel. This is a much colder country, and quite within the middle region. I believe it to be identical with the *Quercus Ballota* of the catalogues, which is stated to be a native of Barbary, and has, no doubt, been named by some misapplication of the Spanish term *bellotas*, which means acorns generally. These evergreen oaks are termed, in the country, encinas, to distinguish them from the robles, or deciduous oaks, and the cork trees, which have the specific name of alcornoque.

"This last species is spread through the Tierra Caliente in all its extent, but is most abundant in Catalonia and Valencia, whence the principal exports have been made. The forests of Lower Andalusia are proceeding rapidly to extinction. A contract has lately been made for the extraction of a quantity of the finest bark from the Sierra Morena, in the neighbourhood of Seville, where it has hitherto been allowed to pass unnoticed. The money resulting from this bargain I have understood was applied to building the new theatre at Madrid: but, to show the manner in which business is conducted in these

jobs, the contractors were compelled to take the inner bark as well as the outer, which forms the cork. This inner rind is only fit for tanning, and was an encumbrance to the parties, who had no demand for it, and were obliged to go abroad to seek for purchasers. The evil is, that the stripping it kills the tree; so that this contract, for the sake of a paltry temporary gain, will be the cause of a national loss of a prodigious number of valuable trees. The form of this tree is much more beautiful than that of the encina, as it grows with more freedom, and, in the districts suited to it, attains a great height. It is little seen in the middle region, excepting in Estremadura, and in a wood near Talavera de la Reyna, where I believe it is mixed with the encina. I cannot positively assert it to be so, having passed it rapidly; but, if it be, this is its northern limit.

"A noble species is associated with the *Sùber*, in the neighbourhood of Gibraltar, where I met with it in ascending through a forest to the left of the common route to Cadiz, above Los Barrios. We were compelled to quit the road on account of the floods, which made the regular line impassable, and to scramble up amidst masses of sandstone, where it was growing with the *Sùber* and *Rhododéndron*, and other beautiful plants. This species, one of the finest of the European trees, and which has not yet found its way into our nurseries, was pronounced by Dr. Lindley to be the *Quércus austràlis* of Link. The leaf is very large and ovate, with small indentures. The acorns might be easily procured in October, or the beginning of November, from Gibraltar, where the species could be preserved, and gradually removed to a more northern climate. The *Quércus* coccífera, or kermes oak, is found in vast quantities in the southern division, and as far north as near the central line of Spain; but I think it does not pass the Guadarrama range. There are said to be two kinds; but it is not improbable that the spray, or young shoots, of other species, which sometimes resemble it, may have caused this idea.

"*Deciduous Oaks.* The uplands of Castile, the Alcarria, and Guadalaxara districts, the neighbourhood of Leon and of Valladolid, at a corresponding elevation with that of the encina, offer an oak thought by Dr. Lindley to be the *Q. prásina*, of Bosc; but there is not an absolute certainty of it; and I never crossed any of these districts in the fruit season. Another species, somewhat similar in appearance, if it be not the *Q.* lusitánica, grows on the flanks of the Sierra de Segura with the *Q. Encina.* At a parallel above these, on the Somosierra, at S. Ildefonso, and on the Sierra Nevada, in ascending to the Barranco de San Juan, where it forms the upper zone of forest, above the *Q. Encina*, is seen the *Quércus Tòza* or *Taúzin*, or its variety, pubéscens.

"Q. *Æ'gilops.* In the Sierra de Morena is found the *Quércus Æ'gilops*, but it is rare, owing to a prejudice of the peasantry that it causes abortion in the brood mare.

"*The QuércusRòbur* is the most abundant, and almost the only species in the whole of the northern district, or first region; such parts, at least, as I visited. It extends through Navarre, Guipuscoa, Biscay, maritime Castile, and Asturias; but I never saw it in the middle region, where it is immediately replaced by the other kinds above mentioned. The oaks in the park or outer grounds of Aranjuez are of this species, but they have evidently been planted; and, whether from the soil not suiting them, or from over irrigation, are bad specimens of it. By a singular prejudice, which we may well pardon, the oak for the sculpture of the cathedral of Pamplona was brought from England, as mentioned in the sketch of that place, whilst it is the common species of the neighbourhood.

Q. Tòza *and* Q. *pubéscens.* The other kinds in the northern region are the *Tòza* and pubéscens, rarely; and the variety (I am not acquainted with the name) mentioned in the account of the Pyrenees. I am ignorant of the species of deciduous oaks which grow in Catalonia, where there is a considerable quantity, having been in that country in a backward spring, before the leaves were sufficiently developed. There is also beech, which is exported, but I am not acquainted with the locality.

" In an economical view, there is a lamentable deficiency in this catalogue. In the whole of the species enumerated in the southern and middle regions, it is doubtful if there be a single one which produces good timber. The best is the *Q. Encìna*, which is heavy, and unfit for most uses, and is now unfortunately the only firewood in most parts of Castile, which is hourly diminishing the scanty stock that yet remains. The mode of cutting increases the evil; the practice of the peasantry almost invariably being to level the whole tract which they attack. The consequence is, that there is a tolerably vigorous spring from the stocks. This is soon cut, when a more feeble spring takes place, and is again levelled; after which operation being repeated a few times, every remnant is annihilated, and the country reduced to the open waste it now exhibits. In the oak tribe it is of vast consequence to have standard trees, as the fruit is not blown about, and has a scanty power of vegetation, which is soon lost by exposure to the air. The acorns fall in a mass underneath the tree, where they are soon devoured by various animals, or spring in situations where they cannot thrive; whilst the seeds of the sycamore, or ash, or pines, are transported by the winds about, and have infinitely greater chance of being perpetuated. The ash grows along the foot of the Guadarrama range, but not farther south, to my knowledge. The elms and poplars, and other trees of similar description, are not intended to be noticed, being of little value compared with the more important species enumerated.

" Should it be intended seriously to establish woods and forests in Spain, which must be done before any regular improvement can take place, the *Quércus Cérris*, and probably the apennìna and sessiliflòra, which grows in the kingdom of Naples, ought to be introduced in the southern and middle provinces, and above all the larch, of which the value is quite unknown, and for which they have vast tracts of waste peculiarly suited.

" It will be easily seen that naval resources for building may be said not to exist. With the exception of a small quantity of the *Q. Ròbur* [? pedunculàta] in the northern provinces, only to be obtained with great difficulty and expense, there is in the wide range of this magnificent country absolutely none available for such purposes."

(*To be continued.*)

Art. II. *Domestic Notices.*

ENGLAND.

The Professorship of Botany at King's College has been given to Mr. David Don, Librarian of the Linnæan Society; a circumstance which we are exceedingly glad of on various accounts. We had the pleasure of hearing Professor Don's Introductory Lecture, May 2., as we had that of Dr. Lindley, seven years before, in the London University. Rapid indeed has been the progress of scientific botany in London since that period; mainly, as we believe, owing to Dr. Lindley's having had the courage to commence teaching the Natural System, instead of the Linnæan method. Professor Don did not, as far as we could hear, state what mode of teaching he intended to pursue; but we have no doubt it will be one analogous to that of Dr. Lindley's, and calculated to give the student a knowledge of the nature of plants, rather than a mere key to the discovery of their names. In paying a tribute of respect to the names of modern botanists who have advanced the science, we were glad to observe that Professor Don included that of Du Hamel. We doubt much if Du Hamel's merits as a vegetable physiologist are duly appreciated in this country. It is astonishing to us to look back and reflect on the number of years which British botanists and gardeners have been in becoming acquainted with the doctrines which were perfectly familiar to Du Hamel in the middle of the last century: for example, the ascent of the sap absorbed by the roots

through the soft wood; its maturation in the leaves; and its descent by the inner bark.

South London Floricultural Society. — The first general meeting and flower show of the above Society, for the present year, took place at the Horns Tavern, Kennington, on April the 7th. The show of flowers may be considered as magnificent, considering the severity of the season: every table of the large ball-room was thickly studded with the most superb specimens, and, amongst others, that singular plant Tropæ`olum tricolòrum was most distinguished This plant, to the great regret of the floral world, was lost, many years ago, at the Botanic Garden, Chelsea; and the restoration of it has afforded much pleasure. There were abundance of azaleas, salvias, primulas, roses, camellias, oxalises, magnolias, cyclamens, ericas, &c. Catcleugh of Chelsea exhibited a splendid show of pelargoniums, consisting of all the best known varieties. The cucumbers from Mr. Conway of Fulham were much admired, being 17 in. long. The prizes were awarded, for the best pair of auriculas, to Mr. Harding of Sydenham; and for the second best, to Mr. Lidgard of Hammersmith; for the best seedling auricula, to Mr. Dickson, Clapham; for the best polyanthus (Burnard's Formosa), to Mr. Harding; for the best hyacinths, to Mr. Lane of Henlingham, Fulham; for the second best ditto, to Mr. Chandler, Wandsworth; and for the first, second, and third best miscellaneous collection of plants, to Messrs. Chandler, Young of Epsom, and Fairburn of Clapham Rise. Extra prizes were given to Mr. Sadler of Dulwich, for the best specimen of fruit; and to Mr. Conway of Fulham, for the best vegetables. (*Morn. Chron.*, April 8.)

A Botanical Collector has recently been sent out from Kew, to South America; and another, it is said, will soon proceed to Mexico, under the auspices of the Horticultural Society. Lord Mount Norris's collector has arrived safely in New Zealand. We wish we could hear of our friend Dr. Lippold being engaged in an expedition of this kind.

The Weeping Oak (*QuércusRòbur var.*) *at Moccas Court, Herefordshire*, the seat of Sir George Cornewall, Bart. This is one of the most extraordinary trees of the oak kind perhaps in existence. It was first pointed out to us in 1806; and we have lately had the following account of it sent to us by Mr. J. Webster, who was then, and is still, gardener and forester at Moccas: — The tree is in vigorous health; the height of the trunk to the first branch is 18 ft.; girt, 9 ft. from the ground, 13 ft. 2 in.; total height of the trunk 75 ft., with branches reaching from about the middle of its height to within 7 ft. of the ground, and hanging down like cords. Many of these branches are 30 ft. long, and no thicker in any part of that length than a common waggon rope. The entire head of the tree covers a space 100 ft. in diameter. The tree bears acorns every year, from which many plants have been raised, all of which partake more or less of the weeping character of the parent, and many so much so, that, when they are young, they are obliged to be supported by props. Many of the trees raised from this oak at Moccas are 20 years before they show much inclination to hang their branches like cords; others begin to do so when they are quite young. There are plants at Moccas, raised from the parent tree, which are 50 years old.

A common Oak at Moccas Court was blown down in a hurricane on Jan. 19. 1804. It was 105 ft. high; the diameter of the space covered by its branches was 135 ft.; and the cubic contents of the trunk, and of the principal limbs, were 23 tons.

Planting at Moccas Court has been carried on with great vigour by the late proprietor, Sir George Cornewall, and his father. Mr. Webster has been gardener and forester there for 43 years. Many of the trees which he first planted, he says, have now trunks, which will square 1 ft. on the side, for lengths of from 40 ft. to 60 ft. He has planted nearly 300,000 oaks, besides other trees, particularly on hill sides, unfit for producing either grass or corn from their steepness. Nurseries were made on these hills, and the trees raised there which were to be planted in the adjoining ground. Mr. Webster

says, that he found that these nurseries "fitted the trees to the climate, which made an indescribable difference in their growth when planted out." He also found that young trees from the hill nurseries grew much faster on the low grounds, than young trees which were raised in the low-ground nurseries. Larch trees, 30 years planted, have attained a large size, and are used for all building purposes, and for fences. Mr. Webster has removed oak trees that took ten horses to draw them. The oak, he says, thrives so well in that part of the country, that, if it were not for the cultivation of the fields, the whole would soon become one continuous oak forest.

The Alpine Laburnum (*Cýtisus Labúrnum var. alpìnum*). — Having been observing the blossoming of the laburnums in the neighbourhood of London, this season, with rather more than usual attention, in consequence of writing on the subject in our *Arboretum Britannicum*, we have discovered along the road sides in the front gardens of suburban villas many intermediate varieties between what is commonly called the English laburnum (*C. Labúrnum*), the earliest sorts of which come into flower about the middle of May, and what is called the Scotch laburnum (*C. L.* alpìnum), the latest varieties of which will not come into flower this season till the middle of June. In the garden of the Craven Arms Inn, in Black Lion Lane, Bayswater, occupied by Mr. Long, who was formerly a gardener, are several very distinct varieties both of the English and Scotch laburnum; but there is one of the latter which, for the number, magnitude, and fragrance of its blossoms, deserves particular notice. The tree, which is about 20 ft. high, has only been planted five or six years; but it was then about 6 ft. or 8 ft. high. It was now so completely covered with blossoms, that scarcely a leaf can be seen; and not even its ramifications, except by walking underneath the tree, and looking up, when it appears one rich mass of long, round, bright yellow tassels, supported by the black branches. The flowers are now (June 8.) fully expanded, and the racemes measure in length, on an average, 15 in. or 16 in. each. This plant never bears seeds; but there are numbers of common laburnum trees in the same garden which do, some of which are now completely out of bloom, and others partially so, and one of them has not yet a single blossom expanded. We recommend nurserymen to apply to Mr. Long for scions to bud on the common variety; and, in the autumn, for all the seeds produced by the other trees, in order to sow them, and select from the plants produced some distinct varieties and subvarieties.

The Cýtisus purpùreus, appearing on the Hybrid Laburnum, has been noticed by Mr. Rivers (p. 224.) as having occurred about Paris, and also at Ickleton, in Cambridgeshire. The same thing may now be seen on our tree at Bayswater, planted in our garden in 1830 (see Vol. VI. p. 335.); and where it flowered for the first time in England, in 1832. (See Vol. VIII. p. 473.) This tree is the parent of all those propagated by Mr. Rivers, and of the plants of the same kind in the London Horticultural Society's Garden. It is worthy of remark, that some of the blossoms produced by this hybrid in the Horticultural Society's Garden were this year completely, and others partially, yellow. The circumstance of both of the parents being thus produced quite distinctly on different plants of this hybrid, would seem to indicate that hybrids between distinct species are not likely to be permanent; hybrids between varieties perhaps may be so. Next year, it is not improbable that a part of our tree will produce yellow blossoms. In the mean time, the branch of *Cýtisus* purpùreus on it, which has been seen by Mr. Rivers, and many others, is about 18 in. long, with twenty or thirty blossoms, now (June 8.) beginning to fade; and producing numerous side shoots. Before the autumn, it will be quite a large bunch. None of the laburnum-like blossoms of the tree have, as yet, produced seeds with us.

Choice Plants at Sheppy Hall, near Atherstone, Leicestershire. — Perhaps you may think the following particulars worth noticing in your Magazine, as coming from so northern a part: —

Gladìolus natalénsis Reinwardt, *G. cardinàlis Colvílli, and Watsònia mar-*

ginàta Ker *and W. ròsea* Ker. — These Cape bulbs I treat as follows : — I plant them about 6 in. deep, early in January, in a soil composed of gravel : sand one eighth, cow-dung three eighths, decayed leaves and turf four eighths, under a south wall. They all bloom most beautifully ; *G*ladìolus natalénsis in particular, both last year (1835), and in 1834, attaining the height of very nearly 5 ft., and having twelve or thirteen noble flowers on each stem. They bloom about August 7. ; and I take the roots up early in September, laying them to dry in the sun ; I then clear away all the soil, loose skins, and fibres from the roots, and keep them in a drawer until January 7. ; when I replant them as before.

Alstrœmèria, hirtélla, and *A. psittacìna.*—I have found, by the experience of the last four years, are perfectly hardy even in this latitude. I plant them very deep in purely vegetable soil, light and black, where they have grown for several years. Last year, some stems of A. hirtélla twined up a pole nearly 8 ft. high; and I gathered one specimen with twenty-eight blossoms. A. psittacìna does not grow above 4 ft. high, but flowers extremely well, though it never produces more than ten flowers. I am this winter trying the same treatment with A. aúrea, A. hæmántha, A. *r*òsea (Símsii), A. acutifòlia, A. trícolor, A. *Pelegrìna*, A. *Pelegrìna* flòre álbo; and, if you desire it, I shall feel proud to supply you with the result of my experiments. — *Henry Burt. Sheppy Hall, near Atherstone, Leicestershire, Feb.* 7. 1836. [We shall be most happy to hear again from this correspondent — *Cond.*]

*Fúchs*ia *arboréscens* Sims (*Bot. Mag.*, t. 2620.), a native of Mexico, has attracted the observation of many scientific men here. It is 22 ft. high, with a head 40 ft. in circumference ; the trunk, at the surface of the soil, 16 in. in circumference; 3 ft. from the ground, where it begins to branch off, 14 in. It had fifty trusses of flowers on it last August; and continued flowering in succession till the end of December. The trusses were 14 in. in diameter, and 1 ft. long. I bought this plant from Mr. Veitch of Killerton Nursery, six years since ; and I grow it in a mixture of loam and peat. — *James Harbison. Bridehead House, Somersetshire, Feb.* 19. 1836.

Plants in Flower on March 1. *in the Neighbourhood of Falmouth.* — To see the number of tender plants that are now growing remarkably well in the open borders at Mr. Fox's, Grove Hill, is surprising. The gardeners about London would scarcely believe it, except they were to see them. Here are acacias in variety, grevilleas, polygalas, metrosideroses, ericas, oranges, pelargoniums, &c., looking as healthy and flourishing as any other garden shrubs. The dahlias and asters are most splendid in this neighbourhood." (Extract from a letter to Mr. Rutger, dated March 1. 1836.) — *T. R. Portland-Place, March* 1. 1836.

Plants in full Flower at Penzance, Cornwall, at Mr. John Fox's Nursery Grounds, on Nov. 12. 1835. — *R*ícinus commùnis, western aspect ; *C*eanòthus azùreus, western aspect, covered 30 square feet of wall, from 1st of April to 12th of Nov.; Sóll*ya* heterophýlla, in full flower, 12th of Nov.; Lophospérmum erubéscens ; L. Rhodochìton (synon. Rhodochìton volùbile), in full flower, and had covered 20 ft. of wall, from 1st of April to 12th of Nov. ; Bouvárd*ia* coccínea ; Fúchs*ia* grácilis, 9 ft. high, and 15 ft. in circumference, three years old ; Fúchs*ia* Thompson*iàna* ; Fúchs*ia* globòsa, and virgàta, each 6 ft. high, and 9 ft. in circumference, one year's growth ; *A*sclèpias *s*alicifòlia [?Gomphocárpus fruticòsus] ; *R*òsa odoràta ; *P*olýgala, four species ; *D*ólichos lignòsus ; pelargoniums, several varieties ; dahlias, many varieties ; Chiròn*ia linifòlia* ; Bignòn*ia* grandiflòra ; *G*enísta canariénsis ; grevilleas, several species ; *P*lumbàgo capénsis, and zeylánica ; *L*upìnus mutábilis, and var. Cruikshank*siànus* ; and many other kinds.

When I left Penzance, on the 14th of February, we had in full flower in the open ground ; Prímula vulgàris ; several sorts of *N*arcíssus ; Galánthus nivàlis dùplici flòre ; heartsease and bloody wallflowers ; and many other flowers, too numerous to mention. — *John Harvey. London, Feb.* 18. 1836.

The above list, and others of a similar nature, may be useful in two points of view: first, by showing gardeners, in the warmer parts of the south of England, how greatly they may increase the number of plants they cultivate in the open air; and, secondly, by informing gardeners, in less favourable climates, what are the most hardy description of green-house plants, and what species they may venture to keep in pits, or to plant against conservative walls.

Leucòjum vérnum. — I have now in flower, in the Botanic Garden, some bulbs of the Leucòjum vérnum *L.*, sent to me, about two years ago, by G. Woodward, Esq., Surgeon, of Bicester, an excellent British botanist. This gentleman informs me, that he obtained them from a brake near the Catholic Chapel, Hethe, Oxfordshire, where they have established themselves in immense quantities, though there is no house or village near the spot. This species is a native of Italy, the south of France, Germany, Austria, and Switzerland, and has been cultivated in this country ever since the time of Gerard (1597); yet it is even now a very rare plant in our gardens. That it should have become naturalised in such abundance in this place, seems rather an extraordinary circumstance. Mr. Woodward tells me that it has been known to grow there for more than a century. (See *Brit. Flowering Plants*, folio 13., note). — *Wm. Baxter. Botanic Garden, Oxford, March* 7. 1836.

The Twickenham Botanic Garden Apple, a specimen of which has been shown us by Mr. Castles, the curator of that garden, which was founded by Mr. Swainson, and is now the property of Mrs. Canham. The apple tree has a somewhat fastigiate habit of growth, the branches first spreading out, and then turning upwards. The leaves are as large as those of the hawthornden; the flowers are middle-sized, with the petals white; the fruit is also middling sized, irregularly conical, with a short stalk, and hollow eye; yellow when ripe, and streaked with red next the sun. It is an excellent kitchen apple. What renders it particularly valuable is, its possessing the following properties: the tree has never been known to be attacked by the American blight; the blossoms appear later than those of any other variety of apple in the neighbourhood of London; the fruit has a short stalk, and is not liable to be blown off by wind; and it will keep till the middle of April or beginning of May. Mr. Castles, at our suggestion, has sent grafts of this tree to Mr. Thompson of the Horticultural Society's Garden.

SCOTLAND.

Sir W. J. Hooker. — We are happy to observe that the King has conferred the distinction of knighthood on Dr. Hooker: not that we attach much positive value to honours of this kind, but because we consider the circumstance of bestowing them on scientific men as indicating a more liberal and enlightened, as well as a more impartial, spirit on the part of government than has hitherto generally been displayed. Till lately, honours of this kind were almost exclusively confined to the army and navy; as if defending the country from its enemies were the greatest good that a man could do in enlightened times, as it certainly was in times of barbarism. Not only the French, but even the Russians, have been far in advance of us in the distribution of honours. In Russia, not only professors of every description, but artists, architects, engineers, mechanics, manufacturers, physicians, lawyers, &c., receive orders of knighthood, according to their degrees of merit; or to their standing and respectability in their several professions or other occupations.

IRELAND.

A variegated simple-leaved Ash has been discovered, and propagated for sale, by Mr. Henry Davies, Ogle's Grove Nursery, near Hillsborough, in the county of Down. A drawing has been shown to us (from which *fig.* 60. was re-

duced to the scale of 2 in. to 1 ft. for our *Arb. Brit.*) The variegation is white and yellow, with very dark, and also with light, green; and it does not seem to be attended with that ragged and imperfectly developed appearance of the leaf common to most variegations. The plants are said to take the habit of shrubs rather than of trees; and a number of them having been propagated by grafting, are now selling by Mr. Davies at one guinea each. We have recommended Mr. Davies to send a plant to the Horticultural Society, in order that it may be seen by the horticultural world generally.

Art. III. *Retrospective Criticism.*

Errata. — P. 296., for "Siedle," read "Seidel;" p. 297., for "garden itself," read "Royal Garden." P. 298., for "*P*olypòdium aúreum," read "Acróstichum aúreum." P. 300., for "Encephártos Frederìci Wilhélmi, and E. Altenstènii," read "Encephalártos Friderìci Guiliélmi, and E. Altensteínii."

Some alterations proposed in the Form of the Exhibitions of the Productions of Horticultural Societies. — Those I would suggest are, that market-gardeners, nurserymen, and all those persons who are known in any way to traffic in plants, should form one entire class, and compete among themselves; and that the private gardeners of the nobility and gentry should form another class, their productions at the exhibitions occupying a separate part of the room, and that they also shall compete among themselves. The latter class, at present, are not able to compete with the traders; and how can they? In the article of asparagus, for instance, sixty heads are required to be produced as a specimen. Now, the trading gardener has, perhaps, sixty times the space of ground the private gardener has for his selection; hence his great advantage over the latter. The public nurseryman and florist must, of course, obtain, by early purchase, the newest and primest articles for the market, long before they are introduced into private gardens: their plants, &c., are more for sale than show; and, consequently, they can bring ten for one that can be brought from a private garden. The private gardeners cannot possibly anticipate what are coming forward to the exhibition; for the ladies and gentlemen are not in the habit of purchasing plants or flowers, until they have seen them exhibited in tolerable perfection. It is with humility that I submit the forgoing observations to your consideration: they are the honest dictates of a heart that harbours not a wish but for the good of man; they are made in the absence of every feeling of disrespect for a single individual; and they aim at nothing but to prevent dissatisfaction and unpleasant feelings among the different parties concerned. — *Q. Doncaster, Nov.* 7. 1835.

The Horticultural Society's First Show of May 14. (p. 332.)—In looking over your remarks upon the London Horticultural Society's show of the 14th of May, I observe, in the enumeration you give of the fruits exhibited, melons are included. Now, a person looking over the list of prizes, would naturally en-

quire why melons were not favoured with a prize: a most reasonable enquiry, too, considering that this has been one of the worst seasons for growing them that has occurred for many years. There was but one ripe melon at the Society's show, and that one was cut upon the 10th of May, at Dyrham Park gardens. It is true it was but small; but, as it was the first melon ever produced at the first show of the London Horticultural Society, that circumstance alone, I think, ought to have had some weight with the judges. I know well there was not a single ripe melon round London at the time this one was exhibited, as, if there had, it would certainly have been sent there. I enquired of one of the judges if he had any. The answer was, No! Did he know any person who had? No! Now, I cut eight melons in the month of May, and none of them weighed less than a pound. I do not approve of growing only one or two large turnip-flavoured melons. Let them be small Canteloup, or large black rock. I grow equal numbers of each, that is eight, in a light. The light in length is 7 ft. Last year I cut 70 lbs. of melons out of three lights. However, my complaint is only one amongst twenty that might be made with regard to the Horticultural Society's show; and, if the judges are not more liberal, and more general in distributing their prizes, whether the gardeners' masters be members or not, gardeners will not take the trouble to bring their things so far merely to go home disappointed, while they can be far better rewarded by the provincial horticultural societies. — *James Cuthill, gardener to Captain Trotter, Dyrham Park, near Barnet. June* 4. 1836.

Serpentine Walls causing Currents of Air. (p. 162.) — I, like your correspondent Mr. Glendinning, feel much interested in the phenomenon of serpentine walls causing currents of air; and should feel much gratified should any of your readers be able satisfactorily to account for it. I had always thought, that the concavities of the wall formed so many sheltered bays; and, on asking Mr. Bane if he found the wavy wall of great utility, I was much surprised to hear that he did not think it so good as a straight wall, because it caused currents of air; and, on stating to Mr. Bane my surprise, he told me that, although not able to account for it, yet, in practice, he had always found it so. I think, also, that Mr. Duffus said the gardener who preceded Mr. Bane had made a similar observation. When I went home, I examined your *Encyclopædia of Gardening*, in hopes of getting the problem solved; but found it merely stated that, having been frequently tried, they had been generally disapproved of, as creating eddies (*Encyc. of Gard.*, § 1567.) I have since then endeavoured, without effect, to rest satisfied that, although not accounted for, yet it must be as stated. I have thought, that the same laws that change the direction of regular currents of air, on a large scale, might also be in force in regard to this; but, as yet, I have remained anxious to have information. — *G. M. Elliot. Ripley Castle, March* 19. 1836.

Culture of the Potato. (p. 132.) — In looking over the communication from R. L. on the culture of the potato (p. 132.), I find he says, that I speak "most decidedly against planting whole potatoes;" adding, that he has been a grower for the last twenty years; and that he is satisfied, by repeated experiments, the planting whole potatoes is best, especially of the kidney kinds; and that one third more is to be obtained by that method, than by cuttings or sets.

Now, R. L. has given us the results of only one solitary experiment to prove his assertion; and he has neither shown in what manner they were planted, save only that they were in three rows of 8 plants each; nor has he said a word of the distance the plants were from each other, nor of the manner in which the ground was prepared; both very essential points to be known, before we can justly decide on the superiority of his system over that in general practice. The quantity he obtained from the 8 whole plants is by no means extraordinary; it being frequently exceeded by potato-growers in the neighbourhood, who he thinks have neither time nor inclination to make experiments, and note the results: but in this he is much mistaken. For the last twenty years, the culture of the potato has been very much studied in this neighbourhood, and improved; and that, too, by a class of men who, certainly, have not much leisure time,

but whom necessity has stimulated to ascertain which is really the most profitable mode of culture.

I have adopted many different modes of culture, and have witnessed many others, by different persons, and have frequently found it a difficult matter to decide which is really the best; as every soil and situation has something or other connected with it that must be taken into consideration, and which cannot be met by any positive general rule. The same principle is applicable to the different kinds of potato; a true knowledge of which is to be only attained by long and active practice.

Now, Sir, R. L. has mistaken my meaning, in supposing that I speak *decidedly* against planting whole potatoes. I do not! I have frequently done so; sometimes with favourable results, and sometimes the reverse. In my communication, I merely state my general practice, with which I have every reason to feel satisfied, as by that method I obtain crops equal, and some to surpass, those mentioned by R. L.

As regards the cutting of potatoes being left to old women, I readily admit the fact; and know no reason why an old woman should not cut them as well as an old man. I certainly much regret the want of gallantry in R. L., in speaking thus disparagingly of old women. He should remember, those old women were at one time young; and that, what they have lost in youth, they have, in common with mankind, gained by experience; and I know many whose eye is so quick, by continual practice, that they can discern in a moment where to divide the potato, so as to make good strong sets for planting.

Notwithstanding my advocacy of the system, I can assure R. L. I am not so wedded to it, or to the old women who cut the potatoes, as to preclude my adopting any other practice, which can be shown, by a series of undoubted facts, to possess advantages over that of cutting: but this I cannot consider he has done, by merely giving us an account of the produce of eight whole potatoes, and of 16 sets of 4 eyes each. His experiment is not sufficiently extensive, nor his description of it sufficiently definite, to furnish data on which to decide.

Respecting the dry rot, he says he knows nothing of it relative to potatoes. If he is really a grower of any extent, he certainly is a most fortunate man to remain thus in "blissful ignorance" of that serious drawback on the potato-grower. I would tell him, it is not that drying up and shrivelling of the set after cutting, which we sometimes see when due care has not been taken; but it is what I should call a premature decay of the tuber, the effect of various causes, by which the vital principle is quite destroyed; and which is very frequently to be found in potatoes that at first sight appear sound, but which, on close inspection, are found destitute of their natural juices, or sap. Should those tubers be planted, the hopes of the cultivator are frustrated; and, if they be examined, they will in most cases be found, if cut or broken, to have the appearance of clotted meal.

I believe the dry rot might, in many instances, be avoided, were sufficient pains taken in the laying up potatoes. If they heat in the heaps beyond a certain degree, they will be injured in their vegetative powers; and it is from this cause, I apprehend, that what are called ship goods, are so often exclaimed against, as having the dry rot, and thus disappointing the hopes of the grower.

I hope R. L. will give us a definition of the terms "agricultural kidney," and "agricultural potato." The latter he describes as being the best for the gentleman's table, though not so productive as many others. Now, there are so many kinds of potato that, I think, have an equal claim to the term agricultural, that I know not on which to decide. I have known several kinds that were considered field potatoes thirty or forty years since; but they are great producers, and at that time were considered fit only for those "who ask no questions, the pigs." I suppose it is not any of these that R. L. means; although, from their long adoption in field culture, they certainly appear to have the best claim to the term agricultural. — *W. M. East Ham, March* 9. 1836.

On the Subject of Bottom Heat, as applied to the culture of exotics, practical

men are unanimous in admitting its utility; though Mr. Knight, as well as some others, has designated the practice as worse than useless, and has endeavoured to establish a system which he deems to be without the difficulties inseparable from the bark bed, and as possessing, at the same time, every requisite necessary for the culture of all tropical plants. To those men who object to bottom heat, as being unnatural, I must take the liberty of observing, that, even in our own climate, abundant proofs might be adduced to show, that bottom heat is often produced in the natural soil, particularly in the months of August, September, and October; and, in humid and low situations, sometimes a month or two longer. This is, no doubt, occasioned from the earth being strongly heated by the summer sun; the rain which falls in August, and the following months, serving as a conducting medium for the heat previously obtained as well as for what follows: yet, on trial, on the mornings at that season of the year, the temperature of the earth will be found to exceed that of the superincumbent atmosphere; but so far is this from being injurious to vegetation, that even Mr. Knight himself must acknowledge the reverse to be the fact, since during that period of the year the progress of vegetation is much more rapid than at any other period. The Rev. R. H. Williamson of Newcastle on Tyne (see his paper in Vol. IV. p. 24.) seems to understand the subject of bottom heat better than any one who has hitherto made any reference to it; and with his opinion I perfectly coincide. Mr. Knight is a gentleman much devoted to scientific pursuits, and especially gardening; and it is to be deplored that he should so often descend to sully his pen with aspersions on the characters of humble and unaspiring practical gardeners. Whether the gardeners in the vicinity of Downton are of a character to justify the insinuations made use of by Mr. Knight, I cannot tell; for, although I lived not very far from the site of his experiments, I never found any *real gardeners* willing to admit the superiority of his practice. One thing is evident: the diversity of opinion existing between Mr. Knight and many gardeners, who combine science with practice (such, for example, as Mr. Fish), will lead to diligence and investigation on the part of the young aspirant. — *George M'Leish. Ville parmi les Collines, Jan.* 1836.

Destroying the White Scale on the Pine Apple, &c. (p. 160.)—I did not see L. O. L.'s rejoinder to my reply on this subject till yesterday. Viewing the discussion in its proper light, it perhaps only concerns those engaged in it, and is of little or no importance to the public. It is certain that, as the only object in view is, that pine plants may be freed from the white scale, the best method is that which is the simplest, provided it be effectual; and no gardener, who finds that a few applications of soapsuds have the desired effect, will ever think of resorting to the more tedious process recommended by me. I, however, am far from being convinced, by the evidence L. O. L. has adduced, that plants can be *effectually* cleaned in the way he describes; for, if so, how is it that the insects upon his friend's plants required killing twice, or, perhaps, even oftener? That such was the case, appears to me to be a legitimate inference from the following words: — "In destroying the insects, I was obliged to deviate a little from what *was my practice when you were with me.*" If I rightly understand this passage (and, unless the plants were doctored a few at a time, no other meaning can be attached to it), it implies, that the plants alluded to had required cleaning more than once; and, if so, may they not require cleaning again? I have been assured by two persons (one of whom made trial of Speechly's recipe, and the other of the steam of hot dung, in the way described by Mr. Fish), that although, for a time, the plants experimented upon were supposed to be quite clean, yet in the course of the next spring the insects re-appeared in myriads. Should it happen, however, that the plants either of Mr. Fish, or of L. O. L.'s friend, *continue clean until next autumn*, I shall then be convinced that the white scale may be destroyed without previous removal; if, on the contrary, those plants are found *not* to be clean, I have a right to expect that they will make their failure known. All I require, or ever have required, is conclusive evidence; and, surely, L. O. L.

could not reasonably expect me to surrender to his unsupported assertion an opinion founded upon personal experience, corroborated, too, by the testimony of others, who are much better acquainted with the white scale than I am.

Not wishing to make the *Gardener's Magazine* the medium of a mere personal squabble, I shall not notice the last paragraph but one in L. O. L.'s observations, further than to remark that, when young men have to plod as journeymen, "through six, eight, or even more gardens," it is frequently owing to their own indolence, neglect of duty, and overweening self-conceit. Those who, by good conduct, obtain the patronage of influential persons are, I think, entitled to praise. Patronage, however, if it should place a young man in a master's situation, will not suffice to keep him there; and when it is found that he fulfils the duties of that situation with satisfaction to his employers, and credit to himself, every one must allow that such patronage has not been ill bestowed.

Aware that my name would add no weight to any thing I wrote, I did not make it known; and it would be much more agreeable to my habits to remain in obscurity; but, rather than be deprived of the information promised by L. O. L., I give my name and address. I shall now, for the satisfaction of myself, and others who think with me, expect from L. O. L. a full account of the several methods by which he has had "ocular proof," that the white scale can be destroyed upon the plants. — *J. B. Whiting, Gardener to the Earl of Tyrconnel, Kiplin, Yorkshire. April* 2. 1836.

The Deformity occasioned by the usual Method of nailing Fruit Trees has given rise to many attempts at improvement. The loop nail (*fig.* 61.) is no favourite with gardeners; and cross laths are unsightly, and unsuited to our climate. In my own case, I adopted the loop nail, and found, it is true, the injury to the wall obviated, but at the expense of the trees themselves. They were either tied too loose, or too tight, and, in every case, were at too great a distance from the wall. I then adopted the practice of securing them by pegs pushed through the loops. It has answered every purpose; and though, at first, it may be attended with more trouble to the operator, I think, in the end, the owner of the wall will be satisfied. The loop nails must, of course, be in a line with the branch, that the peg may cross and secure it. The best pegs are made from the straight shoots of the hazel, split and cut to proper lengths. — *V. R. May*, 1836.

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Art. IV. *Queries and Answers.*

Crickets in Hot-Houses. — Having had a great many strawberries, as well as pine-apples, destroyed by crickets, I should be greatly obliged to you, or any of your readers, if you could inform me of the best method of destroying them. — *W. Colyer. Worthend, Crayford, Kent, May* 23. 1836.

A device that I have known to be used for capturing crickets in a house, and which was effective, is, putting portions of the crumb of bread into a basin, with a portion of water, that did not fill the basin by a good deal: the crickets got into the basin, and were drowned. — *J. D.*

A Remedy for the Thrips. (p. 162.) — The enquiry of your correspondent R. Fish (p. 162.) for a safe and effectual method of destroying the thrips, of which he so much complains, has induced me to give you the plan I have followed, and an account of the success that has attended it. They annoy me most upon my dahlias; and I have invariably found them most troublesome on the plants that have been growing beside grass walks or lawns. My plan is, on the first appearance of a plant being infested by them, to look it over carefully, as well as those that are near, for the insect in its infant state, which is generally inclosed in a kind of spittle, which I destroy; I next take a few pieces

of soft string, about 1 ft. long, and dip the middle part of it into some gas tar, which I tie loosely round the stem of the plant, and of those that are near, about 5 in. or 6 in. from the ground. I generally adopt this plan for my best dahlias, just as they are coming into flower, in order to prevent the insects from ascending the plants. I immediately begin rolling the walks near the plants (first shaking them) in the morning, while the dew is upon the grass, and in the evening about six or seven o'clock. If the plants are on the edge of the lawn, three or four times the width of the roll will be sufficient. I have, by following the above plan, nearly extirpated them; as I had but two dahlia, plants, the last autumn, that were injured by thrips; and these immediately recovered after following the above plan.—*J. H. R. Hinxton, near Saffron Walden, March* 9. 1836.

[It is clear, from our correspondent's description, that he means the species of insect called in entomology Aphróphora spumària, synon. *Cicàda* spumària *Lin.*, and commonly, in Britain, the cuckoo spit; on the habits of which some information is given in Vol. IX. p. 574, 575. On the thrips (*Thrips physapus*), there is a little information in the *Encyclopædia of Gardening*, ed. 1835, § 3073., illustrated by two figures (fig. 682. *f.* 682. *h.*) It is a minute insect, that is common in the flowers of some species of plants, and is very distinct from the Aphróphora. Our correspondent's information in relation to the means of checking the prevalence of the Aphróphora spumària is interesting.]

A safe and effectual Remedy for that destructive jumping Insect the Thrips.— I will just state to your correspondent Mr. Fish, in p. 162., my experience on this subject, hoping he may glean something from it that may help to rid himself of these enemies to the gardener. During the summer and autumn of 1834, our vines at this place were sorely infested with the red spider and thrips; a great part, or the whole, of the foliage of some of them was destroyed by the latter insect, and dropped off; the fruit was also attacked, and was much injured and disfigured; and, although we had a fine crop of grapes, such was their appearance, that I felt ashamed of showing any one through the houses. I was determined to use some means to destroy these depredators. Accordingly, at the commencement of forcing in the beginning of February last year, every part of our early house, viz. the rafters, bars, walls, flue, &c., was washed with a mixture of black sulphur, ¼ lb., flower of sulphur, ½ lb., and soft soap, ½ lb.; dissolved in two gallons of water, and applied whilst warm. The vines were also anointed with the above mixture, dissolved in water, and mixed to the consistency of paint, and laid on with a painter's brush. The vines were syringed every evening, until they commenced growth; after which the syringing was discontinued, and a damp atmosphere maintained, until the fruit was perceived to be changing colour. The temperature of the house was frequently found so low as 50° in the morning, and the leaves covered with drops of water. A large crop of grapes was obtained: the bunches were fine, and the berries well swelled; and not a single insect of any kind was observed on the foliage during the following summer. In the beginning of March, our late vines were got into the succession house: they were treated in a similar way, and the result was the same. I do not claim the above remedy as my own: I obtained it from a former number of your Magazine; and I write you this merely to relate its success in this instance. Here, and at various other places, I have observed a disease in vines, which more frequently attacks the white muscat of Alexandria, than any other vine I know. The buds may break well, and show fruit; but, to the disappointment of the gardener, his vines prove abortive: sometimes, however, the buds do not break, and part of the vine dies. This disease is evidently caused by overbearing. The fruit of the white muscat of Alexandria vine is long in coming to maturity: the bunches and berries are large; consequently a large proportion of nutriment is required for its support; and, when this vine is excessively overborne, such a large porportion of sap is required for the support of the grapes, that no "accumulation of sap" is formed for the next year; when, in consequence, the disease will appear; and, except proper treatment be resorted to, the vine will thus continue for years. The best pre-

ventive is, not overbearing; the best remedy, rest, and heading down for a year or two. — *P. J. Gimbert, Kitchen-Gardener. Heath House.*

Effects of Frost on French Beans. — Will you, or any of your numerous readers, favour me with the solution of what is, perhaps, a common phenomenon, but which I am unable to explain myself? The night of May 24. will, no doubt, be remembered, by many amateurs of gardening, for the sad effects produced by a severe frost: but my attention was particularly attracted, the following morning, by a crop of French beans, which appeared to be almost completely destroyed. There were a few plants, however, in the rows (perhaps about one in thirty), which had not suffered in the slightest degree, although the rest of them, even those immediately contiguous, were black, and entirely shrivelled. The plants that were preserved did not appear to be of stronger growth than the others. What is the cause of this? The favoured plants had, certainly, no shelter which the others did not enjoy. Did it arise from a partial influence in the frost, or from some variation in the internal organisation of the plants, which enabled them better to resist the cold?

Will you also allow me to ask for information on a somewhat kindred subject, which has long raised my curiosity, but of which I have been unable to meet with any explanation? There is no one but must have observed, that shrubs and trees in hedgerows and plantations, even those of the same species, and immediately adjacent, put forth their leaves by no means at the same time, as might be expected. It is not an uncommon thing to see a beech tree clothed with the beautiful verdure of spring, whilst its next neighbour, is still in the dreary habit of winter. A solution of this difficulty, also, would oblige me, and, perhaps, interest some of your readers. — *E. D. Salisbury, May* 26. 1836.

Salisbùria adiantifòlia. — Agreeably to your request, I called on the present owner of the Woodlands, and learn from him, that "there are three salisburia trees in his garden. The largest girts 3 ft. 10 in. at 2 ft. from the ground, and is 54 ft. high; the others are smaller, and all very thrifty. The gardener, who has been six years on the place, says that none of them have flowered." I then visited Mr. M'Aran, who had been gardener to Mr. Hamilton for many years; and he stated that, while he was at Woodlands, the salisburias had never bloomed. The late Mr. Lyon, who preceded him, and who lived at the Woodlands nine years, told Mr. M'Aran, that he looked for that occurrence annually, without being gratified. You think that all the salisburias in Europe came from the tree in the Mile End Nursery; but it is a fact, that Thunberg, who discovered the tree in Japan, sent the plants in pots to his patrons in Batavia and Holland. Mr. Hamilton brought the parent tree at the Woodlands from England (a male) in 1784. I wish you could send me a female plant, by some American, in a pot. Mr. G. Ralston will find an opportunity: he may be heard of by addressing a note to him, "Care of Mr. Timothy Wiggin, merchant, London:" but the vessel must come direct to Philadelphia. — *J. Mease. Philadelphia, Jan.* 6. 1836.

In compliance, as far as lay in our power, with our correspondent's wish, we sent him, agreeably to his instructions, cuttings of the female Salisbùria. Should these not succeed, we expect soon to be able to send him nuts; a tree in the south of France having begun, within the last few years, to ripen fruit annually, from which young plants have been raised. Of this tree we shall soon give farther details. — *Cond.*

The Mistletoe (*Viscum álbum* L.): *Instances of Two or more Plants being produced from One Seed. Although the same Plants, from the same Seed, may be mostly of the same Sex* (p. 217, 218.), *it is probable that they are, in some Instances, of different Sexes* (p. 217, 218.). Since writing to you last (see in p. 217.), the seeds of a few mistletoe berries which I rubbed upon the bark of an apple tree, so as to fix the seeds, about the first week in January, 1836, have vegetated, and I send them for your examination. You will find that the majority of them have double embryos. — *W. Baxter. Botanic Garden, Oxford, March* 29. 1836.

The seeds received are twelve, seven of them having protruded each two radicles of as many embryos; and I now feel certain, from the similarity of the appearance of any of these seven with the seed which germinated upon the hawthorn in the Botanic Garden, Bury St. Edmund's (Vol. XI. p. 318.), that the two plants which grew upon that tree were from one seed; and Mr. Turner has communicated (Vol. XII. p. 217.), that these two plants are of two sexes. The settling of the question now rests on the ground on which he has concluded this: whether from having observed one to bear fruit, and the other not; or from the inspection of the flowers of each. — *John Denson, jun. Bayswater, April* 5. 1836.

Taxòdium dístichum. — Are you, or any of your readers, aware, that an oil has been extracted from the scales of the cones of the *Cupréssus* dísticha [Taxòdium dístichum]. It is as transparent as the oil of turpentine, and I feel confident that it may be used for the same purposes. I have been making some experiments with it, and will send you an account of the result, together with some of the oil, the first time I have a convenient opportunity; and, in the mean time, I should be very glad to receive any information that you, or any of your readers, could give me on the subject. — *Giuseppe Manetti. Monza, near Milan, Dec.* 1835.

Coe's Golden Drop Plum. — We have seen a few fine plum trees, of the kind called "Coe's Golden Drop," in perfect health, on south-east and west walls; and every spring they are covered with bloom, and set freely; but I regret to say not one in five hundred swells off, the fruit dropping when about the size of small peas. I should also mention, that the young shoots, in general, terminate in a flower bud; consequently drop off before the fruit; but on the spurs, when there is a shoot before the fruit, they fail in the same manner. As it would be most desirable to obtain a crop of so valuable a plum, perhaps some of your numerous correspondents would be so good as to favour me with their opinion how I could remedy the evil I complain of. — *A. Stewart. Mount Stewart, May* 21. 1836.

Smooth-leaved and rough-leaved Rape, or Cole-Seed. — We have in France two principal and very distinct oil-bearing plants belonging to the genus *Brássica*: 1. the Colza, or Colsac (*Brássica* campéstris *Dec.*), belonging, by its leaf, to the cabbage or kale tribe. 2. The *Navette*, or Rabette (*B.* Nàpus oleífera *Dec.*, *B.* asperifòlia *Lam.*), with a rough turnip-like leaf. The Colza is by much the more extensively cultivated in France, especially in Flanders; and is, I know, very much grown in England too, under the name of rape, or cole-seed. The *Navette* is also an object of cultivation with us; but I have never been able to ascertain, 1. whether it was used in British agriculture? 2. and, in that case, under what particular name it was distinguished from the common, or smooth-leaved, sort? These are the two queries I submit. I must observe, there are several subvarieties of both; but the varieties are not in question here, the present enquiry only relating to the two leading sorts, as mentioned above. — *Vilmorin. Paris, May*, 1836.

Art. V. *The London Horticultural Society and Garden.*

May 17. 1836. — *Read.* A Paper on the supposed Absorbent Powers of the Cellular Points, or Spongioles, of the Roots of Trees and other Plants; by T. A. Knight, Esq.

It was announced, that a Knightian medal had been awarded to Mrs. Lawrence, for her specimens of heath and Kennèdy*a*; and that a Banksian medal had been awarded to Messrs. Chandler, for the Tríllium grandiflòrum; and to Mrs. Lawrence, for the *A*rbutus procèra exhibited by her this day.

Presented. A pamphlet on the Spikenard of the Ancients; by Charles Hatchett, Esq.

Exhibited. Plants. Tùlipa Gesneri*àna*, Edwárds*ia* sp., &c., from the Honourable W. H. F. Strangways. A collection of heaths, heartsease, and green-house plants, from Mrs. Lawrence. Chorózema Henchmánn*i*, *Po*lýgala

cordàta, Tríllium grandiflòrum, Lysinèma pentapétalum, and azaleas, from Messrs. Chandler. Asparagus, from seed sown in 1833, from L. Sullivan, Esq., F.H.S. *Fruits.* Early muscat grapes, from Mr. Wilmot.

From the Garden of the Society. Saccolòbium guttàtum, Sinníng*ia* guttàta, hybrid Gloxín*ia* (between G. speciòsa and Sinníng*ia* guttàta), raised by W. Gordon, Esq. Manétti*a* cordàta, Limnánthes Douglàs*ii*, Rhodánthe Manglès*ii*, Wistàr*ia* Consequà*na*, *R*òsa Bánks*iæ* lùtea, Plectrìtis congésta, *Rìbes* multiflòrum, Lasiopétalum *s*olanàceum, *P*æòn*ia Moútan* Bánks*iæ*, and eight varieties of hardy peonies.

June 7. 1836. — *Read.* A Paper on the Management of Vine Borders, and a Method of Grafting Vines; by Mr. William Gowans, gardener at Calder House, near Glasgow.

Exhibited. Plants. Gardoquì*a* Hoóker*i*, Chorózema Henchmánn*i*, *S*elàgo Gilliès*ii*; *E*rìca vestìta coccínea, undulàta, delécta, mirábilis *r*òsea, ventricòsa supérba, vestìta purpùrea, vestìta fúlgens; Cosmèlia rùbra, and Pimelèa decussàta, from Mrs. Lawrence. Passiflòra racemòsa, *C*entaurèa stereophýlla, *A*nemòne palmàta, Márica cærùlea, *Tacsònia* sp., from Mrs. Marryat. *P*lumbàgo capénsis, Sólly*a* heterophýlla, Vallò*ta* purpùrea, Thunbérg*ia* leucántha, Erythrìna *C*rísta-gálli, seedling Fúchs*ia* from F. globòsa, Sutherlánd*ia* frutéscens, cauliflowers and mushrooms, from L. Sullivan, Esq. Mesembryanthemums, gladioluses, hyacinths, *D*áphne sp., *S*cílla sp., from the Honourable W. H. F. Strangways. Azàlea regentíssima, hilaríssima, marítima, cruénta, and Martín*ii*; *R*hododéndron catawbiénse var. pónticum, *L*ílium sp. from North America, from Messrs. Chandler. Alstrœmèri*a* oculàta, *Syríng*a Josikæ*a*, Thermópsis fabàcea, Passiflòra kermesìna, Collíns*ia* bícolor, Pentstèmon procèrus, from Mr. Tattersall; a seedling Calceolària, from A. Mackie; double stock, from W. W. Middleton, Esq.; specimens of a calabash, and cocoa nut, from Colonel Galindo. — *Fruits.* Melon, and Keen's seedling strawberry, from L. Sullivan, Esq.; French crab, from E. G. Barnard, Esq., M. P. — *Articles.* A Match for lighting Cigars; being the Pith of a Tree; from Colonel Galindo; and a Piece of Netting, for covering Wall Trees, made by Straw, and very cheap; from Mr. P. Howden.

From the Society's Garden. Passiflòra kermesìna, Brunò*nia* austràlis, Pimelèa decussàta, Alstrœmèri*a* oculàta, Manétti*a* cordifòlia, Deútz*ia* scàbra, *M*ímulus cardinàlis, Rhodánthe Manglès*ii*, *P*hlóx Drummónd*ii*, Watsòn*ia* marginàta, Libérti*a* formòsa, *L*upìnus grandifòlius, *L.* lùcidus, *L.* polyphýllus álbus, *L.* polyphýllus var., *L.* rivulàris, Collíns*ia* bícolor, Gíl*ia* trícolor, Lasthènia glabràta, Platystèmon califórnicus, Phacèlia tanacetifòlia, Leptosìphon *a*ndrosàceus, Pentstèmon Scoúler*i*, P. prócerus, Thermópsis fabàcea, *L*áthyrus grandiflòrus, Eschschóltz*ia* cròcea and var., *P*æòn*ia* officinàlis, double var., and var. *a*nemoniflòra; purple laburnum, *Syríng*a Josikæ*a*, Duvaú*a* depéndens, rhododendrons, azaleas, and Scotch roses.

The Exhibition at the Garden, on June 11., though the day was boisterous and cold for the season, was more numerously attended than on any preceding occasion. The total number of tickets issued up to the evening of the 10th inst. exceeded 12,000; and it is thought that, including Fellows of the Society, who require no tickets, and gardeners who exhibit, and who are admitted free, there were upwards of 9000 persons in the garden at one time. Considerable as has been the number of tickets sold, we have no doubt that it would be doubled if it were more generally known in the metropolis what a brilliant scene the Horticultural Society's Garden presents on the days of exhibition, and for how little this scene might be enjoyed: that, besides a splendid garden, and an exhibition of the finest fruit and flowers that wealth and skill can produce, enlivened by several bands of music. The principal part of the English aristocracy are present, and mix indiscriminately with the tradesman, the mechanic, and the gardener. This scene may be enjoyed by men, women, and children, for five or six hours, at 3*s.* 6*d.* each. There are omnibuses in abundance, by which persons may be conveyed from the metropolis for a shilling, and back again for the same sum; and to shorter distances, as Kensington

and Brentford, for sixpence. Refreshments may be had in the garden for those who choose them; but, to see the garden in every part, to examine the flowers exhibited, to enjoy the different bands of music stationed in different parts of the garden, and to mix indiscriminately with the whole of the company, need cost no individual more than 5*s*. 6*d*. So much elevating, humanising, and rational enjoyment is not to be obtained for a similar sum, as far as we are aware, in the metropolis, or its neighbourhood.

It is most gratifying to observe the propriety, urbanity, and decorum that pervade the immense mass of persons assembled in these gardens; the care that is taken not to injure either the plants of the garden, or the dug and raked borders, which is carried to such an extent, that not a leaf is touched by a single individual. We were not in the habit of attending the public breakfasts which were given in these gardens some years ago, and for which the lowest price charged, we believe, was a guinea; but we are informed by those who have been in the constant habit of attending all the public meetings in the garden since they were first commenced, that then, when the company must have consisted almost entirely of persons of rank, or, at least, of very considerable wealth, neither the borders nor the flowers were so much respected as they are now. The truth is, these gardens, and the two Zoological Gardens of the metropolis, have, during the last ten years, been gradually and almost imperceptibly working a wonderful change for the better on the manners and hearts of the metropolitan public. The more universal education of the children of the working classes, and the greatly improved mode of educating those of the classes immediately above them; together with the diffusion of useful and elegant knowledge, by the means of cheap publications, among both classes, has been improving, in like manner, their minds and heads. And once, as we have repeatedly stated, let there be something like an equality among mankind in knowledge and manners; and the difference in point of wealth, instead of leading the poor to envy or hate the rich, and the rich to dread or despise the poor, will lead both parties to look upon each other with respect, and, from a feeling of mutual obligation, even with affection. Such is the great good which these scenes of healthy enjoyment are effecting for civilisation. The Horticultural Societies of the country are co-operating to the same end; and, as whatever takes place in England is imitated, sooner or later, throughout the whole civilised world, we shall have, at no great distance of time, the same cause producing the same effects every where.

Competition for prizes may be considered as the originating cause of this and similar exhibitions; and, of course, it is no easy matter for the judges, in awarding the premiums, to give satisfaction to all the competitors. In consequence of some evil reports having been promulgated on this subject, the Council of the Society has deemed it proper to print the following paragraph, copies of which were given to exhibitors at the garden gates.

"Horticultural Society of London,
June, 1836.

"Reports having been maliciously circulated that some of the gentlemen acting as Judges at the Exhibitions in the Society's Garden are acquainted previously to settling their award with the names of the persons by whom the subjects placed upon the tables are exhibited, the Council of the Society think it due both to themselves and the Judges to declare, that such reports are altogether false and unfounded, and that the names of the exhibitors are never disclosed to the Judges until after the award is finally determined on.

"George Bentham,
"*Secretary*."

Exhibitions at the Garden, June 11., and award of the judges.

The Gold Knightian Medal. — For alstrœmerias, to Mr. Lane, gardener to J. H. Palmer, Esq., F.H.S.; for a large collection of green-house plants, to Mr. W. Barnes, gardener to G. W. Norman, Esq., F.H.S.

The Large Silver Medal. — For alstrœmerias, to Mr. Scott, gardener to C. Barclay, Esq., M.P., F.H.S.; for calceolarias, to Mr. Green, gardener to Lady Antrobus; for cacti, to Mr. Green; for melocacti, to Mr. Dennis of Chelsea; for grapes, to Mr. Brown, gardener to Messrs. Cridland and Clews of Turnham Green; for stove orchídeæ, to Sigismund Rucker, Esq., jun., F.H.S.; for an American orchideous plant, to Messrs. Rollisson; for pelargoniums, to Mr. Gaines of Surrey Lane, Battersea; for pine-apples, to Mr. Floud, gardener to J. J. Guest, Esq., M.P., F.H.S.; for China roses, to Mr. Rivers of Sawbridgeworth; for a large collection of green-house plants, to Mr. Green; for green-house plants (small collection), to Mr. Fleming, gardener to C. Ranken, Esq., F.H.S.; for a New Holland plant, to Mr. Douglas, gardener to Earl de Grey, F.H.S.

The Silver Knightian Medal. — For hardy azaleas, to Mr. Rivers; for amaryllises, to Mr. Lane; for balsams, to Mr. Cock of Chiswick; for calceolarias, to Mr. Gaines; for cucumbers, to Mr. Brown; for cockscombs, to Mr. George Mills, gardener to N. M. Rothschild, Esq., F.H.S.; for melocacti, to Mr. Pratt, gardener to W. Harrison, Esq., F.H.S.; for figs, to Mr. Foggo, gardener to the Marquess of Abercorn; for ferns, to Mr. Lane; for grapes, to Mr. Judd, gardener to W. Gambier, Esq., of Sacombe Park; for heartsease, to Mr. Gaines; for melons, to Mr. Floud; for an Asiatic orchideous plant, to Sigismund Rucker, Esq.; for pelargoniums, to Messrs. Colley and Hill of Hammersmith; for pine-apples, to Mr. Wilmot of Isleworth; for peaches and nectarines, to Mr. Niemann, gardener to P. C. Labouchere, Esq., F.H.S.; for China roses, to Mr. George Glenny, F.H.S.; for garden roses, to Mr. Rivers; for green-house plants (small collection), to Mr. Redding, gardener to Mrs. Marryatt, F.H.S.; for a single specimen of a green-house plant, to Mr. Green; for a New Holland plant, to Mr. Russell of Battersea; for a Cape plant, to Mr. Hoskins, gardener to G. F. Maubert, Esq., F.H.S.; for a Chinese plant, to Mr. Lane; for a double Eschschóltzia califórnica, to Mr. Redding.

The Silver Banksian Medal. — For heartsease, to Mr. R.S. Mountjoy of Ealing; for pelargoniums, to Mr. Cock: for calceolarias, to Mr. Grooms of Walworth, F.H.S.; for a single specimen of green-house plant, to S. Rucker, Esq.; for Phlóx Drummóndi, to Mr. Barnes; for strawberries, to Mr. Brown.

Art. VI. *South London Floricultural Society.*

The second flower show of this Society for the year 1836 was held at the Surrey Zoological Gardens, on June 14., attended by an immense concourse of persons; among whom were the Duchesses of Buckingham, Leinster, and Sutherland; Countess Stanhope, Viscountess Parnell, Viscountess Mahon, Lady Farnborough, Lady Grenville, Lady Kerrison, and Mrs. Marryatt; the Dukes of Sutherland and Leinster, Earl Stanhope, Lord Prudhoe, Lord Villa de Broke, Lord Adolphus Fitzclarence, Lord Farnborough, Colonel Lincoln Stanhope, Sir George Wombwell, and the Persian Princes. The flowers were arranged in five large tents, and prizes were awarded for the following productions: —

Class 1. *Nurserymen.* — Miscellaneous Plants: 1. Large silver medal, Messrs. Chandler, Wandsworth Road; 2. Middle ditto, Messrs. Young, Epsom; 3. Small ditto, Mr. Fairburn, Clapham Rise. Pelargoniums: 1. Large silver medal, Mr. Gaines, Battersea; 2. Small ditto, Mr. Hill, Hammersmith. Calceolarias, middle silver medal, Messrs. Young, Epsom. Roses: 1. Middle silver medal, Mr. Rivers, Sawbridgeworth; 2. Small ditto, Messrs. Young, Epsom. Heartseases, middle silver medal, Mr. Gaines, Battersea. Cut flowers, middle silver medal, Mr. Rivers, Sawbridgeworth.

Prizes recommended by the Censors: Calceolarias, Mr. Fairbairn, Clapham Rise. Heartsease, Mr. Mountjoy, Ealing. Pelargoniums, Messrs. Chandler, Wandsworth.

Class 2. *Gentlemen's Gardeners.* — Miscellaneous Plants: 1. Large silver medal, Mr. Redding, gardener to Mrs. Marryatt, Wimbledon; 2. Middle ditto, Mr. Curtis, gardener to J. Allnutt, Esq., Clapham; 3. Small ditto, Mr. Sadler, gardener to Mrs. Fisher, Denmark Hill. Pelargoniums, middle silver medal, Mr. Atlee, Stockwell. Calceolarias, middle silver medal, Mr. Atlee, Stockwell. Ranunculuses, middle silver medal, Mr. Stockwell, Walworth Common. Heartsease, middle silver medal, Mr. Early, Sydenham. Cut Flowers: 1. Middle silver medal, Mr. Redding; 2. Small ditto, Mr. Sadler.

Prizes recommended: Roses, Mr. Redding. Calceolarias, Mr. Roffee, Camberwell. Heartsease, Mr. Atlee, Stockwell.

Class 3. *Amateurs.* — Miscellaneous Plants: 1. Large silver medal, J. F. Young, Esq., Upper Kennington Lane. Roses, middle silver medal, Mr. Salter, Shepherd's Bush. Ranunculuses: 1. Middle silver medal, Mr. Crowder, Broad Street; 2. Small ditto, Mr. Thornhill, Hackney. Heartsease: 1. Middle silver medal, Mr. Salter, Shepherd's Bush; 2. Small ditto, Mr. Ledgard, Hammersmith; 3. Small ditto, Mr. Barnard, Brixton Road.

Open to all Classes. — Specimen Plant: 1. Large silver medal, Mr. Lane, Hurlingham, Fulham; 2. Middle ditto, Mr. Redding; 3. Small ditto, Mr. Dickson, Acre Lane. Orchideous Plants, middle silver medal, Mr. Redding.

Prizes recommended: Specimen plant, Mr. Douglas, gardener to Lord de Grey, Putney Heath; Ditto, Mr. Gaines, Battersea; Ditto, Mr. Conway, Fulham.

Fruit: Queen Pine, small silver medal, Mr. Andrews, South Lambeth, Dish of Strawberries, Mr. Lane, Fulham. Bunch of Grapes, Mr. Chapman, Vauxhall.

Prizes recommended: Grapes, Mr. Stidolph, Peckham; Ditto, Mr. Andrews, South Lambeth.

Vegetables: Best Six Sorts of Vegetables: 1. Middle silver medal, Mr. Conway, Fulham; 2. Small ditto, Mr. J. Gard, Camberwell.

Mr. Philips of Champion Lodge, Camberwell, exhibited a specimen of Testudinária elephántipes; Mr. Redding, a brace of very fine cucumbers; and Messrs. Maids and Co. of King's Road, Chelsea, a splendid collection of kalmias.

By the side of the lake, a number of Reed's patent engines were placed.

Art. VII. *Covent Garden Market.*

	From £ s. d.	To £ s. d.
The Cabbage Tribe.		
Cabbage, per dozen:		
White	0 1 0	0 1 6
Plants, or Coleworts	0 2 0	0 3 0
Cauliflowers, per dozen	0 3 0	0 6 0
Legumes.		
Peas, per half sieve	0 1 0	0 1 6
Peas, per sieve	0 2 9	0 4 0
Peas, per sack	0 10 0	0 0 0
Beans, per half sieve	0 1 6	0 2 0
Kidneybeans, forced, per hundred	0 2 0	0 3 0
Tubers and Roots.		
Potatoes, per ton	4 10 0	6 0 0
Potatoes, per cwt.	0 4 6	0 6 0
Potatoes, per bushel	0 2 6	0 3 0
Kidney, per bushel	0 2 6	0 3 0
Scotch, per bushel	0 2 6	0 3 0
New, per pound	0 0 4	0 1 3
Turnips, White, per bunch	0 0 9	0 1 0
Carrots, per bunch:		
Young	0 0 9	0 1 6
Horn	0 0 9	0 1 0
Horseradish, per bundle	0 2 6	0 5 0
Radishes, Red, per dozen hands (24 to 30 each)	0 0 9	0 0 0
White Turnip, per bunch	0 0 1½	0 0 2
The Spinach Tribe.		
Spinach, per sieve	0 0 9	0 1 0
Spinach, per half sieve	0 0 6	0 0 9
The Onion Tribe.		
Onions, when green (Ciboules), per bunch	0 0 4	0 0 8
Garlic, per pound	0 0 8	0 1 0
Shallots, per pound	0 0 8	0 1 0
Asparaginous Plants, Salads, &c.		
Asparagus, per hundred:		
Large	0 7 0	0 10 0
Seconds	0 3 6	0 5 0
Middling	0 2 0	0 3 0
Small	0 1 0	0 1 6
Lettuce, per score:		
Cos	0 0 6	0 0 9
Cabbage	0 1 0	0 1 6
Celery, per bundle (12 to 15)	0 1 6	0 2 0
Small Salads, per punnet	0 0 2	0 0 3
Watercress, per dozen small bunches	0 0 4	0 0 6
Burnet, per bunch	0 0 2	0 0 3
Pot and Sweet Herbs.		
Parsley, per half sieve	0 1 0	0 1 6
Tarragon, per dozen bunches	0 3 0	0 4 0
Fennel, per dozen bunches	0 1 6	0 0 0
Thyme, per dozen bunches	0 3 0	0 0 0
Sage, per dozen bunches	0 2 0	0 3 0
Mint, per dozen bunches	0 2 0	0 0 0
Peppermint, p. dozen bunches	0 1 0	0 0 0
Marjoram, per dozen bunches	0 6 0	0 0 0
Savory, per dozen bunches	0 2 0	0 3 0
Basil, per dozen bunches	0 6 0	0 0 0
Rosemary, per dozen bunches	0 2 0	0 3 0
Tansy, per dozen bunches	0 1 0	0 0 0
Stalks and Fruits for Tarts, Pickling, &c.		
Rhubarb Stalks, per bundle	0 0 5	0 0 10
Edible Fungi and Fuci.		
Mushrooms, per pottle	0 0 6	0 0 9
Morels, dry, per pound	0 14 0	0 0 0
Truffles, dry, per pound:		
English	0 12 0	0 0 0
Foreign	0 12 0	0 0 0
Fruits.		
Apples, Dessert, per bushel:		
Jack Apples	0 10 0	0 0 0
Golden Pearmain	1 0 0	0 0 0
French Crabs	1 0 0	0 0 0
Peaches, per dozen	0 15 0	1 4 0
Nectarines, per dozen	0 15 0	1 4 0
Almonds, per peck	0 4 0	0 5 0
Cherries, per pound	0 4 0	0 8 0
Gooseberries, per half sieve	0 2 0	0 4 6
Currants, per half sieve	0 2 6	0 3 6
Strawberries, per gallon (2 pottles) about 3 pints	0 2 0	0 3 6
Pine-apples, per pound	0 8 0	0 12 0
Hot-house Grapes, per pound	0 4 0	0 8 0
Melons, each	0 6 0	0 10 0
Oranges, per dozen	0 0 9	0 2 6
Oranges, per hundred	0 4 0	0 16 0
Bitter, per hundred	0 16 0	1 10 0
Lemons, per dozen	0 0 9	0 2 0
Lemons, per hundred	0 6 0	0 14 0
Sweet Almonds, per pound	0 3 0	0 3 6
Brazil Nuts, per bushel	0 16 0	0 0 0
Barcelona Nuts, per peck	0 5 0	0 0 0

Observations. — The season, although certainly much later than for the last two years, is now filling the market rather plentifully. The supply of peas, during the last week, has been good. Prices have, of course, been materially reduced; but, as the demand was quite equal to the supply, not so much so as might have been expected. The prices quoted are from the market of Saturday last, it not being practicable to give an average price under circumstances of such large difference between that day and the preceding week. The quantity of peas pitched, and actually sold, on that day was equal to 10,000 or 12,000 bushels. Taking the supply of the Borough and Spitalfields conjointly to be about 8000, we have about 20,000 bushels for that day. This may appear a large quantity; but I have no doubt that, at the height of the season, more than double that quantity is actually consumed; which, with other articles of general supply at this season, such as cauliflowers, cabbages, asparagus, spinach, lettuces, new and old potatoes, will render the quantity of vegetables consumed in the metropolis really surprising. Of asparagus, the supply has been latterly very limited; the prices higher than usual. Some fine specimens of it have been exhibited of the new variety, cultivated by Mr. Grayson: a bundle containing 130 heads, weighing thirty pounds; the same quantity, also, weighing twenty pounds; the first bundle worth about 1*l.* 5*s.*, the latter 15*s.* New potatoes have been supplied rather freely; but, as the quantity from Cornwall has not been so large as usual, the prices have been maintained. During the last week, we had some from the open ground from Kent, of a very excellent size and good quality. The stock of old potatoes is now nearly exhausted: indeed, we are altogether dependent on the supply furnished from the distant counties, which are disposed of readily at the prices quoted. All other vegetables are now in moderate supply, at reasonable prices. — *C. G. M. June* 20. 1836.

Accident having left a space, for which, in the phraseology of the printing office, "matter is wanted to fill up," we take the opportunity of suggesting to market-gardeners, the propriety of being careful not to take long leases, at high rents, of the grounds they at present occupy; because in a very few years, in consequence of the several railroads commenced, or projected, the London vegetable markets will command a supply from the whole of the central counties of England. The inconvenience of carrying nearly all the vegetables to be consumed in so large a metropolis as London to one central market, like that of Covent Garden, will then be felt; and several markets will doubtless be established on the line of the circumferential metropolitan railroad, which is to unite all the other railroads. — *Cond.*

Art. VIII. *Proposals for erecting a Monument to the late Mr. David Douglas, A.L.S.*

"*To Gardeners, Botanists, and Amateurs.* — the Perthshire Royal Horticultural Society, desirous to express their sense of the advantages conferred on the science of botany by the late indefatigable Mr. David Douglas, through whose exertions a great and valuable addition has been made to the exotic flora and arboretum of Great Britain; in consideration of his successful exertions, and lamented end, have resolved to erect a monument to his memory, in his native parish of Scone, Perthshire; and have appointed a committee of their number to carry the same into effect, by soliciting the aid of those who may approve of the undertaking. The committee have limited the sum to be subscribed by practical gardeners to from one to five shillings. Any sum from amateurs, however small, will be thankfully acknowledged. The design of the monument will be regulated by the amount of subscriptions, and approval of contributors. Every contributor to the amount of one shilling shall be entitled to a printed list of subscribers' names, to which a lithographic design of the monument and inscription shall be attached. Archibald Turnbull, Esq., Bellwood, Perth, has kindly accepted the office of treasurer; and a subscription paper will lie at his seed-shop, Perth. Subscription papers shall also be sent

to the curators of the botanic gardens at Edinburgh and Glasgow, and to nursery and seedsmen in Edinburgh, Glasgow, Stirling, Perth, and Dundee. — *Nov.* 23. 1835."

We received a printed paper, of which the above is a copy, on June 3., too late, of course, to be noticed, even on the wrapper of this Magazine for June. By the private letter which accompanied it, signed by the secretary of the committee, Mr. Archibald Gorrie, we are informed that all notices of subscriptions are expected to be returned to the treasurer, Mr. Turnbull, by the 1st of July, the day on which this Magazine will see the light. We deeply regret this, because we are sure there are many British gardeners who would have felt a melancholy satisfaction in testifying their sense of the eminent services rendered to botany and gardening, by Mr. Douglas. We should hope that it will not be too late to subscribe after the 1st of July, and even to the 1st of September or October; and we would recommend all gardeners to do so, through their nurserymen or seedsmen, all of whom have a communication, either directly or indirectly, with Mr. Turnbull, the seedsman at Perth. We much regret that the printed paper above quoted, which is dated Nov. 23. 1835, was not sent to us sooner; as, had it been so, we trust we should have been able to have rendered more effective service to the cause, than we shall now be able to do; unless the time for receiving subscriptions shall be protracted for five or six months, so as to make the intentions of the Perth committee known, not only to gardeners and amateurs in Britain, but to those of the continents of Europe and North America, many of whom, we feel confident, would subscribe on such an occasion.

With these views we wrote to Mr. Gorrie, suggesting the advantage that would result from extending the time; and, since the above paragraph was printed, we have received, just in time for publication, though in the last hour, and when we were obliged to send a very hurried notice to press, a letter from Mr. Gorrie, from which we are happy to learn that the committee have agreed to allow the subscription to stand open for an indefinite period.

We are exceedingly glad of this, for two reasons: first, because it will afford an opportunity to gardeners, in every part of the world, to evince their sympathy with that amiable man, and enthusiastic traveller and botanist, Mr. David Douglas; and, secondly, because we do hope the friends to gardening and science will come forward in such a manner as to enable the committee to realise an idea that has been suggested by Mr. Gorrie, though he will, perhaps, be offended at us for having stated it publicly. We allude to the grand and magnificent project " of purchasing a piece of ground sufficient to hold all the trees and plants introduced by Douglas; enclosing it, planting it, or a part of it, with these trees and shrubs; and building a house on it, which, together with the whole demesne, should be settled on his heirs at law for ever." Of all the plans that we have ever heard proposed for commemorating the memory of a man, this is at once the grandest and the most rational; and we could almost envy our esteemed friend who made the proposal the happiness of having been the author of it. We know of nothing that can be compared to it but the giving of Blenheim to Marlborough by the nation; and next to the idea of bestowing such a gift on the descendants of a meritorious individual by the concurrent voices of a whole nation, is, surely, that of giving it by the joint contribution of the whole class to which the individual to be commemorated belonged. This, the plan of taking only small subscriptions from Mr. Douglas's fellow-gardeners appears well calculated to effect. We think, also, that a sufficient piece of land should be added to the house to maintain the representative of the family for the time being as a market-gardener, florist, or small nurseryman; the object being, as in the case of the Duke of Marlborough, to form a *lasting* memorial, that should contain circumstances in itself which will prevent the cause of its being instituted from being forgotten. We have no wish to make a comparison between the services rendered to his country, to civilisation, or, in one word, to society, by a great and successful warrior, and an enthusiastic and successful naturalist or botanical collector. The real truth is, that the services of the one are, or may be, just

as great as those of the other; the test of their respective worth being the nature of the times in which each performs his part.

When, therefore, we call upon all gardeners and lovers of plants to subscribe for the purpose of raising a perpetual memorial to the memory of Mr. Douglas, as great in its way as that which was raised to the memory of the first Duke of Marlborough, and for the benefit of his family, it is not, as some may suppose, that we wish to depreciate the merits of the warrior. We simply mean to state, that Mr. Douglas has rendered a most important service to his country, to Europe, and, in short, to the temperate regions of both hemispheres, in their present state of civilisation, by the introduction of a number of new and valuable plants. These plants will continue to be useful and ornamental to Britain, and other countries having similar climates, as long as these climates continue the same as they now are; and we think it is due to the arts of civilisation and refinement, that an attempt should be made to raise a lasting monument to the introducer of so much good, by his personal friends, by his fellow-labourers, and by the lovers of plants and of gardening in every country.

We submit, therefore, to all our readers, the propriety of coming immediately forward with subscriptions of from one to five shillings each person, for the purpose of aiding the committee of the Perthshire Horticultural Society in erecting a monument of some sort to the memory of the late Mr. Douglas, in his native parish of Scone, in the neighbourhood of Perth. There is a particular propriety, we think, in its being erected in his native village: in no other situation could it afford so much pleasure to his friends and relatives; in no other situation could it so well illustrate the great principle, that, in a free and a wealthy country, an obscure individual, in a remote situation, may rise to the highest honours in the eyes of his countrymen; and on no other principle than this could the general appearance of the country be so nobly ornamented. It is allowed on all hands, that the most remarkable difference between Great Britain and the countries of the Continent is, that, while their colleges and other public institutions, their public monuments, their mansions of men of wealth, and their men of learning, talent, and taste, are concentrated in their capital cities, their provinces are left in a much less cultivated state; whereas our wealth, our wisdom, and our taste are, comparatively with theirs, distributed over the whole land. Whatever monument, therefore, may be erected to Douglas, we trust it will be placed in his native village. We entreat all our readers to subscribe, and to leave it to the committee to carry into execution such a memorial as the funds will justify; and we do most sincerely hope that a sufficient sum will be raised to purchase a piece of land large enough to contain all the plants which Douglas introduced, as well as to erect a monument on it: even if the sum raised should not be sufficient to purchase land enough for a market-garden, and to build a house.

We have already suggested the idea of gardeners sending their subscriptions through their seedsmen: others, who have not this opportunity, may send them to us; or, what would be preferable, to our publishers, Messrs. Longman, Rees, and Co., who have kindly undertaken to receive subscriptions; as has Mr. Charlwood, seedsman, 14. Tavistock Row, Covent Garden. Subscriptions will also be received at the office of the London Horticultural Society, 21, Regent Street, London; and, we think that we may venture to say, by all other Horticultural Societies, not only in Britain, but on the Continent, in North America, and, in short, throughout the world. A biographical notice of Mr. Douglas will be found in Vol. XI. p. 271., and further details respecting his death in the present volume, p. 274.

Art. IX. *Obituary.*

Death of Mr. Richard Cunningham, the Colonial Botanist at Sydney. — The distressing reports respecting the loss of this amiable man were in a great measure confirmed by the postscript to our Australian article in our last Number, p. 328.; and we have since received information to the same effect from

Mr. Anderson, botanical collector to Messrs. Lowe and Son, at Sydney; and from Mr. Allan Cunningham of Kew, the brother of the deceased. The following letter from the latter gentleman will be read with intense and melancholy interest: —

"The last arrival of mails from Sydney has put the government in possession of the report of the officer of police (Lieut. Zouch, 4th regiment) who had been sent in command of a party of mounted police, to the spot where my poor brother was last heard of, with a view of ascertaining his fate. A copy of the report (now before me) has been enclosed me by order of Lord Glenelg, (Colonial Secretary); and from it, it appears that, after leaving Boree, on the present western verge of the colony, beyond Bathurst, Lieut. Zouch and party of troopers, accompanied by one of Major Mitchell's men, and a friendly native-black, named *Sandy*, proceeded to the N. W., towards the Bogan. On the third day of their advance (viz. the 2d of November last), they fortunately met with two blacks, who knew all the particulars of a white man having been murdered on the Bogan: also the names and persons of the perpetrators of the deed; and, as they offered to accompany the party to the country where the murderers were encamped with their tribe, Lieut. Zouch most gladly accepted their services as guides; and, on the evening of the sixth, the party, by their directions, came upon a tribe consisting of upwards of forty men, women, and children, who were bivouacing on the banks of a lake fed by the Macquarie, and called the Budda. As no resistance was offered by these savages, they were immediately invested, and taken prisoners. A few questions produced an acknowledgment from them, that a white man had been killed by four of the tribe, on the Bogan, three of whom they delivered up; and the fourth, they stated, was absent on the Big River; that is, the Darling. On searching the bags of the tribe, the party found a knife, a glove, &c., which the three blacks acknowledged they had taken from the white man, and which the man who had been with Major Mitchell on his expedition, and now accompanied the police, said he was sure had belonged to my brother. The details of the closing scene of my poor relative's life are dreadful in the extreme, and, to those of his friends who had known his great benevolence of mind, his last moments can be more readily conceived than described!

"The officer goes on to report, that the three murderers, on being taken prisoners, admitted that, about six moons ago, they met a white man on the Bogan, who came up to them, and made signs that he was hungry; that they gave him food; and that he encamped with them that night. The white man repeatedly getting up during the night, excited their suspicion; and, under the apprehension that he would betray them into the hands of some enemies in the neighbourhood, they consulted together, and soon came to the determination to destroy him; which they effected the following morning, by one of the savages approaching him unperceived, and striking him on the back part of the head, and the others rushing upon him with their spears. This must have occurred about the latter end of April of the last year.

"The officer adds: 'I then determined to proceed to the spot where the murder was committed, which, I was informed by the blacks, was distant three days' journey; but, learning from them that there was a great scarcity of water, I deemed it advisable to take only a small party, consisting of three troopers, the man of Major Mitchell, and one of the prisoners (Burcemall) as a guide across to the Bogan; leaving the remainder of the party, having the other two prisoners in charge, under the command of Corporal Moore, to proceed to a station about thirty miles distant from Wellington, there to await my return." Lieut. Zouch and his reduced party were now conducted to a place named Currindine, where the black showed him some bones, which, he said, were those of the white man they had killed; and pointed out a small portion of a coat, and also part of a Manilla hat. Being thus convinced that they had reached the spot where the very melancholy event had occurred, the officer and his little party, with true Christian-like feeling, collected all the remains they could discover; and having, in sad silence, deposited them in the ground, they raised a small mound over them, and barked some of the nearest trees, as the only means in

their power of marking the spot whereon a man wholly devoted to science had, in the earnestness and zeal with which he was prosecuting botanical investigation (attached, as he was, to the explorative expedition of Major Mitchell) been deprived of life, by the hands of mistaken savages!'

"Thus fell, in the very prime of life (having just completed his forty-second year), Richard Cunningham, an able botanist, and in other respects a very talented man; whose very amiable and obliging disposition had in his lifetime secured as much to him general esteem, as his premature, ever to be lamented death had produced a universal sentiment of unfeigned grief, in the minds of all his friends in England, and of every colonist in New South Wales.

"I have now given you the substance of the last official communication received from New South Wales, and which is a final one, regarding my poor brother; who, you will observe, was but one night living with the natives. We cannot tell what might have been the state of his mind on that night, which had urged him repeatedly to rise, walk about, and listen to catch the bark of dogs, or any little stir (amidst the dead stillness of midnight), from the considerable encampment of his anxious sleepless companions, not far removed from him at the time! How dreadful must have been his feelings, may be readily imagined. But, could he have composed himself, and not have risen, and thus excited the suspicions of the savages among whom he was reposing, he probably would have been recovered, in a day or two, by his companions, who came to the native encampment but a day or so too late! He had a mind well disciplined by the religious education he had received; and, in perfect possession of his mental faculties, could soon have reconciled himself to a short lie in a remote desert, with savages, until rescued by his party: for he could say, with real feeling, and in firm belief in the existence of a merciful protecting Providence, in the desert and every where, —

'There is mercy in every place;
And mercy, *encouraging* thought!
Gives even affliction a grace,
And reconciles man to his lot.'

I can go no farther with you; but, standing relatively as I do, in this sad business, let me now for ever draw a veil upon the whole; just remarking, that two of the blacks found means to escape from the soldiers; and what has been done with the third, who was conveyed to Sydney, and there lodged in jail, is not known: for it appears very doubtful whether any evidence could be obtained, sufficient legally, to substantiate his guilt. Last December, the law officers had the case before them. — *A. C. Strand on the Green, Kew, June* 17. 1836."

The only consolation which we derive from this authenticated account of the death of a friend, with whom we were intimate for nearly twenty years, is the manner in which he was deprived of life. It could be attended with no pain, either actually or by anticipation. How different must be the case where the object is avowed, and where processes are had recourse to, which must increase the pains of death a thousand fold! With respect to the savages who have been caught and detained, as they are out of the pale of civilisation, we do not see how they can be tried according to any law. A savage may be put to death, or otherwise prevented from injuring man, as a matter of self-defence; but the idea of trying such a being according to laws which he had no voice in making, and from which he receives no protection, appears contrary to common sense. What is a death occasioned by a stunning blow on the back of the head, which must have instantly deprived the victim of sensation, when compared with the horrible cruelties lately practised in Spain? There, it is stated in the *Morning Chronicle* of June 20. 1836, that, by the order of Don Carlos, some British prisoners were pinioned naked to a wall, then shot in the legs, afterwards in the thighs, and finally in the abdomen; and then left to linger in agony, till death put a period to their sufferings!

THE

GARDENER'S MAGAZINE,

AUGUST, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Gardening Tour in Germany, made in the Spring of* 1836, *from April* 17. *to May* 5. By M. F. RAUCH.

THERE are so many amateur gardeners in Frankfort on the Main, that the city has become particularly interesting to the horticulturist. The principal nursery is that of M. Rinz; to whose attention and industry most of the private gardens are also indebted for their beauty: M. Rinz sparing no expense to obtain new and beautiful plants from every part of Europe, and by this means having a great many customers, and an excellent business. All the plants in this nursery looked exceedingly healthy; and I observed some of the newest species amongst them, which M. Rinz seems to have no difficulty in propagating. The public gardens at Frankfort contain a great many very beautiful views, particularly those near the waterfall. The groups of shrubs are almost all surrounded by borders of flowers, which are kept in very good order. The beauty of these public gardens is very much increased by the display exhibited in the adjoining private gardens. M. Rinz laid out these public gardens, and still has the management of them.

Among the numerous private gardens worthy of notice, that of the Baron Von Bethmann is the most conspicuous, being very beautifully and ingeniously laid out; also that of Baron Von Rothschild, whose collection of plants is very considerable, and who has a very beautiful specimen of *Araucària* excélsa. This garden would look much better, if the groups of shrubs and flowers were not laid out in such exceedingly stiff forms. The gardens of M. I. Andreae, sen., Baron Von Welden, M. Stern, and M. F. Gruneberg, are well worthy of notice. There are also many other amateurs, who have collections of plants that would well repay a visit from the travelling gardener.

I found a very good collection of succulent plants in the garden of M. I. Andreae, sen.; and I observed some very interesting

plants amongst them. The splendid Cèreus senìlis is propagated here in a very simple manner; viz. the old plant is cut in two, and the head planted, which produces a magnificent plant; the parent stem afterwards puts out young shoots every year, which are cut off when they are about the size of a large hazel nut; and, after they have lain for some weeks in a dry place, they are planted in sand, and kept in a damp state till the young roots appear; when, by frequent watering, the plants will continue to grow well. It is necessary, however, to observe that this operation should take place in a warm dry house, by which means the object in view will be sure to be effected.

I saw in this garden, for the first time, two most beautiful species of *Euphórbia* in flower; viz. *Euphórbia* heterophýlla *Karw.* (pulchérrima *Willd. Her.*), and *Euphórbia* fúlgens *Karw.*, the sight of which was quite delightful; and, although I had received, while at Bayswater, in the month of May, 1835, living plants of both species, drawings of each, and dried specimens, from my brother at Vienna, and was therefore well aware of the extreme beauty of both plants, I cannot deny that I was quite enchanted with them, and should have left them behind with the greatest reluctance, had I not obtained several plants of both euphorbias to take with me to England. The German gardens are indebted to the Baron Von Karwinsky for these splendid euphorbias. He found them in Mexico during his scientific journey there, and brought living plants of them to Germany. He would have preferred bringing seeds of them; but, from experience, he found that they lost the power of germination in less than twenty-four hours; he therefore collected several plants, and the two above mentioned are all that arrived in Germany alive. There is a figure of the *Euphórbia* pulchérrima in Curtis's *Botanical Magazine*, t. 3493., the beauty of which speaks for itself; but, as the *E.* fúlgens has not been yet figured in any English botanical periodical, I shall give a short description of it, and thus bring the young rivals to public view. *Euphórbia* fúlgens is an elegant and very ornamental plant of the following characteristics. It is a branched, upright, leafy, freely growing, and freely flowering shrub. All its green parts bear a glaucous bloom. Its shoots are slender, twig-like, round, glabrous, and curved outwards in their terminal portion; bearing the flowers along this portion in groups, in the axils of the leaves. The leaves have petioles nearly 1 in. long, and disks that are lanceolate, tapered to both ends, entire, about 3 in. long, and from half an inch to 1 in. across in the broadest part. The groups of flowers are upon short stalks, and consist of from two to four flowers (as they would be ordinarily called), each upon a stalk about 1 in. long; and each showy from its involucre, which is of a bright red colour, and which has a tube of less than half

an inch long, and a horizontally spread border of a diameter somewhat less than that of a sixpenny piece, and consisting of five obcordate lobes. One may imagine that a bush, abounding in groups of these involucres displayed together, must be splendid, and well merit the application of the epithet fúlgens; which, however, the inventor of the name may rather have intended to express a brilliance in the redness, than the general effect produced by a display of flowers of this colour. This plant appears disposed to produce plenty of seeds.

The market-gardens in the neighbourhood of Coblentz are well worthy of notice. The Royal Garden at Engers, under the direction of the inspector, C. Weyhe, has the finest prospect that can well be imagined, and on that account is worth a visit. The fruit nursery, and that for ornamental trees and shrubs, are both in very good order. There are iron-works about a mile and a half from Engers, which are well worth the trouble of going to see; and where are manufactured most tasteful garden seats, tables, and flower-stands, of cast iron, which are either painted white or green. The extensive sale of these articles is a proof that they fully answer the purposes for which they are designed.

The Botanic Garden at Bonn, belonging to the University, contains a very rich collection of plants, which are all in excellent order. The collection of ferns is very remarkable, on account of its being so large, and of the luxuriant growth of the plants, which renders them extremely agreeable to the eye. M. Sinning, inspector of this garden, has a great predilection for this tribe of plants, and uses every opportunity to obtain new species, by which means the collection is always increasing. The few orchidaceous plants which are cultivated here are well worthy of notice on account of their luxuriance.

The arboretum, which also forms part of the park, bears testimony to the ingenious assiduity of the landscape-gardener. I observed the following trees in it, which have stood the open air during many severe winters: — Magnòl*ia* grandiflòra, 15 ft. high; Kölreutèr*ia* paniculàta, 15 ft. high; *Sophòra* japónica, 20 ft. high; Virgíl*ia* lùtea, 10 ft. high; Gymnócladus canadénsis, 14 ft. high; *C*ércis *S*iliquástrum, and *C.* canadénsis, about 12 ft. high; *C*ydònia japónica, 5 ft. high; *D*iospỳros *L*òtus, 12 ft. high; *O*`lea europæ`a, 6 ft. high (shrubby); *P*hillýrea mèdia, *P.* angustifòlia, *P.* oblìqua, *P.* latifòlia, *P. i*licifòlia, from 8 ft. to 10 ft. high; *L*aúrus *Sássafras*, 10 ft. high; *L. Benzòin*, 10 ft. high; *L.* nóbilis, 8 ft. high (stands out with a slight covering); *F*ìcus Cárica, 10 ft. high; and Aristotèl*ia Mácqui*, 10 ft. high. All these trees have been planted from 15 years to 20 years.

The Castle of Clemensruhe should also be visited, in which there are a museum of natural history, and rooms for delivering

lectures. The most delightful views are seen of the whole neighbourhood from the Kreutz Mountain; and there is a chapel on this elevated spot, with beautiful marble steps, and a vault containing the undecayed bodies of several monks. It may be interesting to musicians to know that Beethoven was born here.

The Botanic Garden at Cologne (the birthplace of Rubens), under the direction of M. Greis (who has also the management of the gardens and nursery that belong to the city), is well laid out, and contains all the plants that are necessary for the studies of the young botanist; and, although but a small sum is allowed for the expenses of the garden, yet, by the particular attention of M. Greis, it is kept very clean, and in good order.

The nursery which belongs to the city is worthy of great, I may say of the greatest, consideration; as from its commencement it has received the most powerful assistance from the magistrates, to aid its directors in attaining the object in view: and it now possesses one of the richest collections of North American trees and shrubs in Germany; plants desirable, not only for their beauty in landscape scenery, but for their utility. I had the pleasure of conversing with M. Greis, and concluded from his conversation, that his whole attention has been long directed to the trying of all the newest and most beautiful sorts of North American trees and shrubs in the open air; and, from what I saw and heard, his object is fully attained. I found here a great many of the following trees and shrubs standing the open air, which in other parts of Germany they unnecessarily grow in pots:—20 sorts of magnolias, *Bérberis* aristàta; Mahòn*ia* rèpens, M. *A*quifòlium, and M. fasciculàris; Gordòn*ia* Lasiánthus, and G. pubéscens; *I*lex *A*quifòlium, and all its varieties: *I.* baleárica, *I. m*yrtifòlia, *I.* serràta, and *I.* opàca; Aristotèl*ia Mácqui*; *U*lex europæ*a*, *U.* e. fl. pl., and *U.* strícta; *A*càcia *Julibríssin*, Photínia serrulàta, *C*érasus Laurocérasus, *R*òsa Bánks*iæ*; *Rìbes* sanguíneum, and *R.* speciòsum; *Aúcuba* japónica; Gaulthèr*ia* procúmbens, and G. *Shállon*; 16 sorts of andromedas; Lyòn*ia* paniculàta, and L. *s*alicifòlia; *C*lèthra *a*lnifòlia, *C.* acuminàta, *C.* Michaúx*ii*, *C.* paniculàta, *C.* scàbra, and *C.* tomentòsa; 27 sorts of rhododendrons, and several sorts of azaleas; *L*èdum latifòlium, Fontanès*ia p*hillyreoìdes; *P*hillýrea angustifòlia, latifòlia, and mèdia; *L*igústrum lùcidum; *L*aúrus *Benzòin*, and *Sássafras*; *B*úxus baleárica, *F*ìcus Cárica, Maclùr*a* aurantìaca; *P*ìnus Doúglas*i*, and *P.* halepénsis; *C*èdrus Libàni, and *Yúcca* filamentòsa.

The nursery is situated in the neighbourhood of Cologne, on a piece of ground containing about 45 acres, perfectly flat, and unprotected from the weather; the soil is such, that the young plants grow pretty well, and are not stunted in their appearance.

The ground is not enriched by animal manure, which makes the plants grow better when they are transplanted.

All trees and shrubs which are required for forests or gardens may be had here at a moderate price; and this may be one reason that M. Greis is so much employed as a practical landscape-gardener, and layer out of gardens, in the environs of Cologne. The garden of M. Koch, who has an excellent collection of rhododendrons and azaleas, and also the rich collection of rare plants of M. Engels, are well worth mentioning.

At last I came to the garden of the Prince of Salm-Dyck, which is situated on a gently undulating plain on the left bank of the Rhine, on the road which leads from Dusseldorf to Aix la Chapelle. This noble garden is well known as containing the best collection, and the most magnificent specimens, of succulent plants in Europe. To give an idea of the immense numbers of cultivated species at Dyck, I subjoin the following list. The whole collection of succulent plants amounts to about 1500; in which there are 296 mesembryanthemums, 115 cereuses, 76 opuntias, 47 mammillarias, 28 echinocactuses, 10 melocactuses, 9 rhipsalises, 7 pereskias 196 aloes, 17 yuccas, 29 agaves, &c. Of this collection it may be sufficient to say, that it has only been brought to this state of perfection by great botanical knowledge, and indefatigable industry. As the greater number of the plants were given to His Highness by the botanists who named them, it may easily be supposed that they are correct, which is very seldom the case where there are collections of succulent plants: there is almost always a confusion, and sometimes the most ridiculous mistakes, in the names. This evil might in part be easily remedied; and I am sure that every proprietor of such plants would willingly lend his aid, if the means were pointed out, by which so desirable an end could be effected. As such a remedy, allow me to suggest the use of the *Hortus Dyckensis*, which testifies the great botanical knowledge of the author, and which will anticipate the wishes of all amateurs of succulent plants. It may be procured, in the German and French languages, of the foreign booksellers in Regent Street.

The botanic garden and flower-garden are kept clean and in good order, and answer their purpose extremely well. The trees and shrubs are arranged in the natural order in the pleasure-grounds: they are planted in the situations best suited for them, and form a very picturesque whole; which was effected by the assiduity and skill of a scientific English landscape-gardener [our esteemed friend and correspondent Mr. Blaikie]. This garden was first laid out in the beginning of the present century: and, by the continual attention bestowed upon it, it is still a complete pattern of a garden. The soil is loamy and exceedingly productive; and it is well suited for the growth of all the

plants, except those that naturally require a chalky or sandy soil. M. Funke, the garden director here, an excellent botanist and gardener (in whom the plants have a very excellent father), told me that many of the plants would stand the open air better if the soil were not so rich; yet no pains have been spared in other respects to inure some particular shrubs to the open air. The collections of trees and shrubs, and of perennial plants, are also very remarkable. I was quite delighted with this place; and, when I left it, I only thought of the agreeable and instructive conversation of the prince, and the splendid collection of succulent plants, till I at last found myself again on the Rhine; when I sent back the carriage the prince was so kind as to send me in, and I then continued my journey to Dusseldorf. My first object in Dusseldorf was to call on M. Weyhe, who laid out the public gardens there; but, alas! my trouble was in vain, as I was informed he had lately set out on a journey. The court pleasure-ground, which sustained a great injury during the war, is now reestablished; and, as it is beautifully laid out, it forms a most delightful promenade for the inhabitants of Dusseldorf. The form of the paths and outlines of the groups are very agreeable to the eye, and display much taste, particularly where there are no flowers intermixed, as is so often the case in similar pleasure-grounds, and which only distorts nature. The groups are in masses, and would look extremely well, if rows of trees did not intervene, which interrupt the beautiful views of nature.

There are a great many avenues of trees in the town, and squares well laid out, which give an interest to the place. The most remarkable avenues are those of the Friedrickstrasse, and of the walk from the Bergerthor.

There are no gardens of any consequence at Nimeguen. Belvedere is newly laid out, and the view from it is wonderfully fine; extending from Arnheim and Densburg on the north, to Cleves and Geldres on the south, and towards the east over half the forests of Gelderland to those of Westphalia; so that the spectator has a prospect of four rivers, the Maes, the Waal, the Rhine, and the Yssel.

As my time only allowed me to spend one day at Rotterdam, I unfortunately could not obtain any information respecting the gardens there. However, I went to see the botanic garden, which is in good order, and the flower-market which displayed the most superb flowers; viz. several species and varieties of rhododendrons, azaleas, tulips in pots, pinks, *Rosa damascena*, &c., which might be expected in such a place. The town itself is exceedingly interesting; and the industry of the Dutchman is truly wonderful. Numerous canals intersect the whole city, the banks of which are generally planted with rows

of limes, with a few oaks and elms, in the shade of which are formed the most delightful walks. Some of the houses in the new streets, and, indeed, all the houses in the old streets, seem as if they were falling down, as the walls are built in such a way, that the top projects 1 ft., and sometimes 1½ ft., over the path at the base. This city is remarkable for its cleanliness; even the outsides of the houses being generally washed twice a week from top to bottom.

Any English gardener may accomplish this journey in sixteen days, for the expense of 20*l.*; and he need not be at a loss for speaking either German or French, as I spoke English all the way, except once at Dusseldorf, where I was obliged to speak German to the waiter in the hotel; and I would strongly recommend the English gardener to visit the German gardens, as but little is known of them in England.

Bayswater, June 20. 1836.

ART. II. *Observations and Experiments on the Property possessed by some Plants, particularly the A'rachis hypogæ`a, of ripening their Fruit under Ground.* By Dr. AUGUSTUS TRINCHINETTI of Pavia.

THERE are some plants that have the singular property of ripening their fruit under ground, which are distinguished by botanists by the name of Hypocarpogèæ. Why nature has provided them with this property is not known; but it has been supposed to be similar in its uses to that possessed by some other plants, which, though they ripen their seeds in the open air, are guided by nature to deposit them only in the places most suitable to their germination and developement; by which means species are propagated that it would be difficult in any other manner to preserve. Even the Linària Cymbalària would soon become rare, did it not throw out its branches, and open its capsules over those fissures of the walls on which it grows, which are suitable for the protection of the young plant; whereas, if its seed fell on the ground, it would be placed in circumstances so unfavourable to its germination, that it would probably perish. Without some such provision, how could steep rocks be so frequently covered with cyclamens, &c.?

There are plants, however, growing in situations where no particular provision of nature is required to prevent them from perishing, which yet form their fruit under ground; or, at least, bury it in the earth to bring it to maturity: though in what way this is effected, and how the earth operates upon the fruit, as far as I know, has never been explained.

To solve this difficulty, or, at least, to throw some light on the subject, I determined to cultivate the *A'*rachis hypogæ`a, a plant

which, perhaps, possesses the quality in question in a greater degree than any other. I had thus an opportunity of making observations and trying experiments, the result of which I shall proceed to state, first giving a short description of the general habits of the arachis, which will facilitate the comprehension of the subject.

The *Arachis hypogæa*, or earth nut (*fig.* 62.), is one of the Leguminàceæ. It was brought to England in 1712, and it is here considered a stove plant. It is generally cultivated in the warmer parts of North and South America, but is supposed to be originally from Africa. In South Carolina, the seeds are used as chocolate; in the eastern countries, as almonds; and in Cochin-China they furnish an oil used for lamps, and as a substitute for the oil of olives. About Paris, it is raised on hot-beds, and transplanted into the open garden, where it ripens its seeds, which are used as other legumes. It has also been brought to maturity in a stove in England, and proved very prolific. (See *Hort. Trans.*, vol. v. p. 372.)

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The greater number of the flowers of the arachis originate in that portion of the stem which is nearest to the surface of the soil; some, however, are to be found a little higher up, in the axils of the leaves. The calyx of these flowers forms a tube at the lower end, which resembles a peduncle. The style is enclosed in it, and it terminates in a little ovary, at first sessile, and placed at the base of the tube. After being fecundated, the flower withers and falls off, and a small tubercle is found adhering to the stem, which, by degrees, assumes a longer shape, like that of a little horn, and, turning downwards, penetrates into the soil, or sinks deeper, if it has already entered it. This little horn (which is nothing more than the fecundated seed attached to a peduncle) increases in the earth, becoming larger towards its point, till, by degrees, it assumes the appearance of the legume, or seed-pod, of the arachis.

From knowing that, in general, the parts of plants which are under the soil are either roots themselves, or are furnished with fibrils, and that they can only derive nourishment from the soil by their spongioles, the idea struck me, that the fruit of the arachis might have an analogy with roots, or might exercise a similar function in some degree: and I very soon, by observing the plant attentively, discovered, even with the naked eye, a small tubercle on the extreme point of each legume, which, on examining it with a glass, and afterwards with a microscope, I found to be analogous with, though it was much more distinct

than, the spongiole of a root. This is more apparent when the pod has penetrated the ground, and begins to develope itself, decreasing in thickness as the seed which it contains approaches maturity. From the point where the tubercle, or spongiole, appears, there are salient lines, which mark the legume longitudinally; and which appear to be formed of small bundles of vessels, or of elongated cellules.

These observations apply, not only to the arachis, to which new and suitable organs of absorption are necessary for its reproduction, but to the bulb of the saffron, which essentially differs but little from seed, and which is known to throw out large fusiform roots from its base; a circumstance that I consider to afford additional support to my opinion.

Subsequent experiments have confirmed the opinion which the above observations first led me to entertain. By means of a stone placed under the legume, it was prevented from penetrating into the ground, when it was found to become elongated, and to try to change its direction; but, finally, not being able to reach the earth it withered and dried up. This convinced me that the legumes of the arachis can never be ripened in the open air.

I put another pod of this plant into a small empty phial, and set it in a place where it could not receive the direct rays of the sun. It is easy to comprehend that, while it was in this situation, the atmosphere within the phial was always moist; as, during the warm days and cool nights of autumn, the moisture combined with the air in the day becomes condensed in the night; and, in fact, the interior of the phial was found every morning covered with drops of water. The legume was, therefore, all night, and a great part of the morning, not only in an exceedingly moist atmosphere, but also completely battered by these watery drops. This kept it growing: it elongated itself, without appearing injured in doing so; and when, in the course of about a fortnight, I took it out of the phial, I found that it was still in a fit state for penetrating into the ground. A third pod, when immersed in water, became covered with a whitish film; but it lived, and elongated itself, becoming somewhat thicker towards the point. I took it out of the water at the end of three weeks, and found that it had still power to search for the earth. The last two experiments prove that, although water is not sufficient for the full developement of the fruit, it is favourable to the preservation of its vitality; and that, though moisture is a condition necessary to the production of the tubercles, or roots, it is not sufficient in itself to produce them so as to enable them to exercise their functions, when all other circumstances are unfavourable.

I put another legume into a phial, in which there were a few

drops of water, and buried it in the ground, so that the light could not reach it. In this situation, it soon became very long, and covered with fine hairs towards its extremity, where a swelling gradually took the form of a small legume. In a few days, the hairy covering disappeared, and the miniature ovary slowly increased in size. I took the legume out of the bottle about the time when it would have become ripe if it had been in the ground, and found it very small, with the point much elongated, and furnished with spongioles, but with only one seed, which was very small and watery. In this experiment, the legume was placed in circumstances much more favourable for the developement of the functions of its roots, than it was in the preceding ones; because, in this case, the legume was kept in an atmosphere constantly impregnated with moisture, and, what was particularly suitable to it, in perfect darkness. But why did it become covered with hair? It is well known that hair, in some cases, acts as an organ of absorption; and it is probable that, in this instance, it exercised the same functions as, and partly supplied the place of, the spongiole, which, though formed, was, from the unfavourable situation in which it was placed, incapable of performing its proper office effectively: and, indeed, the hairs disappeared as soon as the extreme point of the legume became sufficiently elongated to touch the bottom of the bottle, where, as I before stated, there were some drops of water, in which the spongiole could, though only in an imperfect degree, exercise its proper functions.

Finally, I cut off the extreme points of three legumes, and afterwards their spongioles, which were scarcely formed; and, after having done this without injuring any other part of the pods, I put them in the ground again, and let them remain about a fortnight. I then examined them, and found that two of them were dried up, and had become soft, and almost decayed. This would have proved that the spongiole was essential for the developement of the fruit, had not the third legume, which was treated exactly like the others, vegetated, and increased in size! What was the cause of this? On observing it closely, I discovered that it had still a spongiole, although the two others had not the least appearance of any; and this explained the phenomenon: as it appeared clearly, that either I had not entirely removed the spongiole, as I intended, or that the plant possessed the power of reproducing it.

From all these experiments, I think we may conclude that the fruit of the *Arachis hypogæa* is placed by nature under ground, in order to absorb from the earth something that is necessary for its developement (which may be only water), and that darkness is a necessary condition. Also, that probably all plants belonging to the Hypocarpogèæ are furnished with similar

organs for similar purposes; which I consider a reasonable inference, till it has been either confirmed or disproved by future observations and experiments.

ART. III. *Scottish Arboricultural Notices.* By Mr. GORRIE.

I HAVE to thank you for your ready insertion of "Scottish Arboricultural Notices," from Mr. Bishop, Mr. Densard, and myself, which appeared in Vol. XI. p. 175. Since then I have received several communications on the same subject, from different quarters, and have made some farther observations myself, the substance of which I now transmit.

Having been lately at Lawers, the seat of Lord Balgray, about six miles to the west of Crieff, I was agreeably surprised to find so many fine specimens of old and young forest trees, of which, as far as I know, little public notice has hitherto been taken. The soil appears, generally, to be what is termed a light sharp loam, chiefly on a rocky or a gravelly subsoil. The house appears to have been built some two hundred years since, and has of late received some additions. It stands on a gently sloping bank, with a double avenue of very lofty trees of various sorts, extending from each end of the house about a mile southward, towards the river Earn. The background rises rapidly, and irregularly, to a considerable height, and is covered with a dense mass of thriving forest trees of different ages, amongst the most interesting of which, as appeared to me, is the red, smooth-barked, and horizontal-branching variety of Scotch pine, a variety described by the late Mr. George Don of Forfar, in the *Caledonian Horticultural Memoirs*, as attaining to greater age and size than the variety with chopped rough bark usually cultivated. Many of these elegant and ornamental-looking trees, on the face of the hill to the north of the house, measure from 3 ft. to 4 ft. in diameter, with stems as straight as arrows, reaching about 60 ft. before forming a broad bonnet-like top. A row of the same sort of Scotch pine had been planted on the outsides of the avenues to the south of the house: many of these have been cut down; but a number still remain, on the ample tops of which the heron securely builds her nest. From the want of shelter in belts or avenues, the Scotch pine here does not show the same length of bole, the branches generally spreading out at from 12 ft. to 18 ft. from the ground. I girted three of these trees, and found them 14 ft., 13 ft. 8 in., and 12 ft. in circumference. The tops are lofty, and beautifully picturesque; but have been prevented from acquiring their natural form by the proximity of other trees: one, under these unfavourable circumstances, covers a diameter of 57 ft. with its branches. On cutting up this variety of pine, it is

found to contain healthy and sound red wood to very near the outside. I saw a plank in the wheelwright's shop measuring about 5 ft. in breadth. (Here I speak from recollection, my notes having been obliterated: but I may afterwards send an account of its annual growth, and exact diameter, when the plank is cleaned, and formed into a table, for which it is intended.) I measured the girt of several old trees on the lawn. A maple measured 14 ft. 7 in. in circumference; and its branches covered a circle, the diameter of which was 87 ft.; height about 60 ft. A lime tree measured 17 ft. 3 in. in circumference at 6 ft. from the ground; the diameter of the space covered by its branches being 78 ft. An ash measured 18 ft., and another maple 22 ft., in circumference, at 1 ft. from the ground. An English elm measured 10 ft. 5 in. in circumference; and its branches covered a circle of 63 ft. A sweet chestnut measured 13 ft. round, and its height 71 ft. An old and singularly picturesque holly, with curved and pendulous branches, something similar to those of the Kincairney ash, jutting out from the foot of a rock, measured 7 ft. 1 in. in diameter near the ground, with a stem 12 ft. high before setting off its fantastic branches: this is evidently a curious seedling variety, with plain leaves, and deserves cultivation by grafting. A fine hemlock spruce stands near the house: its stem girts 6 ft. 7 in.; and its branches cover a diameter of 35 ft. A spindle tree (*Euónymus europæ`us*) measures 3 ft. 10 in. round the stem; and its branches extend 10 ft. each way from the centre. A locust tree has the appearance of extreme old age, and girts 5 ft. 7 in. An old tulip tree, which had for a considerable period ceased to produce any young wood above 1 in. long in a season, was some years since severely shattered by a storm, which communicated youthful vigour to the tree. The year following its mutilation, it pushed out strong healthy shoots, and occasionally it has since shown blossoms, from unfolding which it had ceased long before.

There are some large spreading yews on a bank in front of the house, one of which, being lately cut down, indicated by its annular rings an age of nearly two centuries. A very large hedge of yew, and another of holly, resembling in size and shape large and lengthened Scotch hay-stacks, give an air of antiquity to the place. It may not be altogether unsuitable, here, to mention a fact communicated by the lady, which tends to strengthen Knight's theory respecting the existence of plants propagated by cuttings, layers, or grafts, not extending beyond the natural life of the parent. At this place there formerly stood five fine plants of the *Plátanus orientàlis*, which, like all others of that species in this quarter, died about twenty years since: but the lady informed me that, previously to their showing any symptoms of decay, a Mr. Stephens, drainer and landscape-gardener, who was em-

ployed there professionally about the same period, mentioned in conversation, that "if Mr. Andrew Knight's theory were true, those five fine plants of platanus would die off in a few years; and, if that took place, he begged Lord Balgray would have the wood cut up, and made into furniture, as no species of timber excelled it in beauty." A short time elapsed, when these five trees, like their contemporaries in Scotland, showed symptoms of approaching death; when they were cut down, and made into bed-room furniture; the wood being of a cream-coloured ground, thickly marked with linear, dark brown-coloured, longitudinal spots, apparently more artificial than natural. The wood takes a fine polish, which heightens the effect. His Lordship reflecting on the prophetic announcement of their termination, concluded that some other trees in the country might, at the same period, have finished their vegetable existence; and, on enquiry, found that two had been sold at a roup of wood on a neighbouring estate. His Lordship's carpenter was sent to procure them, and bought them of the original purchaser at one shilling per solid foot; and of these two, a beautiful wardrobe was made, the wood, in its markings and capability of receiving polish, being every way similar to that grown at Lawers. I have since seen a library fitted up of the same sort of beautifully marked wood, from a platanus tree that died at Migginear Castle, in 1817; Admiral Drummond having accidentally discovered its adaptation for ornamental cabinet-work. After this digression, I must return to the forest.

Besides the many fine specimens of old trees at Lawers, there are a number of plants, from 6 ft. to 10 ft. high, of the *Pìnus Larício*, or the Corsican pine, growing vigorously; some plants of the sugar maple; and, on the north side of a hill, are some thousand plants of the *Làrix péndula*, or Fumàra, at wide distances, overtopping their nurses, and showing rapid growth. Near this place is planted a considerable breadth of Scotch pine, from the seeds of the fine old trees near the house, which will serve to perpetuate that valuable variety.

Having spent two days at Lawers, I left it, deeply impressed with a sense of the grandeur of its wooded scenery, and the kind and unaffected hospitality of its worthy landlord and his amiable lady. Having applied to Mr. Shillinglaw, gardener to the Earl of Kinnoul, for a list of some trees at Dupplin, four miles west from Perth, the following measurements were sent me by him, and Mr. Bell, land-steward at that place: — A Scotch pine, in front of the castle, 59 ft. 6 in. high, 10 ft. 2 in. round; a silver fir, north from the above, 92 ft. 5 in. high, girt 15 ft.; a beech tree, in the lawn, girt 13 ft. 10 in.; a Norway spruce tree, in the den, 107 ft. high, girt 8 ft. 10 in.; a silver fir tree, in the den, 117 ft. high, girt 7 ft. 9 in.; a sweet chestnut, girting 15 ft. 9 in.; a larch

tree, west from the garden, 72 ft. high, girt 9 ft. 1 in.: all girts 3 ft. up. At Murie, in the parish of Errol, Carse of Gowrie, Mr. Kinment, gardener there, informs me that there are some cedars of Lebanon, which were planted, about ten or eleven years since, in a shrubbery, where the ground was kept dry and clear of weeds, and the soil is a black rich loam on a retentive subsoil. The average circumference of these trees, at 3 ft. from the ground, is 18 in., height 16½ ft., and their branches cover a circle of 14 ft. diameter. Evergreen oaks are 12 in. in circumference, 3 ft. up, 17 ft. high, and their branches cover a circle of 9 ft. in diameter. From this a comparison may be instituted between plants of the same kind and age, in the neighbourhood of London and the Carse of Gowrie, and the result will show the effect of climate at 51½° and 56½° of north latitude. All the measurements of girts or diameters, given in this communication, have been taken at 1 ft. from the ground. — *Annat Gardens, June* 16. 1835.

ART. IV. *Scottish Arboricultural Notices. Argyllshire.* By Mr. ALEXANDER ANDERSON, Gardener at Baltimore House.

HAVING received one of your Return Papers from my esteemed friend Mr. Gorrie, with a request that I would furnish you with an account of anything I was acquainted with, worthy of being inserted in the *Arboretum Britannicum*, I with pleasure comply with his request.

At Lochnell House, the seat of General Campbell, whom I served six years, there are a great number of large and beautiful silver firs from 6 ft. to 12 ft. in girt, and, I should suppose, speaking from memory, from 60 ft. to 90 ft. high. There are also many fine larch and spruce firs, which, though inferior to the silver firs in size, all possess a fine conical shape. Evergreens thrive here, also, remarkably well, and many of them are of great size and beauty; but the dimensions I cannot state. The soil where many of the finest silver firs stand is a thin hazel-coloured loam, upon a retentive clayey subsoil. Their age, I believe, is about 70 or 80 years. There was a hydrangea in the garden, when I was there, of a good size, from which, a few years after my leaving the place, the gardener informed me he cut from 600 to 700 flowers at one time, which were exhibited to some English visitors in bundles of 100 each. There is also a row of beeches, with an elm or two among them, the roots of which are washed by the tide; but they are of good size, and quite healthy. Many of the deep winding glens on this estate are admirably adapted for the cultivation of trees; and planting, within the last 20 years, has been gaining ground generally. I planted, in 1826, on a small property in Morven, on the Sound

of Mull, 100,000 trees, but have not seen them since. There is a great extent of fine oak coppice-wood in many parts of the county, the cultivation of which is well understood and attended to; the bark forming an important article of export. Twenty years is the average period to which coppice trees are allowed to grow.

Barcaldine. What I have stated respecting Lochnell House will apply generally to Barcaldine, the seat of Sir Duncan Campbell, which is situated in the neighbourhood. Sir Duncan has embellished his place greatly, and, within these few years, has built an extensive brick-walled garden, with a considerable range of hot-houses. Both places are situated in the district of Benderloch, lying between Loch Eteve and Loch Ceveran.

At Appin House, the seat of R. Downie, Esq., in the district of Appin, and eight or nine miles distant from the two former places, there is a good quantity of very old timber; but, as it is a long time since I have seen it, I cannot give particulars.

At Airds, the seat of Sir John Campbell of Ardnamurchan, there is also a considerable quantity of fine timber, with well-managed coppice-woods; but, so far as I recollect, individual trees would not be found to compare with the firs at Lochnell, or Barcaldine.

Toward Castle, the seat of Kirkman Finlay, Esq., is situated on the south-west point of Argyllshire, on the Firth of Clyde; and, though much exposed to south-west gales, it has extensive and thriving plantations, with an almost endless number and variety of fine evergreens; but, from the short time they have been planted (not more than 15 to 20 years), of course no individual among them deserves particular notice. This gentleman deserves to be particularised for the extent of his improvements of various kinds, and for the spirit and judgment with which he has carried them forward; having planted several millions of trees, drained his farm lands, and built farm offices upon them on terms favourable to his tenants.

Ardrossan. My present employer, Mungo Nutter Campbell, Esq., purchased this property in autumn, 1830, at which time I entered his service; and since then he has greatly improved it, having built an elegant house, with commodious offices, and planted from 300,000 to 400,000 trees, which are, in general, succeeding well. There is a moderate quantity of good old timber upon the property; but many of the finest trees had been cut down, during 15 or 20 years previous to his purchasing it. There are a good many fine lofty beeches, from 6 ft. to 8 ft. and 9 ft. in girt; also an *Acer Opulus* (so named by Dr. Hooker), about 4 ft. in girt, and 50 ft. high. I shall now give the dimensions of some trees and shrubs which I have measured on purpose for this communication. A sweet bay is 18 ft. high,

and the head, which is circular, is 22 ft. in diameter; a Portugal laurel, 17 ft. high, diameter 25 ft., height of the trunk to the branches 4 ft., girt 4 ft. 8 in., and form of the head nearly circular, flowering beautifully every year; a tulip tree has a clean trunk of 8 ft. in height to the branches, girt of the trunk 4 ft., diameter of the head 30 ft. There is a much more lofty tulip tree at Lochnell House, but it is in a sheltered situation; whilst all those above mentioned enjoy scarcely any shelter. There are also a number of common hollies, with clean trunks, from 8 ft. to 10 ft. high, and from 3 ft. to 4 ft. in girt. The entire heights of the trees from 25 ft. to 30 ft.

Argyllshire Proper has a vast extent of sea coast, which is reckoned unfavourable for the growth of timber; yet in many parts of the district good trees may be met with.

At Minard, J. Campbell, Esq., of Milberry, are some splendid evergreens; one of the most remarkable of which is a common laurel, the trunk of which measures 6 ft. 9 in. in circumference at 1½ ft. from the ground, and 8 ft. at 2½ ft., the point whence the branches spread out. The largest branch is 4 ft. 4 in. in girt, the next 3 ft. 6 in., the third 3 ft. 1 in., and the fourth 2 ft. 11 in. From these four large branches proceed innumerable smaller ones, which form a head 56 ft. in diameter; the total height of the tree being 31 ft., and the branches touching the ground all round, except where supported by props. Another laurel, with a clubby root, branches out just above the surface of the ground: the principal branch is 4 ft. 2 in. in girt, and the second branch 3 ft. 11 in.; but the head is much smaller than that of the one before mentioned. Both plants are in a vigorous and growing state, without showing the least symptom of decay, though their age is said to exceed 130 years. A yew is 34½ ft. high, with a trunk 6 ft. 8 in. in girt, and which rises to the height of 6 ft. before it spreads into branches. The head is 59 ft. in diameter, and cone-shaped, the branches bending almost to the ground. Altogether, this is a most beautiful tree. In the garden there are a *Rhododéndron pónticum*, 8 ft. high, and 20 ft. in diameter, and an arbor vitæ 20 ft. high, with three large limbs, the principal one of which measures 2 ft. 10 in. in girt. An arbutus, which is 10 ft. high, with a trunk 25 in. in girt, and a head 10 ft. 6 in. in diameter, is at this time (Aug. 4. 1835) covered with an abundant crop of half-grown berries. A gum cistus, 7 ft. 9 in. high, with a head 11 ft. 9 in. in diameter, is covered annually with flowers, and has a magnificent appearance. This place, as will be seen by the above account, possesses great capabilities for the growth of trees and shrubs. Those noted are finely sheltered; and there is a considerable extent of thriving fast-growing plantations. Minard is situated on the west side of Loch Fyne, about 10 miles below Inverary.

On the opposite side of the loch, in the district of Cowal, on the property of Robert Maclachan, Esq., of Maclachan, is a solitary ash, which rears its lofty head far above the neighbouring trees; its trunk 50 ft. high, without a single branch or knot; and 12 ft. in girt above the swelling at the root. The head is of a flat hemispherical shape; but some of the branches show symptoms of decay. The proprietor states that, so far as he can ascertain its age, it must have been planted about a hundred years ago.

The foregoing are all the trees and shrubs worthy of noting which I have had the opportunity of lately seeing; but I think they will serve to give you an idea of the average power of the soil and climate of this country for producing ligneous plants. Tender shrubs and evergreens thrive uncommonly well on the coast, even where they are much exposed to the sea air, provided that they are not within the reach of salt spray; they being never injured by the weather of our winters, which consists chiefly of hoar-frosts (I speak of the coast), dashing rains, and sleet.

Baltimore House, August 4. 1835.

Art. V. *On Thinning, Pruning, and Girdling Trees.* By William Ward, Esq.

Having planted, within the last twenty years, upwards of a hundred acres of trees (chiefly in Wales); and, if I do not flatter myself too much, with rather unusual success, in consequence of having followed the system described in the enclosed paper, I am induced to offer it to your consideration, leaving you to make what use of it you please.

I trust, however, that you will at least notice the plan of girdling trees, of which I consider myself the foster-father; and, if I am not too partial, I look forward with great confidence to the probability that, in a few years, larch, by proper management, will beat all the other pine and fir timber totally out of the field in point of utility.

Thinning Trees. — Upon the subject of thinning trees, some analogy may, perhaps, be drawn from the culture of turnips, in which no farmer of the least experience ever expects to obtain these roots of the full size that they are capable of attaining, without thinning them out to sufficient distances; and it can hardly be doubted, that the advantage of so doing proceeds from thereby affording the plants ample room to extend both their roots and leaves. Surely, the same effect will result from the proper and cautious thinning of trees: but there is this difference between the two cases, that, with regard to turnips, the result

may, generally, be observed in so short a space of time as to leave no possible doubt upon the subject; whilst, on the other hand, the growth of all trees is comparatively so slow, as to require much longer time, and a series of close observations of the effect of experiments, before any satisfactory deductions can be obtained. By such experiments it may, probably, be made to appear, that, to a certain extent, the removal of any tree will have the effect of ultimately adding to the bulk of its neighbour, to much more than the amount of the solid contents of that which has been taken away; though, without such process, neither of them would have attained to one quarter of the bulk of the tree which was left.

Pruning Trees. — Experiments may be still more available for showing the effects of pruning, or (if there are any who, in defiance of Mr. Pontey, are bold enough to pursue the plan) of not pruning at all. Sir Henry Steuart, in a note to his *Planter's Guide*, says that Pontey's *Forest Pruner* has done more injury, as well as more good, to the woods of Great Britain, than any work that has appeared within a century. The evidences of the injury which it has done are but too visible, without anything like close examination, in numerous instances; but, whether it has ever done any substantial good may, perhaps, be questionable, when the subject is investigated without prejudice, and with some consideration of those discoveries respecting the processes of vegetation of which Pontey was manifestly ignorant when he wrote. All his notions are resolvable into the idea, that the feeding sap of trees proceeds only in an upward direction; whereas the observations of Mr. Knight and others clearly show that the upward progress of the sap contributes but little, comparatively speaking, to the growth of the tree; and that it is chiefly by the downward passage of the juices, after they have been altered in their nature in the leaves, that the increase of growth is effected.

From these considerations, and also from the visible structure of trunks and branches when they are longitudinally divided, it is apparent, that every trunk and branch is fed as much by the branches that pass into it, as by the roots, if not more; and, if any trees (not having been pruned) are subjected to the experiment of measuring the girt of the trunk, and also of the principal branches, it will be generally found, that the joint contents of the sections of those branches, taken according to the usual method of measuring timber by what is called quarter girt (that is, by dividing the circumference into 4, and multiplying the produce, or $\frac{1}{4}$, into itself), will approach very nearly to that of the trunk. Thus, suppose a tree having two branches only proceeding from the main stem, and the circumference of *a* in *fig.* 63. to be 8 in.; this being squared, as the common phrase is

(that is, the square root being taken), gives 2 in.; which, being multiplied into itself, produces 4 in. Then the circumference of *b* has been found, in such a case, to be about 6 in., the fourth of which is $1{\cdot}5 \times 1{\cdot}5 = 2{\cdot}25 =$ the contents of *b*. The circumference of *c* has been found, in such a case, to be about 5 in., the fourth of which is $1{\cdot}25 \times 1{\cdot}25 = 1{\cdot}5625$ the contents of *c*. Now, the circumference of the stem being 8 in., one fourth of which is 2 in., which, multiplied into itself, is 4 in.; 2·25, the contents of *b*, and 1·5625, the contents of *c*, added together, give 3·8125, which nearly equals the contents of *a*; the difference being only ·1875.

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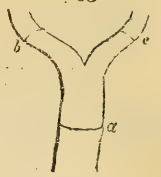

The same correspondence may be observed if we measure any of the upper branches of a tree, and also the smaller branches which immediately pass into them; and such correspondence does not merely hold good where there are only two proceeding branches, but also where there are three or four, or any greater number.

Hence, there is surely some probable ground for inferring that, if the tree in question had been, at any time, divested of either of the branches *b* or *c*, the stem would never afterwards have increased more than in proportion to the increase of the remaining branch; and that, instead of having the full thickness of the figure below, it would only preserve that which is shown by the shaded part of the sketch *fig.* 64.; in which *d* is the branch supposed to be pruned off, and *e* the loss that would have accrued to the trunk from so doing. Of course, the same principle, if it be well founded, may be applied in a proportionable degree to the lopping off all branches, whether great or small. One thing seems to be quite clear; viz. that pruning, if ever attended with any advantage, requires so much caution and attention, that it cannot be executed without considerable expense, and yet it can produce little or no immediate return. Then, if it be not materially beneficial, the expense prevents it from being profitable; and, if it be injurious, the expense and the injury united must lessen the ultimate value of the trees in an enormous degree. On the other hand, the process of thinning generally produces some return to stand against the expense; frequently equals it; and sometimes very much exceeds it. With regard to the supposed advantages of pruning, in regulating the straightness and extent of the boles of trees, the same benefit may be obtained by a due selection of the most promising stems; and by cutting out, in the process of thinning, all those which are of a contrary de-

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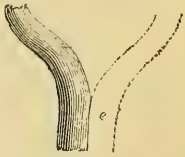


scription: though, in many cases, even this object may be disregarded, for the straightest timber is not always the most valuable.

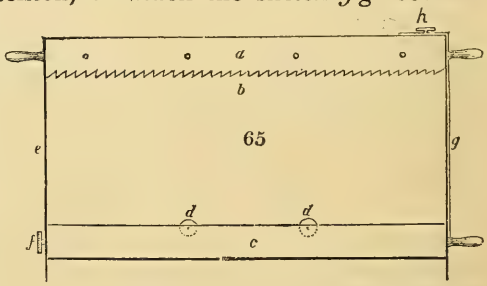
Girdling Trees. — Mr. Monteath, in his *Forester's Guide*, strongly recommends the disbarking of trees in the spring, before they are to be felled; and the effect in hardening the timber is certainly very great; but, in a hot summer, the exposed alburnum is apt to split more or less. A better mode has been found to be that of merely cutting out clean, a rim, about 4 in. in width, of the bark, close to the ground; which, in larches, seems to cause the turpentine to be wholly incorporated in the wood, instead of passing down to the roots; and, in fact, it so totally alters the condition of the trees, that the workmen complain of their being much more difficult to saw.

Another result appears also very interesting. On February 9. 1831, a section was cut from a larch that had been girdled, as above mentioned, in the spring of 1830, and which then weighed 6540 gr. On March 21. it weighed 4990 gr., having lost 1550 gr. A similar section, cut at the same time, from an ungirdled larch, weighed, on February 9., 5610 gr.; and, if it had lost by evaporation only in the same proportion as the other, should have shown, when weighed on March 21., a loss not greater than 1330 gr.; instead of which, it then weighed only 3330 gr.; thus showing a loss of 2280 gr., nearly double the proportion of the former.

The effect of this process in establishing the straightness of the wood is, moreover, very beneficial. A ladder made from a larch so treated will be useful; whilst one not so seasoned will twist so as to be quite worthless.

Chester, December 4. 1835.

P.S. — *July* 3. 1836. This spring I have, for the first time, adopted a simple contrivance, by which the girdling is effected readily, and with precision, of which the sketch *fig.* 65. will give you some idea. In this figure, *a* is a piece of wood, 2 ft. long, 4 in. wide, and 2 in. thick, having two saws screwed one on the top and the other at the bottom, so as to be perfectly parallel at the distance of 6 in. from each other, and projecting about three quarters of an inch; *b* shows the uppermost saw; *c* is another piece of wood, of the same dimensions, having four small rollers projecting opposite to the saws; *d d* show the uppermost two of these



rollers; *e* is a slip of tempered steel fixed to *a* at one end, and set to *c* at any requisite point by a screw nut (*f*) passing through different holes made in *e* at about 1 in. distance; *g* is a leather strap fixed at one end to *c*, and fastened to *a* by a button (*h*), by suitable holes.

The bark, after being girdled by the saws, may be taken off with any chisel, about 3 in. or 4 in. broad in the mouth.

Allow me to add, that, even with the common pine (*P*inus sylvéstris), I find the process of girdling extremely beneficial. About ten years since, I had a pine tree which had been so treated sawn into boards, and made into a large door, which, though in a very exposed place, has stood as well as any foreign deal.

I conceive that, by girdling the whole of what would otherwise be mere alburnum, it becomes similar to the heart-wood; and this may be one reason why the boards made from such trees are found not to warp.

Before I girdled, I never could have a ladder made of larch that would continue straight for a month; but now I have them made durably perfect.— *W. W.*

ART. VI. *On the Uses of the* U*lmus montàna, or Wych Elm.* By Mr. JOHN ASHWORTH.

THE wych, or Scotch, elm (*U*lmus montàna), as every planter knows, has a wide rambling manner of growth; but it is so useful for timber, when compared with any other species of *U*lmus, that it is a great pity it should be used as a stock, unless the graft be better than itself; which, certainly, is not the case with the grafted elm (*U*lmus campéstris). The timber of the Scotch elm is nearly equal in value to the ash; and it is good for the naves, poles, and shafts of gigs and other carriages; and, from its not splintering, as the oak and ash do, in time of battle, for the swingle-trees of great-gun carriages. It is also used for dyers' and printers' rollers, the wood by constant use wearing smooth. Cartwrights employ it for shafts, naves, beds, rails, and standards for wheelbarrows, and the handles of spades, forks, and other agricultural implements. The grafted elm (*U*lmus campéstris) is only used in ship-building, and in the construction of pumps, wheelbarrows, coal-tubs, &c. The price of the *U*lmus campéstris is from 1*s.* to 1*s.* 4*d.* per cubic foot; and that of the *U.* montàna is from 1*s.* 8*d.* to 2*s.* Young plants of the former, 6 ft. high, are 6*d.* each; and of the latter only 12*s.* per hundred; so I leave your readers to draw their own inferences as to the comparative profit attending the growing of the two kinds.

Prestwick, Manchester, Feb. 15. 1836.

ART. VII. *Notices of Green-house Plants which have lived in the open Air for several Years (chiefly in the South-West of England).* By A. S.

I LEARN from Mr. J. Eaton, gardener to the Earl of Ilchester, at Melbury Park, in Dorsetshire, where I saw the plant growing, that the Psoràlea glandulòsa (*figs.* 66, 67.) has been standing there in the open air against a wall for the last five or six years. "If the wall had been high enough, it would have been 20 ft. high; but it has been kept down to the wall, which is only 12 ft. high; and it has been cramped for room on the sides (there being on one side a door, and on the other a pear tree); but its stem is 1 ft. in girt at 1 ft. from the ground." With this description Mr. Eaton sent me a specimen: it has the "petiolis scabris," which, in the absence of the flowers, distinguishes it from my old acquaintance, Psoràlea bituminòsa, "*petiolis pubescentibus lævibus.*" The leaves, when steeped in hot water, smelt, as you once observed to me, very strongly.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Kingsbridge. The Rev. Mr. Henshaw, Salcombe, near Kingsbridge, has in his garden, which is within a few yards of the sea, a number of beautiful, large, healthy orange trees, growing against two walls which have been built for the purpose. The first wall, next the water, has a broad coping, and glass covers, or sashes, for protecting the trees in severe winters. The second wall, which is a little higher up on the sloping bank of the garden (or, rather, flower-garden), has straw or reed covers, which are fixed to small pieces of wood driven into the top or upper part of the wall; and, as there is no occasion for covering the plants on this wall for nine months in the year, this is a much neater, and equally efficacious, mode of protecting the trees. The trees on it are two lemons and one orange, loaded with fruit. *Phýlica* plumòsa has been out several winters in this garden uninjured. Meliánthus màjor (*fig.* 68.), in the flower-garden, is 10 ft. or 12 ft. high. I made no notes at the time; but, at a guess, the length of each wall is about 100 ft., the height 12 ft. or more. The trees are orange, Seville orange, blood orange, citron, lemon, limes, &c.; and loaded with fruit, which produces such an enchanting effect, as will repay any one interested in these matters to go out of his way to see them. When I saw these trees in August


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last, *P*hórmium tènax was going out of flower in the shrubbery: its stem was about 9 ft. high, and its flowers individually not showy, being, as far as I recollect, of a dull red and greenish colour, and of a fleshy consistence, with long narrow segments to the perianth, like the Agàve americàna and Doryánthes: the beauty is in the stately noble outline of the plant in the whole. An Agàve americàna on the turf in front of the house was sending up a noble flower stem, which in six weeks had grown 12 ft., and, before flowering, must have been much more than 20 ft. high. In this neighbourhood, at —— Jackson's, Esq., the Moult, the remains of one that flowered in 1834 are lying in the flower-garden, the flower stem being very much like a spruce fir tree without its leaves. At the Moult, many green-house plants of interest live out all winter; and among others I observed Bánks*ia* serràta, which had been out three winters. At Mr. Prideaux's, in this quarter, I understand the vines bear most excellent fruit trained against the natural rocks: indeed, in Mr. Jackson's melon ground which is cut out of the natural rock, the vines were growing and fruiting beautifully. The vines growing in the melon ground at the Moult are, the black Hamburgh; white sweetwater, and black cluster: 1000*l.* or 2000*l.* would produce wonders in many places along this coast, and might enable it to furnish all England with oranges, &c.

At Dartmouth, myrtles and similar plants grow like privets; and they even make hedges of myrtles. A very large citron tree against the garden wall (—— Strong, Esq.); an immense fig tree in the garden of the late governor of the Castle, —— Holsworth, Esq., lately blown down; and a wonderfully fine arbutus, are, or were, some of the fine trees in this neighbourhood.

Near Plymouth, on the opposite side of the river, Mount Edgecumbe is a wonderfully fine place; and, as seen from the river, there are few parks to be compared with it. The views that you have from the higher part of the grounds near the house (which is large, but plain), I shall never forget: they include the harbours and shipping towns of Devonport and Plymouth, with all the surrounding country; and, in point of striking, varied, and rich landscape, are hardly to be surpassed in England. The flower-garden, which is close to the river, is on that side enclosed by hedges of *Q*uércus *I*lex, which stand the sea breeze, and it is sheltered among high shrubs. It is partly laid out in the geometric style, with high cut hedges, terrace walks, a fine fountain, and a large orange-house, with a very fine collection of orange trees, large handsome plants. In another part of the flower-garden, protected in part by high hedges, there are, what are, no doubt, the finest trees of Magnò*l*ia grandiflòra in England, growing in groves, among which there are many other interesting trees and shrubs, though but few of

the more recently introduced species. The park and flower-garden are both very extensive, and are kept in good order by Mr. Palmer, the flower-gardener. In the kitchen-garden, which is also extensive, there is the finest citron tree in England, now confined for want of room, although it covers a large space of a high wall, and occupies part of both Devonshire and Cornwall (the division of the counties running through the garden). This tree is loaded with its immense fruit; though Mr. Parker, the kitchen-gardener, told us it had only been planted a few years. Close by its side grows a very fine sweet orange tree, bearing quantities of beautiful ripe fruit.

There are various interesting plants and trees at other places in this part of Devonshire, which, for the present, I refrain from mentioning, in hopes that the respective gardeners will give you all the particulars regarding them.

North Devon. — Sir J. H. Williams, Clovelly Court, is remarkable for solitary, almost boundless, and interesting scenery, and is situated on high ground above Clovelly village, which is "far in a wild, remote from public view," the walks and woods extending down to the brink of the Bristol Channel. It is near Hartland Point, and exposed to the gales from the Atlantic, which cut the tops from the trees on the lawn, and form them into Chinese, or scrubby, dwarfs, which have an alpine and original effect. There are some fine drives cut through the banks and valleys, which afford some singular and interesting views, reminding one of the confines of earth and ocean. Mr. Stroud's civility and attention make you forget you are from home; and he is particularly successful in his method of treating a fine fruit garden in this untoward climate; where, at various times of spring and summer, the fruit trees are often left with hardly a leaf on them.

In several places in Devonshire, in moist and humid woods, *Polypòdium vulgàre* grows on the trees (oak and, I believe, ash), at the height of 40 ft. or 50 ft., not only in the clefts, but on the upper side of the main branches, almost to the top of the highest trees. This may afford a useful hint to the growers of epiphytes; and it was first shown to me by Mr. Nash, gardener at Arlington Court, near Barnstaple. I have also seen the same at J. Tremayne's, Esq., Sydenham, Devonshire, bordering on Cornwall; where, from excess of moisture, and its consequences, the hydrangea never gets more than one year's growth above ground; and the fuchsias share the same fate: whereas at Clovelly Court (North Devon), in the flower-garden, hydrangeas grow to an immense size, a single plant bearing several thousands of seeds on umbels of flowers, although exposed to the hurricanes from the Atlantic Ocean, &c.

Cornwall. — At Sir Charles Lemon's, at Carclew, Azàlea *le*di-

fòlia (*fig.* 69.) grows in rows, like privet; and, together with several species of acacia, and other green-house plants, has stood out two or three winters.


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At —— Pendarves's, Esq., of Pendarves, near Redruth, we saw a plant of *E*chium cándicans in one of the borders of the kitchen-garden (where it had been, for the last five years, unprotected and uninjured by the frost), which was 5 ft. high; its branches 27 ft. in circumference; and its stem, at 1 ft. from the ground, 6 in. diameter. Last season, it had upwards of 50 spikes of flowers on it. In a level sheltered kitchen-garden, the soil of which is moist, Hydrángea Horténsia grows to an incredible size; the plants having more the appearance of hay-ricks than of shrubs, being immense masses, with such loads of flowers on them, as to give a new feature to the garden scenery. In the shrubbery I saw *P*olýgala *m*yrtifòlia, Caprària lanceolàta, and several other green-house plants I have now forgotten, which live out all winter uninjured. Here is a fine grotto, made of Cornish diamonds, lead, zinc, copper ore, &c. Mr. Mitchison, the gardener, keeps every thing in first-rate order, and is much respected by all who know him.

Exeter, Jan. 1835.

ART. VIII. *On the Culture of the Solándra grandiflòra.* By Mr. THOMAS SYMONS.

HAVING succeeded to my entire satisfaction in blooming the Solándra grandiflòra, I desire, through the medium of your valuable and widely extended Magazine, to make known my method of treating it. This splendid exotic, so freely propagated by cuttings, is to be found, perhaps, in most of our stoves; but, owing to mismanagement, its magnificent and odoriferous blossoms are but too seldom brought to perfection. The following mode of culture may therefore be of service to some who are in the habit of reading your Magazine: —

It is well known that the Solándra grandiflòra will grow many feet in height in one season, if under good cultivation, and left to its native luxuriancy. When the plants under my care have attained the elevation required, which is about $3\frac{1}{2}$ ft., I prevent them from growing higher by nipping off the tops of the shoots; and, when the plants have arrived to the size desired, all the laterals are served in the same way. By adopting this mode, the plants throw out a vast number of spurs, which is a great object in the cultivation of the solandra; and the plants assume a fine bushy shrub-like appearance. Early in January

they are turned out of the pots, a part of their balls is removed, and they are repotted in compost of one half rich loam, one fourth peat, and one fourth well decomposed leaf mould. The pots used are 12 in. in diameter. Little or no water is applied until there are indications of a movement in the sap. The plants are then slightly watered, increasing the quantity as the shoots advance, with water kept at a temperature nearly equal to that of the stove, which, at that season of the year, is from 55° to 60°. By the middle of January, the young shoots, together with the flower buds, begin to appear, when regular and rather plentiful watering is continued till all the buds have perfected their blossoms, always remembering to use warm water; for if cold water be used, at this particular season, it will cause every bud to drop, and thus ruin all. All young shoots, not bearing blossom buds, when about 2 in. long, are shortened to 1 in. from their base as often as they appear.

Under this kind of management, one plant under my care has produced no fewer than sixty of its beautiful blossoms this season; many of the spurs having two, and some three, flowers on each spur; the flowers delightfully succeeding each other for the space of six weeks or two months. It affords me pleasure to add, that there is every probability that it will ripen seed; and the seed-pods, at present, are $3\frac{1}{2}$ in. long, and $1\frac{1}{2}$ in. in diameter. It has four of these pods, each looking well, and bidding fair to arrive at maturity.

The stoves under my care being low, I am necessitated to confine the plants to the above height: but, in stoves of an elevation to admit plants of six, eight, or more feet in height, if grown and flowered with the above success, the effect would be imposing, and highly gratifying to the persons who might succeed in bringing them to such a high state of perfection.

Clowance, Cornwall, April 15. 1836.

ART. IX. *Some Account of the Vineyard at Collin Deep, near Hendon, Middlesex.* By JAMES BAMFORD, Esq.

IN furtherance of the wish expressed in your notice of the vine-dresser's knife (fig. 43. p. 323.), I forward the following short history of the vineyard at Collin Deep. I was induced to cultivate this vineyard from my attention having been for some time turned to the vine; and from being struck by the singularity of the circumstance, that, whilst all other fruits had become more general, and their management better understood, the vine should have decreased not only in the numbers cultivated, but have become confined within narrower limits than formerly.

This, I felt convinced, could not be attributed to deterioration of climate, which has been gradually ameliorated as cultivation has been extended.

Knowing that vineyards had been cultivated to a considerable extent in this country, during a period of more than a thousand years, I determined to attempt their reintroduction.

The sorts cultivated for wine being, in many instances, different in taste, growth, quality, and hardihood, and requiring different soil and training, from those usually in request for the table; and the success of each particular wine variety being, in most instances, confined to its peculiar climate and district; my first object, and that upon which mainly depended my future success, was to find out, if possible, and procure those sorts, or the varieties most closely approximating to them, which had been heretofore successfully cultivated by our ancestors.

To detail the reasoning which led me to the belief that I had discovered the original varieties would fill too great a space in this brief notice, but will be found in my intended *History of English Vineyards.*

In pursuance of the above-mentioned plan, in the autumn of the year 1830, I took an excursion up the Rhine, and remained some time at Mentz, the very centre of the wine country of Germany, collecting information upon the subject.

Having informed myself as to the kinds of grapes, their produce per acre, time of ripening, and mode of culture; and of the quantity and quality of the wine produced, I took lessons of a celebrated vine-dresser in the necessary practical details, and also personally worked at the vine-press; after which I felt myself more competent for the task I had undertaken.

Previously to my return, I procured a collection of the Rhenish vineyard vines, more particularly of the early and hardy varieties, and succeeded in bringing them into this country in good condition.

The plot of ground forming the site of the intended vineyard was trenched 2 ft. deep, drained, and well manured; and then marked out in lines of 4 ft. apart each way; while at the crossing of the lines stakes were placed against which to train the vines. In *fig.* 70., *b b* show the points of intersection at which stakes were placed; not in quincunx, but opposite to each other every way.

Trenches were then dug running from south to north (*fig.* 70. *a*), 8 in. wide, and 18 in. deep; at the bottom of which stable dung was put, well trodden down, 6 in. thick; then 6 in. more of the trench were filled by the mould previously taken out, and the plants were laid at their whole length in the trench (*fig.* 71.), the root being placed to the south. The trench, upon being filled in, left about 1 ft. of the new wood only above ground, which was tied to the stake.

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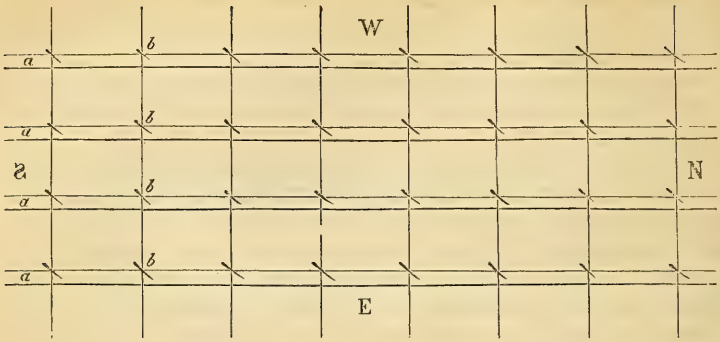

The following February (1831), each plant was pruned so as to leave two eyes only above ground; and, when the vines had pushed about 6 in., the weaker of the two eyes was rubbed off, and the remaining shoot tied to the stake; which shoot made about 4 ft. wood before autumn.

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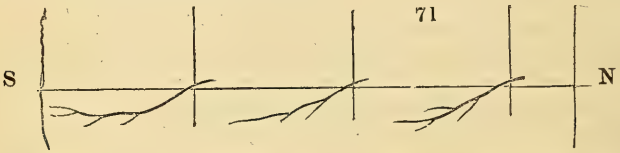

The second year (1832), each shoot was pruned to two eyes, and both allowed to push; three eyes of each shoot were left at the time of pruning, in the third year (1833); when I began to reap some advantage from my vineyard, which has, by care and attention, progressively improved, and is at present in a flourishing condition. The principal difficulties with which I have had to contend are, the spring and autumn frosts, which have sometimes done me much damage, but which now, I am happy to say, I do not dread, having discovered a mode effectually to avert both.

Some experiments are trying with the knife, the result of which will be shortly communicated.

Collin Deep Cottage, near Hendon, June 20. 1836.

Art. X. *On the Treatment of old Fruit Trees which it is wished to preserve; and on the Advantages of laying Cow-Dung at the Bases of their Trunks, and also at the Rootstalks of Vines.* By W. A. L.

In most old gardens there are to be found the aged remains of some favourite fruit tree, which the proprietor is unwilling to have removed, either from its having produced excellent fruit, or from early associations connected with it. Hence it still re-

tains its place, though age, the chisel, and the pruning-knife have been hard upon it, and it remains a heartless stump, and almost leafless skeleton of a tree.

Such was the case, some twelve years ago, with a green gage plum tree, which for many years had been trained against a wooden fence 10 ft. high, and had long delighted both old and young by the yearly produce of an abundant crop of delicious, juicy, high-flavoured fruit; but it was now old, and exhausted; and its yearly crops were "few and far between."

In the course of some judicious improvements, it was found necessary to remove the old wooden fence, and to build in its place a substantial brick wall. By this event, a favourable opportunity occurred to have the old plum tree removed, and a young healthy tree planted in its place. Having represented to my employer the propriety of so doing, his answer was, "I wish, if possible, to preserve it: it has produced excellent fruit, and was a great favourite with my father. See what you can do."

As many young gardeners, on entering their first situation, may be similarly circumstanced, I will relate the means I adopted, together with the result. In the first place, I cut down the tree to the lowest live wood on the bole (which, in this case, was 2½ ft. from the ground), leaving the branch 20 in. long; I then collected four barrow-loads of fresh cow-dung, and laid it round the stem to the distance of 4 ft. on every side, and rising conically 6 in. above where the trunk was cut off; and, in order to conceal the unsightly appearance of the dung, I covered it with sand 2 in. thick. This was done in February; and in due time the live buds of the branch broke, and grew apace. During the heat of summer, the surface of the dung became finely pulverised; and, on examination, I found that strong healthy roots had issued from the bottom of the branch which was left, and had spread through the whole mass of dung which enveloped it. The following spring, I gave it another coating of the same, extending to the distance of 6 ft.; repeating it the third year, and occasionally since. The result was, that the tree grew so rapidly, that I was soon enabled to form a handsome, well-regulated, fan-shaped head, which fills the whole space of its original allotment, and has borne, for these eight years past, excellent and abundant crops.

This is a mode that may safely be adopted with all old fruit trees that are worthy of preservation, whether cut down or not. In the latter case, I would recommend that the soil be removed to the distance of 4 or 5 ft. from the bole, to the depth of the strong leading roots, and a layer of fresh cow-dung, 6 in. thick, spread on them, and covered with sand, and left for one season to the influence of the sun and air. It will soon be discovered whether the cow-dung acts beneficially, by the renewed vigour

of the tree, and its sending forth young wood. In this case, a judicious pruning of the old wood is necessary; and, in the spring, another and more extended layer of dung should be added.

Where vines are planted on the outside of forcing-houses, and the roots have got into improper subsoil, the removal of the soil from the stem, and a barrowful of fresh cow-dung laid round them, never fails to cause the protrusion of strong vigorous roots: but it is advisable not to begin forcing early, when it is applied, as the moisture, in very cold weather, may prevent the due circulation of the sap.

ART. XI. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Sir William Jackson Hooker, LL.D., &c.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Paxton's Magazine of Botany, and Register of Flowering Plants; in monthly numbers; large 8vo; 2*s.* 6*d.* each.

Droseràceæ.

922. DRO'SERA 7446 filifórmis *Rafin.*

"THIS remarkable species of Drósera was found by Mr. James Macnab, in a swamp about ten miles above Tuckerton, New Jersey, U. S., and introduced by him into the gardens about Edinburgh, in 1834. It flowered freely in the stove at Dr. Neill's, at Comely Park Nursery, and with us." Dr. Graham says, "I cannot hesitate to agree with those who consider D. tenuifòlia of Willd. synonymous with D. filifórmis of Rafinesque; which, being the earliest published name, I retain." (*Jam. Journ.*, July, 1836.)

Rosàceæ.

1506. CRATÆ'GUS.
12906 *pyrifòlia Ait.* Bot. reg. t. 1877., Arb. brit. t. 31.

A very distinct species, distinguished by the broadness and strong plaits of its leaves, and the long peduncles of its flowers. It is a profuse flowerer; and the fruit, which is of an orange

colour, ripens early, and is greedily eaten by birds. There is a large specimen in Kensington Gardens, which flowers magnificently every year in May. (*Bot. Reg.*, July.)

12919*x* ? 12930 platyphýlla *Lindl.* broad-leafed
? *Synonyme:* *C.* melanocárpa *Bieb.*

This is the *C.* Oxyacántha melanocárpa of *Arb. Brit.*, t. 118 *d.* (*fig.* 72.); and the *C.* fissa of Lee's Nursery, where there is the largest specimen in the neighbourhood of London. Dr. Lindley appears to consider this a distinct species, which we are rather surprised at; but, whether a species or a variety, we entirely agree with the doctor in the following eulogium bestowed on it: —

"Certainly, in foliage and elegance of general appearance, this is the handsomest of the European hawthorns. It grows like an exceedingly vigorous oxyacantha, spreading its gracefully bending arms on all sides. Its leaves are a deep rich green; it is loaded with masses of snow-white blossoms, long after the common hawthorn is flowerless; and it retains its vigour till late in the autumn; so that the rich colour of its blackish purple fruit is not impaired in effect by the fading tints of the foliage. That this is some European or North-Asiatic plant cannot well be doubted; and yet it is not to be traced in books, unless it is the *C.* melanocárpa of Bieberstein; but that plant, which is a native of the Crimea, is described as having trifid leaves, reflexed calycine segments, and five stones in each haw. I therefore presume that it must be different from this, which has only three stones." (*Bot. Reg.*, July.)

Onagràceæ.

1183*a.* GODE'TIA
*vinòsa *Lindl.* wine-*stained-fld.* ○ or 2 jl.au Bh California ?1835 S lt.l Bot. reg. 1880

"In technical characters much like G. rubicúnda, but a very different-looking plant." The last of the new Californian godetias introduced by the Horticultural Society. (*Bot. Reg.*, July.)

1184. GAU'RA [mag. 3506
10041*a* parviflòra *Dougl.* small-flowered ◑ pr 4 au.s Dp Ro N. America 1835 S p.l Bot.

Raised from seeds sent by Mr. Drummond from Texas; and in habit and inflorescence very similar to G. biénnis; but the flowers, independently of the great difference in size, are widely different. In the latter, the calyx bursts on one side, the segments continuing combined at their extremities; the petals are all directed to one side upwards, the stamens and style downwards, and both these latter, especially the style, are longer than the petals. The four lobes of the stigma are erect, and placed closely together. (*Bot. Mag.*, July.)

Compósitæ.

2415. COREO'PSIS. [3505
21993*a* *filifòlia *Hook.* thread-*segmented*-leafed ○ or 2 au.s Y Texas 1835 S p.l Bot. mag.

The nearest ally to this species is, perhaps, *C.* tenuifòlia; but there, besides the difference in foliage, the disk is described as being of the same colour as the ray; and the florets of the ray are much narrower. Its seeds were sent by Mr. Drummond to this country, from Texas, in the spring of


72
15 ft. high, 4 in. diam.

1835; and the plants flowered in the open air in August and September. (*Bot. Mag.*, July.)

*2375*a*. *ISME'LIA* Cass. Ismelia. (Origin unknown.) Sp. several. *Compósitæ Anthemídeæ*. [s. 342
*21713*a* maderénsis *D. Don* Madeira ✾ _] or 2 ap Str. Madeira 1834 C lt. s Swt.fl.-gard. 2.

A shrub, or shrub-like herbaceous plant, with a branchy stem, rising from 1 ft. to 2 ft. in height. It was introduced by Mr. Webb, from Madeira, and flowered, for the first time in England, in the Chelsea Botanic Garden, in April, 1836. "It appears to be distinct from the various shrubby species, natives of the Canary Islands, and hitherto referred by authors to *Py*rèthrum, but which will all, doubtless, range under the present genus, which is well characterised by its winged fruit, terminated by a large membranous crown." It will require the protection of a frame or green-house. (*Brit. Fl.-Gard.*, July.)

Ericàceæ.

1339. *R*HODODE'NDRON 11012 arbòreum [L p.l Swt.fl.-gard. 2 s. 341
*4 undulàtum *Hook.* waved-*corolla* ✾ or ... my Rich P paler within English hybrid ?1829

A bushy evergreen shrub, with purple branches, raised from seeds of a hybrid of *R.* arbòreum that had been fertilised by some other species, most probably *R.* pónticum. "It surpasses all the other varieties in the deep-toned purple of its blossoms, which are also remarkable for their singularly waved appearance." The plant is, apparently, quite hardy. (*Brit. Fl.-Gard.*, July.)

521. AZA'LEA 4341 índica
*7 Rawsòn*ii* Paxt. Rawson's ✾ or 2 my C English hybrid 1833 L p.l Paxt. mag. of bot. 123

Supposed to be a hybrid between Azàlea phœnícea and *R*hododéndron däùricum atrovìrens. It was raised by Mr. John Menzies, gardener to Christopher Rawson, Esq., F.G.S., of Hope House, near Halifax, from seeds collected by himself, and sown in 1832. It is named in compliment to Mr. Rawson, with whom Mr. Menzies has lived as gardener many years. "To the example here set by Mr. Menzies, and others who have preceded him in the delightful work of hybridisation, we solicitously call the attention of our practical brethren, &c., in whose exertions we will gladly and actively cooperate." (*Paxton's Mag. of Bot.*, July.)

Boragineæ.

477. PHACE'LIA [mag. of bot. 121
*vinifòlia *Paxt.* [?*vitifòlia*] vine-leaved ○ pr 1½ au.o Bt.B Texas ?1834 S lt.l Paxt.

An extremely pretty little annual, introduced by the late Mr. Drummond, from Texas, and sent to Paxton's *Magazine* by Mr. Campbell, curator of the Manchester Botanic Garden. It promises to ripen seeds in abundance, and, consequently, to be very soon added to the lists of the seed-shops. (*Paxton's Mag. of Bot.*, July.)

Begoniàceæ.

2654. BEGO'NIA [of bot. 125
*platanifòlia *Paxt.* Plane-tree-leaved ❀ □ or 10 s Pkish Brazil 1829 C lt.l Paxt. mag.

This species, which, when well grown, produces leaves upwards of a foot in diameter, is seldom met with in a flowering state in British stoves, though it flowers freely in those of Paris. A plant of it flowered lately with Mr. Cameron in the Birmingham Botanic Garden, from which Mr. Paxton's figure was taken. (*Paxton's Mag. of Bot.*, July.)

*Fischer*i* Otto Fischer's ⊞ □ or 2 f.mr.ap ? S. Amer. 1835 D p.l

This plant, which was received from M. Otto of Berlin, flowered in the stove of the Edinburgh Botanic Garden in February and March, 1836. The flowers are small, but the foliage is exquisitely beautiful. (*Jam. Journ.*, July, 1836.)

†28542 sanguínea *Rad.* bloody-*leaved* ⊞ □ or 2 ap W Brazil 1832 D co Hort. bot. berol. 13

This species is more remarkable for the colour and texture of its leaves, which are green above and blood-red below, than for its flowers, which are small and white; or its habit, which is herbaceous-like or subligneous and straggling. It was raised in the Berlin Botanic Garden, from seed transmitted by Sello from Brazil in 1823, and sent to the Edinburgh Botanic Garden in 1832, where it flowered in April, 1836.

Orchidàceæ.

2521. RODRIGUE'ZIA
*planifòlia *Lindl.* flat-leaved ⅋ ⧄ fra [?]f [?]Brazil [?]D p.v.w Bot.mag. t. 3504. [by inference, not of Hort. Brit. No. 22633
Synonyme : 2522 Gomèz*a* 22633 recúrva of Lodd. Bot. Cab. t. 660., not of Bot. Mag. t. 1748., and,

"This deliciously fragrant plant, named Gomèz*a* (Rodriguèz*ia* Lindl.) recúrva by Mr. Loddiges, but distinguished from that species by Professor Lindley on account of the even (not striated) surface of its leaves, and the entire, not emarginate, lip, has been kindly communicated by Mr. Campbell of the Belfast Botanic Garden, where it was imported from Brazil. It flowers in February." (*Bot. Mag.*, July.)

2537*a*. *BIFRENA'RIA *Lindl.* (*Bifrenaria ; bis*, twice ; *frænum*, a bridle ; in allusion to the double strap, or *frænum*, that connects the pollen masses with their gland.) Sp. I. *Orchidàceæ Vándeæ.*) [Bot. reg. 1875.
*aurantìaca *Lindl.* orange-coloured-*flowered* ⅋ ⧄ or ¾ o O Demerara ? 1834 D p.r.w

Pretty. It flowered in the Duke of Devonshire's hot-house at Chiswick, in 1835. (*Bot. Reg.*, July.)

2554. EPIDE'NDRUM [? 1834 D p.r.w Bot. reg. 1879
*bífidum *Aubl.* *hare- or* bifid-*lipped* ⅋ ⧄ or 1½ jl P Y W G W. Indies, Tortola, Cayenne

"A very remarkable and distinct species, with a peculiar slit lip, by which it is readily known from all except E. auropurpùreum, a kind that appears to be very nearly related to it." (*Bot. Reg.*, July.)

[1834 D p.r.w Bot. reg. t. 1870
*[Affinity near E. cóncolor] clavàtum *Lindl.* club-*stemmed* ⅋ ⧄ cu ¾ jl G. W Cumana

This is the same as that noticed in p. 362. by the name of E. Skínner*i*. Dr. Lindley has superseded this name by the one above. "It was procured by Mr. Henchman for Messrs. Low

and Co. of Clapton," and the specimen was supplied by the late Lord Grey of Groby. (*Bot. Reg.*, July.)

2558. BLE'TIA
*12753*a* pátula *Grah.* spreading-*sepaled* ⁂ ▱ or 2 mr Rsh Li Hayti 1830 O s.p

This species has large handsome flowers of nearly uniform reddish lilac colour; only the base of the lip, and its ridges, being white. It was received at the Edinburgh Botanic Garden from Dr. Fischer of St. Petersburg, in 1830, without a name, but marked as a native of Hayti. It has flowered repeatedly in the stove, immediately succeeding B. verecúnda in the end of March. (*Jam. Journ.*, July, 1836.)

Liliàceæ.

1054. *SCI'LLA*
*8812*a* Cupaniàna Gussone Cupani's ☿ or 1 jn Dl P Sicily ? 1834 O s.l Bot. reg. 1878

A hardy bulb, of great rarity, which comes very near the *Scílla*, erroneously called *S.* peruviàna; which, like this species, is a Sicilian plant, but is altogether much smaller. The bulbs were sent from Sicily, by the Hon. William Strangways, to H. F. Talbot, Esq., of Laycock Abbey, from whence the plant was figured. (*Bot. Reg.*, July.)

REVIEWS.

ART. I. *Transactions of the Horticultural Society of London.* Second Series. Vol. I. Part V. 4to. London, 1833.

(*Continued from* p. 260.)

45. *A Report upon the Varieties of Pea cultivated in the Garden of the Horticultural Society.* By Mr. George Gordon, Under Gardener in the Kitchen-Garden Department.

THROUGH the liberality and kindness of the Council of the Horticultural Society, we were enabled to avail ourselves of Mr. Gordon's knowledge of the best kinds of culinary vegetables of every description, so as to give those select lists which will be found in our *Encyc. of Gardening*, ed. 1835. The paper of which we are now about to give an abridgment contains an extensive list of garden peas, systematically arranged, and scientifically described, by the same experienced cultivator.

The numerous varieties of the pea, which have been grown in the Horticultural Society's gardens, are arranged by Mr. Gordon in the following groups: —

"I. *Common Dwarf Peas.* With small roundish pods, white peas, and stems not more than 3 ft. high.

"II. *Common Tall Peas.* With round pods, white peas, and stems requiring sticks.

"III. *Dwarf Marrow Peas.* With broad pods, peas particularly sweet when young, and stems not more than 4 ft. high.

"IV. *Tall Marrow Peas.* Like the last, but with stems requiring sticks.
"V. *Sugar Peas.* With pods destitute of the usual tough lining, and eaten like kidneybean pods; the peas white.
"VI. *Imperial Peas.* With the strong growth of the marrows and the small round pods of the Prussians.
"VII. *Prussian Peas.* With the stems branching very much, and roundish not very large pods; the latest of any class.
"VIII. *Grey Sugar Peas.* With pods like those of the fifth class, but with flowers of a purplish colour, and peas spotted, or any colour but white.
"IX. *Grey Common Peas.* With purple or white flowers, and peas any colour but white.

"Group I. Common Dwarf Peas.

"1. *Bishop's Dwarf.* — About 2 ft. high, and of strong growth. Pods short and broad, mostly containing 4 or 5 peas. Only a moderate bearer, a week later than the early frame, and hardly worth growing.

"2. *Early Dwarf. French Synonyme:* Nain hâtif. — Height about 1½ ft., and somewhat resembling the preceding variety, but is more prolific; broad, mostly containing 5 peas. It is the best of the dwarfs, as it is very prolific, and of good quality.

"3. *Dwarf Brittany. French Synonymes:* Très-nain de Brétagne, très-nain de Brest. — About 6 in. or 8 in. high, of a dark green colour, and of slender growth. Pods small, and nearly round, mostly containing 5 peas. It is a few days later than the preceding, and is very fit for late sowing, as it is a good bearer.

"4. *Common Spanish Dwarf. French Synonyme:* Pois en éventail. *English Synonymes:* New early Spanish dwarf, Spanish dwarf or fan, dwarf bog, Knox's dwarf. — About 2 ft. high, and of strong growth. Pods rather broad, flat, and not very long, mostly containing 4 or 5 peas. A moderate bearer, and a few days later than Bishop's, which it somewhat resembles. Mr. Bishop selected his pea from this variety. (See *Gard. Mag.*, vol. i. p. 127.)

"5. *Large Spanish Dwarf.* — About 3 ft. high, and very strong. Pods longer than the common Spanish dwarf, and nearly round, mostly containing 5 or 6 peas. Like the preceding, only a moderate bearer.

"Group II. Common Tall Peas.

"6. *Early Frame. French Synonyme:* Pois le plus hâtif, Vert à rames de mont Julienne, Michaux de Hollande, Pois Baron, Pois Laurent. *English Synonymes:* Best early, early single-blossomed, early double-blossomed frame, early one-eyed, double dwarf frame, single frame, early dwarf frame, superfine early, Batt's early dwarf nimble, early Wilson, Young's very early, early Nicholas, Perkins's early frame, early Nana, Mason's double-blossomed, Russell's fine early, early French, dwarf Albany. — About 4 ft. high, and rather slender. Pods small and round, mostly containing 5 or 6 peas. Very prolific, of excellent quality, and the earliest pea in the whole collection. The number of blossoms on this pea entirely depends on the soil and situation it is grown in. It must not be confounded with the early Charlton.

"7. *Early Charlton. French Synonyme:* Dominé, Michaux ordinaire, Michaux de Ruelle, Michaux précoce. *English Synonymes:* Golden Charlton, early sugar frame, late dwarf, Twesly dwarf, Hotspur, Wrench's Hotspur, double dwarf Hotspur, early Hotspur, golden Hotspur, common Hotspur, early Nicholas Hotspur, Nimble Taylor, very fine late garden, Paddington, Essex Reading, Russell's early-blossomed. — About 5 ft. high, and of strong growth. Pods large, broad, and rather flattened, mostly containing 6 or 7 peas. A very prolific bearer, of excellent quality, and the best pea for standing the winter in the collection. It is about a week or ten days later than the early frame, but will continue much longer in bearing, and, like the preceding, varies in appearance according to soil, situation, &c.

"8. *D'Auvergne* — About 5 ft. high, and rather slender. Pods very long, nearly round, much curved and tapering a good deal to the extremities, mostly containing 11 or 12 peas (if well grown). A very abundant bearer, of excellent quality, and later than the early Charlton in coming into use. It is the best pea for produce, and deserves to be generally cultivated in all gardens.

"9. *Eastern Shore.* — About 5½ ft. high, and rather slender. Pods small, short, and round, mostly containing 4 or 5 peas. A very abundant bearer, coming in after the Charlton.

"10. *Tall Frame.* — About 5½ ft. high, and rather slender. Pods small, round, and rather long, mostly containing 6 peas. Very productive, coming into use about the same time as the Charlton, to which it bears some resemblance, but is taller, and of slenderer growth.

"Group III. Dwarf Marrow Peas.

"11. *Dwarf White Marrow. French Synonymes:* Hâtif à la moëlle d'Angleterre, hâtif à la moëlle d'Espagne, pois sanspareil. *English Synonymes:* Glory of England, wabash. — About 3½ ft. high, and very strong. Pods broad, and not very long, of a dark green colour, containing 6 or 7 peas. Of excellent quality, but only a moderate bearer.

"12. *Knight's Dwarf Marrow. English Synonymes:* Dwarf Knight's, Knight's new dwarf. — About 3½ ft. or 4 ft. high, very much resembling the dwarf white marrow, but of stronger growth. Pods broad, and rather flat, containing 5 or 6 peas. Of excellent quality, and very prolific. The seed wrinkled when ripe.

"13. *Dwarf Green Marrow. French Synonyme:* Vert hâtif à la moëlle. *English Synonyme:* New green, early dwarf green, early green, new early green, royal dwarf marrow, new green nonpareil, Holloway marrowfat, new extra green marrow, Wellington, green Rouncival.— About 4 ft. high, and of strong growth. Pods dark green, large, broad, and flat, containing 7 or 8 peas. Of excellent quality, very prolific, and rather late. Peas a light green colour, and sometimes half green and half white when ripe.

"Group IV. Tall Marrow Peas.

"14. *Tall White Marrow. French Synonymes:* Princesse, vert gros Normand, De Marly, Suisse. *English Synonymes:* Tall Carolina, large imperial marrow, new tall Temple, Clive, Wootten, large Carolina, white Rouncival.— About 7 ft. high, and of strong growth. Pods large, and very broad, containing 8 or 9 peas. Of excellent quality, very prolific, and late. This is a very good pea for summer, but will not do without stakes.

"15. *Knight's Tall Marrow. French Synonymes:* Ridé hâtif, ridé tardif, ridé. *English Synonymes:* Knight's late. — About 6½ ft. high, and of very strong growth. Pods large and broad, containing 8 or 9 peas. Of excellent quality, and later than the preceding by a week. Peas, when ripe, shrivel very much, and are remarkably sweet. This pea is the best of all the tall ones for late sowing in summer.

"16. *Branching Marrow. English Synonymes:* Donn's new, prolific Isle of France. — About 5½ ft. high, and of very strong growth. Pods large, and nearly round, containing 8 or 9 peas. Of good quality, and very late.

"17. *Tall Green Marrow. English Synonymes:* Green tall, new large green, imperial green. — About 7 ft. high, and of very strong growth. Pods large, broad, and rather flat, containing 8 or 9 peas. Of excellent quality, late, and very prolific. Peas, when ripe, of a yellowish-green colour.

"18. *Egg. English Synonymes:* Large egg or bean, Patagonian. — About 7½ ft. high, and of strong growth. It greatly resembles the tall white marrow, but the peas are much larger and not so round; in other respects nearly the same.

"19. *Waterloo. English Synonyme:* Nonpareil. — About 6 ft. high, and very strong. It has a great resemblance to the tall green marrow, but it does not grow so tall nor so strong. Peas green, and rather wrinkled.

"20. *Pearl or Nonsuch.* — About 6 ft. high, not of very strong growth, and bearing some resemblance to the tall white marrow, but the pods are rounder, and much smaller. Of good quality, but a moderate bearer.

"21. *De Guiverigny.* — About 4½ ft. high, of very strong growth, and resembling the dwarf white marrow, but much taller, and the pods are rounder; in other respects nearly the same.

"22. *Crown Pea. French Synonymes:* Turc ou couronné, turc à fleurs blanches. *English Synonymes:* American crown, rose or crown. — About 5½ ft high, of very strong growth, with the blossoms in tufts at the extremity, somewhat like a crown (from which it derives its name). Pods small, round, and straight, containing 5 or 6 peas. A very abundant bearer, of good quality, and very good for summer use.

"N. B. Nos. 20. and 22. should, perhaps, be referred to the 2d Group; but, on account of their strong growth, I have placed them in the 4th Group: they differ from it only in having small pods; and from the 2d Group, in growing very strong, and being late.

"Group V. Sugar Peas.

"23. *Large Crooked Sugar. French Synonymes:* Sans parchemin blanc à grandes cosses, mange-tout. *English Synonymes:* New pea, sugar pea, broad-sword, early Spanish. — About 6 ft. high, and very strong. Pods very large, broad, and much twisted, containing 9 peas. Peas large, and very prominent in the pods. Of excellent quality, very productive, and the best in its class.

"24. *Vilmorin's Sugar.* — About 6½ ft. high, and of slender growth. Pods small, round, and straight, containing 7 or 8 peas, which, as in all the other sugar peas, are very prominent, even when quite young. Of excellent quality, and the greatest bearer in this class. It was received from M. Vilmorin as an "espèce de pois très-excellent."

"25. *Alberjas.* — About 6½ ft. high, and of strong growth. Pods small, round, and straight, containing 7 or 8 peas. Of excellent quality, and very prolific. It was brought from Mendoza by Dr. Gillies. There is sometimes a very thin skin inside the pods of this sort, which makes it distinct from all others in the class.

"26. *Tamarind Pea. English Synonyme:* Late dwarf sugar. — About 4 ft. high, and of robust growth. Pods large, broad, and much curved, containing 9 or 10 peas. Of excellent quality, and a very abundant bearer. The pods are from 4 in. to 5 in. long, and are produced the latest in this class.

"27. *Early May Sugar. French Synonyme:* Nain à la moëlle d'Espagne. *English Synonymes:* Early Dutch, early sugar, dwarf Dutch sugar. — About 4 ft. high, and very slender. Pods small, round, and straight, containing 6 or 7 peas. Of good quality, but only a moderate bearer. This is the earliest pea in the collection, but is very tender, and will not do to sow before the beginning of March.

"28. *Dwarf Sugar. French Synonymes:* Gros nain sucré, nain sucré. *English Synonyme:* Ledman's dwarf. — About 3 ft. high, and of very strong growth. Pods long, nearly round, and slightly curved, containing 7 peas. Of excellent quality; a moderate bearer, and late.

"29. *Dwarf Dutch. French Synonymes:* Nain hâtif de Hollande, nain de Hollande. *English Synonymes:* Dwarf sugar de Grace, early dwarf de Grace, dwarf crooked sugar. — About 2½ ft. high, and of slender growth. Pods rather short, small, and crooked, containing 5 peas. Of good quality, only a moderate bearer, and later than the preceding by a week.

"30. *Late Wyker Sugar. English Synonyme:* Late white sugar. — About 6½ ft. high, and of very strong growth. Pods roundish, small, and much curved, containing 7 or 8 peas. Of excellent quality, a good bearer, and very late.

"N.B. The pods of all the peas belonging to the 5th Group should be gathered when quite young, like French beans, and cooked after the same manner, without being shelled.

" Group VI. Imperials.

"31. *Dwarf Imperial. French Synonymes:* Nain vert impérial, nain vert gros, sans parchemin vert. *English Synonymes:* Imperial, blue imperial, dwarf green imperial, new improved imperial, new improved dwarf imperial, new dwarf imperial, new long-podded imperial, Sumatra, green nonpareil, dwarf blue prolific, blue scymitar, sabre, blue sabre, new sabre, dwarf sabre. — About 4 ft. high, and of strong growth. Pods large, long, and rather flat, much pointed and containing 8 or 9 peas. Of excellent quality, a good bearer, and one of the best peas for summer, as it is very late in coming into use.

" 32. *Tall Imperial. French Synonymes:* Carré vert, carré vert gros Normand. *English Synonymes:* Tall green imperial, tall blue imperial, Spanish patriot, new tall imperial, blue union, green nonpareil, tall Prussian or blue union. — About 7 ft. high, and rather slender. Pods broad, and rather short, but not pointed, like those of the preceding, and containing 6 peas in a pod. Of good quality, and very productive, but not so late as the last.

" Group VII. Prussians.

" 33. *Blue Prussian. French Synonymes:* Nain vert petit, nain royal, gros vert de Prusse. *English Synonymes:* Dwarf blue Prussian, royal Prussian blue, fine long-podded dwarf, Prussian prolific, early Dutch green, green Prussian. — About 3½ ft. high, and of strong growth. Pods long and rather round, containing 8 peas. This is so well known, that it is quite useless for me to say anything about its good qualities. It is undoubtedly the best for summer use, and one of the greatest bearers.

" 34. *White Prussian. English Synonymes:* Prolific or poor man's profit, prolific, tall Prussian, dwarf white Prussian, new dwarf Norman, royal dwarf, royal prolific, dwarf Tewsly, Stowe pea. — About 4 ft. high, and very robust. Pods broad, long, and rather flat, containing 7 or 8 peas, which are large and white. Of good quality, and,like the blue Prussian, an excellent summer pea, and very prolific. This is the best sort for general cultivation, and well deserves the name of poor man's profit; but it will not remain so long in bearing as the blue Prussian.

" 35. *Groom's Superb Dwarf Blue.* — About 18 in. high, and of robust growth. Pods large, broad, and rather flat, containing 8 or 9 peas. Of excellent quality, a very abundant bearer, and a few days later than the blue Prussian, of which it seems a distinct dwarf variety. Raised by Mr. H. Groom of Walworth, who sent seeds of it to the garden in 1831. This deserves general cultivation, as it requires no sticking, and produces more on the same space of ground than any other dwarf sort.

" Group VIII. Grey Sugar Peas.

"36. *Purple-podded Grey.* — About 7 ft. high, and of robust growth. Pods short, broad, and rather pointed, of a deep purple colour, containing 5 or 6 peas. A good bearer: the peas, when boiled, are rather bitter; but, if cooked like the pods of the scarlet-runner kidneybean, it is very good.

" 37. *Red-flowered Sugar. French Synonyme:* Sans parchemin à fleurs rouges. —About 6½ ft. high, and of slender growth. Pods long, nearly round, and straight, containing 6 peas. Like the preceding, it is only fit for use when quite young. A good bearer.

" 38. *Fishamend's Sugar.* — About 7½ ft. high, and very robust. Pods very long, broad, and much curved, containing 8 or 9 peas, which are rather small, of a greenish-yellow colour, dotted all over with small purple dots. A good bearer, and the best of all the sugar peas (except the large crooked sugar) for use when young.

" Group IX. Grey Common Peas.

" 39. *Grey Rouncival. English Synonymes:* Giant, Dutch. — About 8 ft. high, and very robust. Pods broad, but not very long, and rather flat. Peas

of a brown colour, black-eyed, and spotted with yellow. A good bearer, but only fit for field culture.

"40. *Late Grey. English Synonymes:* Tall grey, tall Capucine, large grey. — About 8 ft. high, and very robust. Pods broad, but not very long, containing 7 or 8 peas, of a yellowish-brown colour, black-eyed, and large. A good bearer.

"41. *Maple Grey Pea. English Synonymes:* Marlborough, partridge grey. — About 7½ ft. high, and very robust. Pods broad, and rather long, containing 7 or 8 peas, which are like those of the preceding kind, but much smaller, and not black-eyed. This is a good bearer, and the flowers are much lighter-coloured than those of No. 40.

"42. *Spanish Marotta. French Synonymes:* A' œil noir, Michaux à œil noir. *English Synonyme:* Tall black-spotted marotta, black-spotted. — About 6 ft. high, and rather slender. Pods small, and nearly round, containing 7 peas of a yellow colour, black-eyed, small, and round. It is very productive, and tolerably good if gathered when young, as it is by no means so bitter as the other grey peas when boiled.

"43. *Bean Pea. English Synonyme:* Funnel's black-spotted. — About 8 ft. or 9 ft. high, and very robust. Pods long, broad, and not much pointed, containing 9 or 10 peas, of a yellowish-white colour, black-eyed, and having some resemblance to small horse-beans when ripe. It is very productive, but only fit for field culture, as it is rather bitter when boiled, although not so bitter as grey peas in general.

"The following are the best sorts (particularly those marked *).

"*For Early Sowing.* Pois nain hâtif: * Early frame, * early Charlton, * d'Auvergne.

"*For Late Sowing.* Knight's dwarf marrow, * Knight's tall marrow, tall green marrow, * crown, branching marrow.

"*Sugar Peas (not to be sown before the 1st of March).* * Early May, * large crooked, * Vilmorin's sugar, * new tamarind.

"*Dwarf Blue Peas for Summer Use.* Dwarf imperial, * blue Prussian, *white Prussian, * Groom's superb dwarf blue."

46. *On the Cultivation of the Pine-Apple.* By Mr. George Warren, Gardener to H. J. Grant, Esq., F.H.S., at the Gnoll, near Neath, Glamorganshire. Read October 16. 1832.

The following account of the management of a crop of 76 plants, none of which produced fruit weighing less than from two to three pounds, many much more, obtained the Banksian medal: —

"In October, 1830, the suckers were taken from the parent plants, potted in small pots, and plunged in the tan at the front of the older succession plants. In February, 1831, wishing to grow them as large as possible, Mr. Warren had his succession pit, which is 21 ft. long by 9 ft. wide, filled with fresh oak leaves which he had collected the preceding winter; on the top of which he put a compost of two thirds light hazel loam from a turfy pasture, and one third rotten hot-bed manure and leaf-mould, to the thickness of 14 in. In this the pines were planted 14 in. apart: they grew and flourished in such a manner, that, in October, 1831, Mr. Warren's usual potting time, finding the plants doing so well, he resolved to try and fruit them as they then stood, instead of potting them, as was his usual practice. He then began to withhold the watering from the two back rows till the latter part of January; afterwards water was given as usual; and in February several fruit began to appear: the watering was then withheld from the other rows for a time, in order to bring them on in succession. In order to obtain bottom heat to swell the fruit off, the two front rows of plants were taken out and potted, taking out the oak leaves to the bottom of the pit: the space thus made was filled with well-fermented horse-dung; and, covering the later with tan, the potted plants were again plunged. The horse-dung gave sufficient heat to swell off the fruit to a great

size. The surface of the soil was covered with moss, which was found to be a great help in keeping the soil in a humid state, without the aid of much water."

47. *On the Employment of Cats in the Preservation of Fruit from Birds.* By Peter Kendall, Esq., F.H.S. Read Nov. 6. 1832.

"Robert Brook, Esq., of Melton Lodge, near Woodbridge, in Suffolk, has four or five cats, each with a collar, and light chain and swivel, about a yard long, with a large iron ring at the end. As soon as the gooseberries, currants, and raspberries begin to ripen, a small stake is driven into the ground, or bed, near the trees to be protected, leaving about a yard and a half of the stake above ground; the ring is slipped over the head of the stake, and the cat, thus tethered in sight of the trees, no birds will approach them. Cherry trees and wall-fruit trees are protected in the same manner as they successively ripen. Each cat, by way of a shed, has one of the largest-sized flower-pots laid on its side, within reach of its chain, with a little hay or straw in bad weather, and her food and water placed near her.

"In confirmation of Mr. Kendall's statement, it may be added, that a wall of vines between 200 and 300 yards long, in the nursery of Mr. Kirke, at Brompton, the fruit of which in all previous seasons had been very much injured by birds, was last year completely protected in consequence of a cat having voluntarily posted himself sentry upon it."

48. *Notes upon the Chinese Chrysanthemums.* By Mr. Donald Munro, F.L.S., Gardener to the Society. Read Dec. 4. 1832.

"We now possess forty-nine distinct varieties of Chrysanthemum; the merit of which is well known to be extremely unequal. Some of them are scarcely worth cultivation, on account of the insignificance of their blossoms; others, because of their flowering so late, that an English summer never lasts long enough for them; some are too tender to flower well out of doors; while many, on the other hand, are so hardy as to be well adapted to the rudest treatment, and to an inclement situation.

"With reference to their qualities, chrysanthemums may be classed thus:—

"1. *Flowers large or showy; requiring Protection.* — Superb white, paper white, sulphur yellow, golden yellow, curled lilac, tasselled white, semidouble quilled white, quilled flamed yellow, tasselled lilac, large lilac, curled blush, semidouble quilled pink, starry purple, early crimson, pale-flamed yellow, blush ranunculus-flowered, brown purple, two-coloured red, pale buff.

"2. *Flowers large, or showy; quite hardy.* — Quilled white, superb clustered yellow, golden lotus-flowered, Park's small yellow, rose or pink, purple, buff or orange, changeable white, tasselled yellow, small yellow, early blush, pale pink, changeable pale buff, Spanish brown.

"3. *Flowers large, or showy; but produced sparingly.* — Semidouble quilled orange, expanded light purple, large quilled orange, quilled light purple, two-coloured incurved.

"4. *Flowers small, or late; not worth Cultivation.* — Double Indian white, yellow Warratah, Windsor small yellow, quilled salmon-colour, semidouble quilled pale orange, late pale purple, double Indian yellow, late quilled yellow, quilled yellow, quilled pink.

"Of those which thrive in the open air, a few may be cultivated in a very pleasing manner, by being planted in the border, with their shoots laid down in the ground, so that when the flowers appear they are not more than a few inches above the surface of the soil.

"For this purpose the plants must be planted out in the beginning of June, and must not be more than 9 in. apart each way over the whole bed. The shoots must be stopped in the usual way about the middle of June, and afterwards layered about the beginning of August; they should not then be more

than 4 in. or 5 in. apart, or they will not be sufficiently thick to cover the ground from being seen.

"So treated, beds may be obtained in the flower garden in November and the early part of December, of great brilliancy, provided the following sorts are made use of, and planted in the following manner: —

"1. Tasselled yellow, 2. quilled white, 3. small yellow, 4. rose or pink, 5. golden lotus-flowered, 6. changeable white, 7. changeable pale buff, 8. purple, 9. early blush, 10. Spanish brown, 11. pale pink, 12. superb clustered yellow, 13. buff or orange, 14. Park's small yellow.

"They must be watered freely for the first two months, and occasionally with liquid manure; if the bed is covered over with about 1 in. thick of very rotten dung, the luxuriance of the plants, as well as the size and beauty of their flowers, will be increased."

49. *Upon the Cultivation of the Fig Tree. In a Letter to the Secretary.* By Sir C. M. L. Monck, Bart., F.H.S., of Belsay, Northumberland. Read Feb. 5. 1833.

After describing his fig-house, the author proceeds as follows: —

"My gardener wrote me word this spring, whilst I was absent in London, that the trees had put forth only a scanty crop of spring figs. I returned him direction to water the borders freely, and force with a strong heat; and that when the trees, in consequence, should have broken out into rapid growth, he should stop the shoots at the seventh or eighth eye. In about a month's time after this, he sent me word that the trees had begun to produce an abundant crop of figs from the eyes of the new wood which had been stopped. Five or six weeks subsequently, I returned home, and found the trees in luxuriant growth; but most of the fruit on the stopped wood was turning yellow; some had dropped, and much more of it was nearly ready to drop. On consideration of what might be the cause of this disappointment, it appeared to me that the high temperature, with a plentiful watering and rich soil, had excited a luxuriant growth of wood, to which the sap had been diverted, and the fruit, in consequence, was starving. To remedy this, I directed all the fruitful branches to be ringed. In five or six days after this had been done, it became evident that the growth of wood was checked; and, what surprised me, and is the cause of my making this communication, the fruit, which had only begun to turn yellow, or had only turned partially so, recovered its green colour, and ripened. I observed that some of the fruit which had not begun to turn yellow, when the branches were ringed, became full-sized when ripe: the others more or less so, in proportion, apparently, as they had become more or less yellow, and, therefore, more or less certain to drop. It is to these particulars that I wish to direct attention. The fig is, except in the particular of bearing its flowers internally, similar in the structure of its fructification to the compound flowers, such as daisies, sunflowers, chrysanthemums; and the course of flowering, in most of such plants, is, for the florets next the edge of the disk to be the first expanded, and afterwards the inner circles of florets in succession from the edge to the centre. I take the fig to do the same; and the supposition is confirmed by this, that the fruit, in ripening, begins at the eye, and proceeds towards the stalk. I therefore conjecture that, when the fruit begins to show yellowness, the florets within have been in part expanded, and failed to set, and that, as the failure proceeds, the yellowness becomes more general, till all have failed, and then the fruit drops: but if, when some certain proportion, perhaps half and more, may have failed, the tree, by any treatment, such as increased temperature, with sun, and diminution of supply of moisture to the root, or ringing, or caprifaction (as practised in the Levant), is induced to set any florets, the fruit, the common receptacle, is no longer in progress to inutility, but becomes necessary to maintain the fertilised florets: it must therefore cease to turn yellow, and recover greenness, which, as I have described, was the case with my trees.

"My object in this communication is to induce gardeners, who may find their crop of figs begun to turn yellow, and, therefore, certainly condemned to drop, if not saved by art, to repeat my experiment of ringing behind the fruit; and, if repetition of the experiment by others should show the certain utility of the practice, we shall possess the only particular still wanting to our perfe t command over the produce of the fig tree; for no fruit tree, as far as I know, is so easily propagated, forced by soil and temperature to produce abundant crops of fruit, and, except they fail of setting, made to bring them to perfect maturity."

50. *On the Means of obtaining abundant Autumnal Crops of the Double-bearing Hautbois Strawberry.* By T. A. Knight, Esq., F.R.S., President. Read May 21. 1833.

"Early in the spring of 1832, Mr. Knight introduced a few plants of the double-bearing hautbois strawberry into a forcing-house, from which he obtained some very fine and excellent fruit, and (what he chiefly wanted to obtain) numerous very early runners. These were detached from the old plants as soon as they had acquired sufficient maturity; and they were immediately planted in pots, which, during a few days, were kept in the forcing-house, with a view of causing the plants to emit roots more freely. The pots were then, early in May, removed into the open air; and the plants soon after blossomed very profusely, and, in August, afforded much fruit of very large size, and of very excellent quality; and the fruit continued to ripen in succession through the following months.

"By raising many seedling plants from the double-bearing hautbois strawberries, Mr. Knight entertains very little doubt but that varieties might be obtained which would possess habits more resembling those of the alpine strawberries; and he thinks it not improbable that similar habits might be given to other species of strawberries; for the Roseberry strawberry not very unfrequently affords an autumnal crop."

51. *On the Management of the Cactus.* By Mr. John Green, Gardener to Sir Edmund Antrobus, Bart., F.H.S. Read June 4. 1833.

The splendid specimens of Cèreus speciòsus, speciosíssimus, Jenkinsòni, &c., annually exhibited by Mr. Green, at the Horticultural Society Garden, and in Regent Street, render the following communication extremely interesting.

"The compost that I use is an equal quantity of light turfy loam and pigeon's dung, and one third sheep's dung, exposing the mixture one year to the influence of the summer's sun and winter's frost to mellow. When wanted for use, I add one third of sandy peat, in both cases mixing them well together.

"I grow the young plants, from February to July, in the forcing flower-house, kept from 55° to 60° Fahrenheit; I afterwards remove them to a shelf in an airy situation in the green-house, exposed to the mid-day sun, giving them plenty of air, and little water. The plants that I want to flower the following September are placed in the forcing-house the first week in December, giving them very little water for the first ten days, and gradually increasing the water as the plants advance in growth. About the first of February, I stop all the young shoots, which soon become well ripened: from this time I decrease the quantity of water until they become quite dry, in order to throw the plants into a state of rest: in the beginning of March, I replace them in a cold shady situation in the green-house, keeping them quite dry until the following June, when I put them again into the forcing-house, treating them as before. For plants to flower in August, I place a quantity more in the forcing-house the first week in January, treating them the same as those for September; only they are put to rest in the green-house a fortnight later, and replaced in the forcing-house one week sooner.

" The first flowering plants are put in the forcing-house the end of January, and will come into flower about the middle of March. When these plants have done flowering, and are removed from the drawing-room, or green-house, I prune out most of the old shoots that have flowered, so that the plants are furnished regularly with young shoots for flowering the ensuing year: these plants are also placed in the forcing-house for ten days, to ripen the young wood and dry up the moisture, and are then put to rest in the green-house as usual: such plants will flower a second time in October; others, put in the forcing-house the middle of February, will flower about the end of April: if then pruned and dried and put to rest as before, they will flower a second time in November, and so on in proportion. I repot them at all seasons whenever the plants may require it, always observing to keep the pots well drained with pot-sherds, that the moisture may pass off readily. This process may be considered troublesome; but superior growth, and abundance of flowers, amply repay the care bestowed. By the above treatment, the Cèreus speciòsus and Jenkinsòni have generally produced from ninety to a hundred fine expanded flowers at one year old. The plants that I brought to the Society [May 21. 1833] were about two years old: the C. speciòsus bore two hundred flowers, C. speciosíssimus seventy-two, and C. Jenkinsòni one hundred and ninety-four. I prefer growing them in wooden tubs, with wire stakes fixed to the tub, to the usual mode of supporting them by stakes driven into the ball of the plant, which I consider, injures the fibre, and makes the plant appear unsightly."

52. *Report on some of the more remarkably Hardy Ornamental Plants raised in the Horticultural Society's Garden from Seeds received from Mr. David Douglas, in the Years* 1831, 1832, 1833. By George Bentham, Esq., F.L.S., Secretary. Read Jan. 21. 1834. [It is much to be regretted, that a general abstract of the whole of Mr. Douglas's voyages and travels, some notes of his life, and a list of all the various articles which he introduced, has not been published in one connected narrative. We hope this may yet be accomplished by his early friend and patron, Mr. Sabine. In the mean time, the following article will be read with intense interest, and it will of itself, we think, justify the exertions that are now making to raise an appropriate monument to the memory of Douglas.]

" The reasons which induced the Council of the Horticultural Society of London to engage Mr. Douglas to undertake a second expedition to the north-west coast of America, are mentioned in the preface to the 7th volume of the Transactions, where it is also stated that he embarked on the 26th of October, 1829. After a prosperous voyage, he safely landed, in the spring of 1830, at the mouth of the Columbia river.

" Here he met with many difficulties and disappointments as to the journeys he had intended to make to those parts of the interior which promised the best to reward his exertions. The natural obstacles opposed by the wild state of the country were, in many cases, rendered invincible by the dangerous character of the natives; and the whole season of 1830 was consumed in short excursions in the neighbourhood of the Hudson's Bay Company's Fort.

" In the winter of 1830-31, an opportunity occurred of communicating with the northern part of Spanish California, of which Mr. Douglas availed himself, and landed early in 1831 at San Francisco, from whence he proceeded to the Spanish settlement of Monterey. At this place he was well received by the monks, and every facility was afforded him for exploring the country in the neighbourhood. He remained there the whole summer of 1831, intending to return to the Columbia river, in the autumn of that year, by the vessel which had brought him to Monterey, and which was expected again to touch on that coast. Owing, however, to the death of the captain, the opportunity did not

present itself; and the crossing the wild and inhospitable mountains of New Albion was too formidable an undertaking for him in the circumstances in which he was placed. Mr. Douglas was consequently detained in California a second season, which he spent in various excursions into the interior, north and south of the settlement, and finally left Monterey, in the month of August, 1832, for the Sandwich Islands. Thence he despatched to this country his Californian herbarium and seeds, and afterwards returned to the Columbia river.

"Mr Douglas appears to have applied himself with the same zeal as during his former expedition to the making and forwarding to the Society such collections as might best contribute to its objects; but considerable difficulties have arisen in the means of transmission. The seeds and roots sent by sea suffered much from the length of the voyage, during which it was also necessary twice to cross the equator, and to pass alternately through the extremes of heat and cold; and some of the overland despatches never reached England, having been, it is feared, lost amidst the confusion to which the troubled state of Mexico had given rise. However, one package in particular, despatched from Monterey, and one from the Columbia river, arrived safely and in good condition; and about sixty species of plants, more or less useful or ornamental, have been raised from these seeds in the Society's garden.

"Of the former description, the most remarkable are several species of *Pinus*, likely to prove valuable additions to our stock of timber trees; but, as these are still necessarily too young for description from the living specimens, it will be sufficient at present to mention the names of *P.* Sabini*ana*, montícola, amábilis, nóbilis, grándis, insígnis, and Menzièsi*i*, given to them by Mr. Douglas.

"Amongst the ornamental plants, the following new species have been already described, and have been more or less generally distributed amongst the Fellows of the Society: —

"*Lupinus* rivulàris *Dougl. Bot. Reg.*, 19. t. 1595.; *Gard. Mag.*, ix. 484.
Clárk*ia* élegans *Dougl. Bot. Reg.*, 19. t. 1575.; *Gard. Mag.*, ix. 363.
Calandrín*ia* speciòsa *Lindl. Bot. Reg.*, 19. t. 1598.; *Gard. Mag.*, ix. 112.
Œnothèra densiflòra *Lindl. Bot. Reg.*, 19. t. 1593.; *Gard. Mag.*, ix. 483.
Màdia élegans *Lindl. Bot. Reg.*, 18. t. 1458.; *Gard. Mag.*, viii. 19.
Stenáctis speciòsa *Lindl. Bot. Reg.*, 19. t. 1577.; *Gard. Mag.*, ix. 366.
Nemóphila aurìta *Lindl. Bot. Reg.*, 19. t. 1601.; *Gard. Mag.*, ix. 488.
Mímulus ròseus *Dougl. Bot. Reg.*, 19. t. 1591.; *Gard. Mag.*, ix. 487.
Calochórtus lùteus *Dougl. Bot. Reg.*, 19. t. 1567.; *Gard. Mag.*, ix. 240.
Callipròra lùtea *Lindl. Bot. Reg.*, 19. t. 1590.; *Gard. Mag.*, ix. 489.
Hesperoscórdon lácteum *Lindl. Bot. Reg.*, 19. t. 1639.; *Gard. Mag.*, x. 72.

"The species which form more particularly the subject of this paper are selected from among those that are as yet unpublished, with the occasional addition of short notices taken from the dried specimens transmitted by Mr. Douglas of some species not yet raised in the garden.

"*Platystèmon californìcum* Benth. Gard. Mag., x. 170.— Mr. Douglas transmitted this species with the MS. name of Boòth*ia*; but, as foreigners would be unable to distinguish the sound of this word from Boòtt*ia*, the name of a genus dedicated to Dr. Boott by Dr. Wallich, I have been obliged to give a new one to Mr. Douglas's plant. This little annual flowered very sparingly; but the fine specimens transmitted by Mr. Douglas in a dry state promise that it may become as interesting to the horticulturist from its beauty, as it is to the botanist from forming the connecting link between the *Ranunculàcæ* and *Papaveràceæ*. The trisepalous calyx, and numerous distinct ovaria, would have placed it in the former order, were it not for the structure of the anthers, the very deciduous sepals, and the general habit, which do not admit of its being removed from *Papaveràceæ*, especially considering its close affinity with Eschschóltz*ia* through Platystígma and Dendromècon.

"It is a low, branching, erect, and pale green annual, seldom attaining beyond a foot in heighth. The whole plant is smooth, with the exception of long spreading hairs on the peduncles, the margins, and here and there the surface of the leaves, and on the calyx and ovaria. The leaves are alternate,

the upper ones often several so near together as to have the appearance of an imperfect whorl; they are oblong, lanceolate, obtuse, perfectly entire, embrace the stem at the base, and are marked with from three to five parallel ribs. The peduncles are solitary, axillary, about 6 in. long, and bear at the extremity a single erect flower, rather larger than that of the common Heliánthemum. The sepals are very hairy, round-ovate and obtuse; the petals yellow, with occasionally a reddish tinge outside. The flower is sweet-scented, and of a pale straw-colour.

"Mr. Douglas's dried collection contains also specimens of two other plants, each forming a new genus of the same order of *P*apaveràceæ.

"*Platystigma lineàre* Benth., Gard. Mag., x. 171.—A smaller plant than the Platystèmon, and growing in closer tufts, but otherwise resembling it very much in habit, though so different in botanical character. The flowers are yellow, rather smaller than those of Platystèmon.

"*Dendromècon rígidum* Benth., Gard. Mag., x. 171.—A very remarkable plant in this order, on account of its shrubby stem and coriaceous leaves and capsules. The flowers appear to be yellow, and nearly as large as those of *P*apàver nudicaúle.

"*Eschschóltzia crócea* Benth., Gard. Mag., x. 171.—In general habit, foliage, and size of the flower, this new species of Eschschóltz*ia* closely resembles the E. califórnica, introduced by Mr. Douglas on his first expedition, and now so generally admitted to be one of the most beautiful additions to our hardy ornamental plants. The present species, however, promises far to surpass even that one in the rich orange colour of the petals. It appears to be equally hardy, and, judging from the experience of a season, to flower still more freely. It is distinguished botanically from E. califórnica by the widely expanded limb of that curious appendage of the peduncle beneath the insertion of the calyx, which is characteristic of the genus, and by the long attenuated point of the calyx.

"The following new species of the same genus have been sent home in a dry state by Mr. Douglas; but no seed of them has vegetated.

"*E. cæspitòsa* Benth.—Flowers yellow, considerably smaller than E. *crócea* and califórnica.

"*E. tenuifòlia* Benth.—Stature and flowers of E. cæspitòsa, but easily distinguished by its very finely cut leaves, and by the form of the calyx.

"*E. hypecoïdes* Benth.—Habit nearly that of E. califórnica; but the leaves are much smaller, and the flowers not one third the size. It bears much resemblance to *H*ypécoum grandiflòrum.

"*Meconópsis* Benth., Gard. Mag., x. 171.—The dried collection contains two species of this genus, one of which was raised in the garden, but died before it could be determined or drawn. As, however, a small quantity of seed has been saved, it is probably not lost to us; and I therefore give here the botanical characters of both of them.

"*M. heterophýlla* Benth., and *M. crassifòlia* Benth.—These species belong to the section Meconópsis of De Candolle. The flowers of both are of an orange red, about the size of those of *P*apàver Argemòne: they do not appear likely to be so ornamental as many others of the poppy tribe now in cultivation.

"*Limnánthes Douglàsii R. Br., Bot. Reg.*, 1673.—This plant has been already described by Mr. Brown (*Lond. and Edin. Phil. Mag.*, July, 1833), from dried specimens, as the type of a new natural order, to which he has given the name of Limnántheæ. It has since then flowered in the Society's Garden, and proves to be equally interesting in a horticultural point of view from the elegance of its flowers and foliage. It is a prostrate pale green annual, with finely divided, rather succulent leaves, and white striated petals with a yellow base. The flowers are about the size of Campánula rotundifòlia, are slightly fragrant, and very pretty. From the habit of this plant, it seems to require a damp and shady situation, where it will probably remain in flower for a month or six weeks. It is propagated by seeds, which are produced in tolerable plenty. (See *Gard. Mag.*, vol. x. p. 174. 285.)

"*Lupìnus nànus* Dougl. MSS., Bot. Reg., t. 1705.; Gard. Mag., x. 174.—The leaves of this charming little lupin are very much like those of *L.* bícolor, of which the cultivation has been abandoned on account of the small size of its flowers, and consequent want of beauty. The flowers of *L.* nànus are about the size of the old annual lupin, but more elegant from their number and variegated colours. It has blossomed very freely, and produced a sufficient quantity of seed to be partially distributed in the present season. Its diffuse habit and dwarf stature render it extremely well adapted for forming patches in a flower-garden.

"*Lupìnus densiflòrus* Benth., Bot. Reg., 1689.; Gard. Mag., x. 173. — The flowers, which grow in distinct whorls, are white, delicately stained with pink; they are also a little speckled at the base of the vexillum. The leaves are closely clustered together, are covered with fine soft hairs, and each has about nine narrow divisions. The stem does not grow above 6 in. or 7 in. high. The species has hitherto produced its seeds, which are of an olive green, smooth, and minutely dotted with black, in very small quantity. It is probable that it requires shade.

"*Lupìnus álbifrons* Benth., Bot. Reg., 1652.; Gard. Mag., x. 173. — Very near *L.* ornàtus, from which it differs in its shrubby habit, short leaves, long and slender racemes, and rather smaller deep blue flowers. Although not so handsome as *L.* ornàtus, it is well deserving of cultivation. The seeds are of a light chestnut-colour, marbled with brown. It is, perhaps, not hardy enough to bear the rigour of our winters without protection; but it seems to thrive in a glass pit, and would probably succeed in the front of a south wall, covered from wet in winter. It does not seed freely, nor does it strike readily from cuttings.

"*Lupìnus leptophýllus* Benth., Gard. Mag., x. 173. — This species is remarkable for its narrow leaves and hairy surface. It is about 1 ft. high: the spike of flowers is elegantly coloured with bluish lilac; and there is a deep crimson stain in the middle of the standard. The spike is covered with flowers in an irregular manner, and crowned by the long linear bracts of the unexpanded blossoms. It is not so pretty a species as many others of this generally beautiful genus; it has hitherto produced but a very few seeds, which are pale brown, mottled with a darker shade, and unusually small for a lupin. It probably requires shade.

"*Lupìnus hirsutíssimus* Benth., Gard. Mag., x. 173.—A small annual, of little interest, except to the botanist. The leaves are spotted with pale green, like those of a pulmonaria; the flowers are reddish purple; and the seeds, which are small, are so closely covered with dark brown marbling, that the olive green ground colour can hardly be seen. It has hitherto grown very indifferently, and probably requires a rich moist soil in a shady place.

"*Calochórtus splèndens* Dougl. MSS., Bot. Reg, t. 1676.; Gard. Mag., x. 178. — This elegant species has very much the appearance of C. macrocárpus. It is, perhaps, rather less branched, and the leaves shorter. The petals are paler coloured, and have but a small dark spot at their base. The hairs of the inner surface are of the same colour as the petal, and there is neither the transverse brown streak on the inside, nor the green rib on the outside, of C. macrocárpus. The roots transmitted by Mr. Douglas have grown freely, and many have already been distributed.

"*Calochórtus venústus* Dougl. MSS., Gard. Mag., x. 178. — This is, again, a species resembling C. macrocárpus in the size of the flowers. It differs from C. splèndens by the straight sepals marked with a dark spot at their base; from C. macrocárpus, by the absence of the green rib on the petals; from both, by their colour, which is a pure white, with the lower part marked in streaks of deep red on a yellow ground, and with a spot near the extremity of each petal, much resembling a drop of blood. Like the preceding one, it is a very handsome species, and has been raised in a sufficient quantity for distribution.

"*Cyclobóthra pulchélla* Benth., Bot. Reg. 1662., Gard. Mag., x. 179.; *Cala-*

chórtus pulchéllus Dougl. MSS. — The Calochórti of Douglas, with pendulous flowers, including the C. élegans of Pursh, belong certainly to the genus Cyclobóthra established by Sweet (*British Flower-Garden*, 3. t. 173.) for the Fritillària barbàta of Kunth, and are nearer allied to Fritillària than to Calochórtus, but sufficiently distinct from either. Cyclobóthra pulchélla is about 1 ft. in height, much branched, each branch terminating with an umbel of two or three pendulous flowers issuing from the base of a green leaf-like bract, longer than the peduncle. The flowers are of a bright yellow, the sepals of a greenish hue and ovate lanceolate form; the petals somewhat longer, very much broader, with a very deep nectariferous pit, of a rich yellow colour, placed a little below the centre. The margins of this pit are clothed with long and thick hairs; the petal below it is entirely smooth, above it slightly covered with scattered hairs, and bordered with a beautiful but delicate fringe.

"This plant produces seeds in great abundance, and will probably become as common as a fritillary.

"*Cyclobóthra álba* Benth., Bot. Reg., 1661.; Gard. Mag., x. 179.; *Calochórtus álbus* Dougl. MSS.—This species resembles very much the preceding one; but the flowers are larger, the petals both longer and broader, of a whitish colour, marked towards the centre with a shallow pit, covered with inflected hairs, glabrous below it, above it slightly covered with scattered hairs, and almost naked at the border, where a few hairs that straggle so far are turned inwards, and by no means form a fringe, as is the case in C. pulchélla.

"*Triteleìa láxa* Benth., Bot. Reg., 1685.; Gard. Mag., x. 403.—A very handsome plant, the scape of which is from 1 ft. to 1 ft. 6 in. high. Its flower are about the size of those of Brodiæ*a* grandiflòra, and of the same deep blue colour. They grow in a lax umbel; but, notwithstanding the length of their stalks, stand nearly erect; the scape is, however, apt to be procumbent if not supported. It seeds freely, and will soon be very common.

"All the species of Calochórtus, Cyclobóthra and Triteleìa are probably hardy: they seem only to require a shady situation, and a warm and light soil, which is effectually protected from wet in winter. But, as they are all at present extremely rare, they have hitherto been treated in the garden like half-hardy bulbs; that is to say, have been taken up as soon as their leaves have died, and kept dry till the roots have again begun to shoot.

"Some *P*olemoniàceæ, and a few other plants raised from the same seeds, will be the subject of a second report, which will shortly be laid before the Society."

ART. II. *The Floricultural Magazine, and Miscellany of Gardening.* Conductor, Robert Marnock, Curator of the Botanical and Horticultural Gardens, Sheffield. Small 8vo. No. I. for June, pp. 24.; one plate, containing three coloured figures of plants, and one woodcut. London and Sheffield. Price 6*d.*

THIS promises to be one of the best of what may be called, with reference to their size and price, the minor gardener's magazines. As it combines both horticulture and floriculture, it will probably suit a more extensive class of readers than some of the other magazines, which are exclusively devoted to one or other of these subjects. We extract from this first number an article on

The Sheffield Botanical and Horticultural Gardens. — "The beauty of the scenery in the vicinity of Sheffield is universally recognised; and it may be

said that these gardens occupy one of the most delightful points amidst that scenery; to the effect of which, indeed, they already materially contribute. Seen from the London road, on entering the town, the ground forms a gentle slope, having nearly a southern aspect, and at the upper extremity uniting, as it were, with the termination to that beautiful sweep of villa landscape for which the western precincts of Sheffield are deservedly celebrated. The whole is enclosed with a substantial wall of stone, and entered at the upper end by a handsome arched gateway of wrought stone, with side lodges, Doric columns, and entablature; the whole designed in a chaste and effective style. Immediately on gaining admission by this entrance, the eye not only commands a view of the diversified arrangements of the garden close at hand, but takes in, at the same time, the rich and varied panorama presented by the neighbouring landscape, and by the country for miles beyond.

"Between the grand entrance just described, and the residence of the curator (a capital ornamented stone building), extends, along the upper part of the garden, the magnificent range of conservatories so admirably represented in the engraving [a vignette woodcut, of which the impression in our copy of the Magazine is very indifferent]. The entire line of frontage is 100 yards; but the extensive and beautiful structure itself is divided, it will be seen, into five parts, the narrowest of which is 24 ft. in width. The terminating buildings, as well as that in the centre, forming noble and commodious greenhouses, the unglazed portions being built in front of rubbed stone, and having pairs of Corinthian pillars alternating with the vertical sashes. Each of these houses is covered by a quadrangular glazed dome, constructed of metallic ribs, connected and surmounted in the centre with an ornamental casting. The two intermediate portions of the pile, occupying each an extent of 30 yards, are of somewhat less elevation: the glazed roofs are arranged in low parallel ridges, supported and strengthened by cast-iron trusses and pillars. The first green-house that was built on this principle was erected in the gardens of His Grace the Duke of Devonshire, designed and completed under the zealous and skilful superintendence of Mr. Paxton. There are, of course, connected with these conservatories, the requisite forcing-houses and other usual conveniences.

"The whole of the buildings are allowed to reflect the highest credit on the professional taste and skill of our townsman, Mr. B. B. Taylor, the architect.

"From the front of the central conservatory, a grand promenade path, 180 yards long, and 26 ft. in width, descends to the margin of a circular tank, containing a fountain, as represented in the foreground of the engraved view. Below this, the ground is artificially laid out in rockwork, including, also, ponds, subterranean archways, hermitage, rustic bridge, &c. Of these, as well as the general details of the gardens, the conductor of the *Floricultural Magazine* must leave others to judge and to speak: for the designs and execution of the whole, however, he is certainly responsible, the Committee of Management having entrusted to him the entire direction of the laying out of a plot of ground which, with all the inherent physical capabilities ordinarily to be expected, comprised also such rare concomitants of situation and prospect, as to stimulate his utmost endeavours, not merely to satisfy his employers, but to accredit their choice and confidence in the estimation of the public generally.

"It ought to be stated, that the Committee of Management have acted, in every thing pertaining to the discharge of their office, with a degree of liberality and public spirit which must entitle them to the praise of having added to the charming neighbourhood of Sheffield a new and most attractive feature."

We find, from an advertisement on the wrapper of this magazine, that the *Florigraphia Britannica*, or, Engravings and Descriptions of the Flowering Plants and Ferns of Britain, by Richard

Deakin, F.R.C.S.E., and Robert Marnock, Curator, &c., noticed Vol. XI. p. 534., has reached its 12th number, from which it may reasonably be concluded, that an improvement has taken place in the engravings. It is no less astonishing than gratifying to find, from the sale of so many similar periodicals, that there is at present such a wonderful taste for plants and gardening in every part of the country.

ART. III. *The Agriculturist's Manual; being a familiar Description of the Agricultural Plants cultivated in Europe, including practical Observations respecting those suited to the Climate of Great Britain; and forming a Report of Lawson's Agricultural Museum in Edinburgh.* By Peter Lawson and Son, Seedsmen and Nurserymen to the Highland and Agricultural Society of Scotland. 8vo, pp. 430. Edinburgh, 1836. 9*s*.

THIS is a very interesting and, indeed, remarkable work; and cannot fail most materially to influence the character of agricultural improvement in Scotland. Ever since that great era of amelioration in Scottish husbandry, which commenced with naked fallows, and which was soon followed by the introduction of the turnip husbandry, the attention of the Scottish farmer has been directed much more to the improvement of the soil, implements, buildings, and other objects which constitute the means of cultivation, than to the improvement of the things to be cultivated. Notwithstanding the favourable reception that was given to the *Farmer's Magazine*, at the commencement of the present century, conducted as it was by an eminent East Lothian farmer, and read by almost all the farmers of Scotland, we question much if this *Manual* would have been favourably received, either by the conductor of the *Magazine*, or the farming public. This, indeed, seems the natural progress of things; for, as the soil must be prepared before any seed whatever is sown in it, so must it be prepared in a superior manner to fit it for the reception of more highly artificial varieties. The time seems to have now arrived, when the current of agricultural improvement in Scotland has set in, in the direction of improving the breeds of the plants and animals in general cultivation; we do not say that this has been hitherto neglected, but, merely, that, till within these few years, it has not met with the attention that it deserves.

The founder of this description of improvement, as far as respects plants, may, perhaps, be considered as Stillingfleet, who was succeeded by Curtis, and Sinclair on Grasses; while, in regard to animals, the names of Culley and Bakewell stand preeminent. Among the more recent promoters of the improvement of the breeds of plants in Scotland, may be mentioned Mr. Shirreff of Mungo's Wells, and Mr. Gorrie; and, after them, Messrs. Drummond of Stirling, Messrs. Dickson and Turnbull of Perth, Professor Low, and the authors of the work before us; which work may be considered as the result of all that has been done on the subject up to the present time. If we are wrong in the order in which we have placed these names, we shall be glad to be corrected.

In order to give our readers an idea of Messrs. Lawson's work, we think we cannot do better than to quote the Preface: —

"Feeling a sincere pleasure in promoting whatever appears to us to have a tendency towards the diffusion of a taste for rural improvement, and in contributing as far as in our power to give it a useful direction, we have been induced to lay before the public a description of the various agricultural plants cultivated in Europe, and of which specimens may be seen in our collection. The spirited conduct of our friends, the Messrs. Drummond, who

had formed an agricultural collection at Stirling, suggested to us the advantages likely to be derived from a similar exhibition in Edinburgh, where it might naturally be expected to have a much more extended influence. Following the laudable example set before us, we accordingly, in the autumn of 1833, fitted up an Agricultural Museum on our premises here, judging that by its means we might have it in our power to present to those honouring us with a visit samples of the various improved vegetable productions connected with agriculture and rural economy, and to bring under their notice the successful efforts made to facilitate improvement in these highly important branches of science. Our endeavours met with more than expected countenance and support, insomuch that, by the end of the year 1834, we were enabled, through the medium of the *Quarterly Journal of Agriculture*, to lay before the public a report of the state of our Museum, more ample than at its commencement we could have anticipated. Encouraged by the increasing number of respectable visitors, and the efficient aid of skilful and kind contributors, we determined to persevere in our scheme; and, from the success which has attended our labours, we feel justified in presenting the Report of our Museum, this season, in form of a separate publication, being convinced that a descriptive enumeration of the various objects which it contains cannot fail to be of considerable interest to all more directly concerned in the advancement of agriculture.

" To such as are desirous of knowing the peculiar qualities of the different species and varieties of the agricultural plants cultivated in Europe, or capable of being with advantage introduced into the field culture of this country, our catalogue may be confidently recommended, on the ground of its containing more information on the subject than is to be obtained in connexion in any work with which the authors are acquainted.

" It had been long believed that too little attention was paid by farmers to the selection and culture of improved varieties of plants; and the palm, in that respect, was generally assigned to their brethren of the spade, whose pursuits brought the physiology of vegetation more directly under their observation, and whose success in producing improved varieties of fruits, flowers, and esculent vegetables had been held forth as an excitement to emulation. In our report we hope to be able to make it appear that any ground of charge against farmers for remissness in this matter no longer exists; and we sincerely trust that what has already been achieved will stimulate to redoubled exertion.

" Of the cereal grains, we are enabled to exhibit more than eighty distinct varieties and species of wheat, many of which possess superior qualities, so diversified, however, as to afford ample means of selection for sowing on strong or light soils, in autumn or spring, on low or elevated situations; while some of them are suited for greater heights than any at which this species of grain has hitherto been cultivated in Britain. A great proportion of these wheats, as well as the other specimens of plants exhibited, have been grown in our own experimental grounds; and the remarks attached to each kind will enable our readers to judge of their comparative merits.

" Of barley we are enabled to show twenty distinct varieties of various excellence. Of these the Chevalier, Annat, Dunlop, and Italian, attract merited attention, and lead to the anticipation of still greater success in the improvement of this species of grain.

" Our collection of oats amounts to thirty-six distinct sorts, some of which are little known in this country, and affords an opportunity of comparing the merits of several varieties cultivated on the Continent, with those generally cultivated in Britain. Of rye, millet, maize, and other kinds of grain, there are also many varieties.

" The leguminous plants cultivated for their seeds are next enumerated. Of the more important of these, the bean, the pea and kidneybean, the varieties will be found not less numerous than those of the cereal grasses.

" Of the plants cultivated for their herbage and forage, and which are for

the most part referred to the three sections of gramineous, leguminous, and cruciferous, the collection is pretty extensive, and we are enabled to speak with some confidence of their comparative merits. In this department, however, we are sensible that there is still much to learn; and our object being to promote the culture of sorts possessing superior qualities, and to discourage that of worthless kinds, we shall feel indebted to our practical friends for any useful hints on the subject, accompanied by specimens. Appended to this section will be found an article on the kinds and quantities of grass seeds for sowing down land, in which we have given tables exhibiting the proportions and mixtures adapted for the various kinds of husbandry and soil.

" The various plants cultivated for their uses in the arts and manufactures, and for other economical purposes, also form a considerable branch in the exhibition. The esculent roots, particularly those of the potato, turnip, and beet, which are greatly distinguished above the others by their superior utility, have an imposing appearance in a collection, and will be found to occupy in our catalogue a space proportioned to their importance. Of the very numerous varieties of the former of these plants which have been submitted to comparative investigation by us, we have given a table exhibiting the peculiar merits. Fifty-one varieties of turnips are specified, and details are given respecting those presented by various individuals to the Museum.

" Arboriculture forms a distinguished feature in the rural improvement of the country. In this department, however, we believe there is still much room for exertion; and, to assist us in our enquiries relative to it, we earnestly solicit the contributions of such of our friends as have paid attention to this most important subject. The growth of trees is so variously affected by soil, climate, and management, that sections of trunks from different forests or plantations, accompanied by judicious remarks, could not fail to afford interesting and useful information. The breadth of the annual layers, considered in connexion with the meteorological phenomena of the corresponding seasons, or as affected on one side of the tree by the size and position of the branches or roots; the commencement and progress of decay, whether proceeding from the taproot and affecting the centre, or from the lateral roots; and the diseases beginning near the surface of the tree, while the heart remains sound, afford subjects of observation not less interesting to the physiologist than to the forester.

" The valuable addition made to the British Arboretum by the introduction of the larch in the course of the last century, renders it very probable that many important accessions to our forest scenery yet remain to be obtained from the natural order Coníferæ. To the introduction and propagation of species of this tribe our attention has been especially, and not unsuccessfully, directed. The Museum contains living specimens of the genus *Pinus* from various parts of the continents of Europe and America, and from Napaul and the Himmalayan Mountains, some of which may yet not only rival, but surpass, the larch in the forests of Scotland.

" Brief notice is taken of the different horticultural productions and models presented to the Museum. In this department, however, we are especially indebted to the Highland and Agricultural Society of Scotland, for the liberality with which they have permitted their valuable series of models to be placed for a limited period in the Museum, to which they have given such an interest as it could not otherwise have possessed.

" The descriptions of the various specimens have been given with as much conciseness as was judged consistent with perspicuity. Botanical terms are frequently explained in ordinary language, to render the remarks intelligible to the general reader; and observations derived from experience are offered respecting the culture and uses of the different plants. In short, as we consider this report to form a standard, to which future reports, embracing the additions annually made, will be supplementary, we have not spared pains in endeavouring to render it as complete and useful as possible. For the zeal and ability with which we have been aided in our endeavours to render the

catalogue worthy of public approbation, we have pleasure in here expressing our obligation to our friend Mr. William Gorrie.

"A General Index is subjoined, accompanied by an index of the names of the contributors mentioned under the different articles. To those who have thus generously lent their aid to our undertaking we tender our best acknowledgments. Should any omissions be here detected, our friends, we are assured, will not attribute them to any want of respect, and we shall not fail to rectify them in our first Supplement." — *Edinburgh*, 3. *Hunter's Square*, *May* 10. 1836.

So correct an idea of the plan of the work is given by this Preface, that it remains only for us to speak of its execution, which, we think, is excellent. In turning over the leaves, we come, at p. 185., to the cow, or tree, cabbage, respecting which we have a word or two to record, merely as matter of history. An individual in England having shown a specimen of this variety of what is properly a borecole, to Mr. Coke of Holkham, that gentleman expressed surprise at its size, &c. Advantage was taken of this to puff off, as the phrase is, this vegetable under a new name; viz. the Waterloo Cæsarean evergreen cow cabbage, and to sell the seeds at the rate of a sovereign for a packet containing twenty seeds. The following is an extract from the advertisement: —

"Patronised by His Majesty. Wonderful production of nature! Waterloo Cæsarean evergreen cow cabbage, of recent discovery, unequalled in affording the most interesting and desirable results to the farmer, grazier, and manufacturer. This singular and extraordinary species of cabbage, almost unknown in England till introduced by the persevering efforts of Mr. Fullard, three years since, grows from nine to twelve feet high, and from fifteen to twenty feet in circumference. Five of these stupendous cabbages, now raised to the greatest perfection in quality as well as size, have been repeatedly found, by proper management, an ample allowance of food for one hundred sheep, or ten cows, per day; and the nutrition thence supplied by this delicious vegetable will (as experience has already abundantly demonstrated) speedily produce the most surprising improvement in the *growth* and *utility* of every description of cattle. As an evidence of the beneficial tendency of this cabbage, Mr. F. has the great pleasure and satisfaction of saying, that sheep fed upon it have been found to produce wool of the finest silken texture, twenty-five inches long; a circumstance which cannot fail immediately to claim the utmost attention and admiration: as such, the cultivator of these cabbages will not only realise pecuniary profit beyond any previous experience, but the manufacturer will also obtain a material superior to any heretofore produced by the most profitable speculation, the general and extensive demand for which must exceed all present calculation. The commerce of the country, as well as the interest and pleasure of the community at large, will likewise be greatly, if not incalculably, enhanced by the cultivation and use of this improved vegetable production. This Waterloo Cæsarean cow cabbage has been pronounced by the father of the Agriculturists, whom, from his well-known experience, we are all bound to believe, to be the greatest wonder that ever appeared in the vegetable kingdom. It was shown to that very highly esteemed and truly respectable gentleman, T. W. Coke, Esq., Holkham Hall, Norfolk, in October last, when he immediately said, — '*Mr. Fullard, you told me, three years ago, agriculturists were only half way advanced in improvement: this cabbage makes me say I am bound to believe you. I do say it is the greatest wonder the earth ever produced.*' Mr. Coke subsequently introduced several *dukes* and other *noblemen*, to the number of nine, to view this great production, all of whom expressed their astonishment, and engaged a part of the seed for use this year (1836). These cabbages, if designed for use in the winter season, can, for convenience, as well as advantage to the grower, be then removed from the fields, and will serve to make handsome serpentine walks in gardens; or they will form a most excellent avenue for winter across a field; or, by setting them singly, will make a ground, that has

not a tree in it, a park for winter, and may be given to the stock in spring. To obviate scepticism, and to afford the highest satisfaction and confidence as to the perfect rectitude of the statements here given, agriculturists, graziers, and all who feel an interest in this species of produce, are respectfully requested to apply to Mr. ——, wholesale perfumer, No. ——, ——, London, who will, with pleasure, exhibit specimens of the cabbage, and also wool of sheep fed with this vegetable production. Mr. —— is the sole agent in London for the Waterloo Cæsarean cow cabbage seed. All purchasers of it are particularly desired to sow it at the proper season (which is in July), as stated in the directions which accompany the parcels, price 20*s.* each. The plants of this seed, unlike other vegetable produce for cattle, *never fail*, either numerically or in quality. A part of this seed has been engaged by His Majesty, and forwarded to Norfolk Farm, near Windsor, to be sown this season; and the production is already likewise patronised by most of the royal family. The Duke of Wellington, and the following gentlemen, are a few only who have selected the seed for cultivation this year: — the Right Hon. —— Dymock, champion of England; Robert Leeds, Esq., Surrey; Thomas Back, Esq., Wellesbro'; Joseph Cowen, Esq., Bladenburn; Sir William Folk, Norfolk; R. Preston, Esq., Barrister, Lincoln's Inn; —— Allington, Esq., Little Barford, near St. Neots; Edward Lindsell, Esq., Broon, near Biggleswade; Henry Walker, Esq., Corn Exchange; R. Sutton, Esq., Royal Exchange; —— Jesse, Esq., Hampton Court; Henry Hills, Esq., Allebury; Henry Handley, Esq., M.P., Lincolnshire; —— Perkins, Esq., proprietor of Islington Market; William Shield, Esq., Lincolnshire; Thomas Hudson, Esq., York; —— Hern, Esq., Bury St. Edmonds; —— Watkin, Esq., Windsor. It is desirable to remember, that these sweet vegetables, when boiled, are remarkably tender, and in flavour resemble asparagus. For the table, or culinary purposes, they will ever be highly appreciated. They grow in the form of a cone, and from the thickness of their foliage, and being evergreen, they will be found ornamental to a garden. The plants, after two months' growth (say in September), require to be set out at the distance of two yards and a half from each other. They will grow on soil of moderate richness; but their greatest perfection will require soil of good quality. At any subsequent period to their being thus transplanted, they may be removed to any other place where convenience or taste may suggest. All letters from the country, requiring a packet of seed to be forwarded, must (to be attended to) contain a sovereign, or an order for the payment in London; and it is requested the name and address, where it is to be sent, be legibly written. Caution: — Any packet sold at a less price than a sovereign, either in town or country, cannot be genuine. Observe, also, upon each packet the circular seal, with this inscription: '——, No. ——, ——.' It is important to observe, that none of the genuine cow cabbage seed will be sold after the month of July, for sowing this year (1836)."

"*Further Particulars.* — In reference to the length of wool produced by sheep fed upon the new colossal vegetable, as described in this prospectus, the proprietor, Mr. Fullard, to prove the fact, has now a lamb-hog, one year old, to be *seen* at Mr. ——, No. ——, ——, where T. W. Coke, Esq., of Holkham Hall, paid a visit on Tuesday, the 14th instant; and, upon due examination of the said lamb-hog, he declared, in the presence of many witnesses, that he never before saw such a specimen of wool for *length* and *fine* quality. Mr. F. has already been awarded *nine* premiums, by the Agricultural Societies, for the *superiority* of his sheep and other cattle.

"(Signed) ——, No. ——, ."

The noise made by Cobbett's Locust was nothing to this. We are informed, on what we consider undoubted authority, that from 30 to 40 sovereigns a day were taken at the perfumer's shop referred to for several months. The London seedsmen are regularly supplied with similar cow cabbage seed from Jersey; which is sold by retail, by Mr. Charlwood, at 1*s.* per ounce; an ounce, as

we are informed by Mr. Cormick, containing about 5000 seeds, which would, of course, produce the wholesale perfumer 250*l.* in ready money. As several gentlemen have called upon, and written to, us respecting this cabbage, as they did about the time the *Gardener's Magazine* commenced, respecting Cobbett's Locust (see *Arb. Brit.*, p. 616.), we have thought it worth while to state the above; adding, that, as we know that our advice was not taken in regard to the locust, we doubt if it has deterred those who applied to us from purchasing the Cæsarean cabbage. The truth seems to be, that there is a portion of mankind who have a love for the marvellous to such an extent, as to become a disease which will have its course. The work of Messrs. Lawson will prove the best antidote to this kind of quackery; and for this reason, independently of the good it will do in other respects, we do hope it will find its way into every country gentleman's library, as well as into those of bailiffs, land stewards, and reading farmers. A correct estimate of the real merits of this cabbage, by Mr. Saunders of Jersey, who supplies the London trade with their seeds, was published in the *Gardener's Magazine* in 1829 (vol. v. p. 440.); and it has also appeared in the *Encyclopædia of Agriculture*, 2d edit. p. 867.

MISCELLANEOUS INTELLIGENCE.

Art. I. *The London Horticultural Society and Garden.*

July 5. 1836. — *Read.* A Paper on the Management of Rhubarb; by Sir G. S. Mackenzie, Bart.

Exhibited. A Providence pine apple, from C. G. Cooke, Esq. 7 boxes of roses, from Rivers and Son, of Sawbridgeworth. Pentstèmon latifòlius, *S*olànum Herbért*ia*, *Œ*nothèra Drummóndi, gesnerias, and *D*áphne póntica fol. variegàtis, from W. Young of Epsom. Seedling English irises, from Mr. Salter of Shepherd's Bush. 2 Boxes of pinks, and 1 of heartsease, from Mr. Hogg. Rose raised from seed gathered in the Himalaya Mountains, in 1829, by Col. Finch. *O*rchídeæ, sp. n., from James Bateman, Esq. 4 Boxes of roses, from Mr. Stephen Hooker. *The Large Silver Medal* was awarded to Mr. Rivers of Sawbridgeworth, for a collection of roses. *The Banksian Medal*, to Mr. Hooker, for a collection of roses; to Mr. Hogg, for pinks, &c.; to Mr. Salter, for English irises; to Mr. Young, for Pentstèmon latifòlius; and to Mrs. Marryat, for *A*rbutus pilòsa, exhibited at last meeting.

At the Exhibition at the Garden, July 9., the following prizes were awarded: —

The Gold Knightian Medal. — For a collection of *O*rchídeæ, exhibited by S. Rucker, Esq., jun., F.H.S.; for Oncídium lanceànum, exhibited by Messrs. Rollisson of Tooting; for stove and green-house plants (large collection), exhibited by Mr. Green, gardener to Sir E. Antrobus, Bart., F.H.S.

The Large Silver Medal. — For alstrœmerias, exhibited by Mr. Gaines of Battersea; for melocactuses, exhibited by Charles Palmer, Esq., of Shacklewell; for grapes, exhibited by Mr. Davis, gardener to Lady Clarke; for a collection of *O*rchídeæ, exhibited by Messrs. Rollisson; for Queen pine-apples, from Mr. G. Mills, F.H.S.; for peaches, exhibited by Mr. Errington, gardener to Sir P. G. Egerton, Bart.; for roses (Chinese, &c.), exhibited by Mr. George Glenny, F.H.S.; for roses (garden), exhibited by Mr. S. Hooker, of Brenchley, F.H.S.; for stove and green-house plants (small collection), exhibited by Mr. James Lane, gardener to J. H. Palmer, Esq., F.H.S.; for stove and green-house plants (large collection), exhibited by Mr. Butcher, gardener to Mrs. Lawrence, F.H.S.; for a specimen of a New Holland plant, from Mr. Redding, gardener to Mrs. Marryat, F.H.S.; for a miscellaneous collection of roses, from Mr. Rivers, of Sawbridgeworth.

The Silver Knightian Medal. — For balsams, exhibited by Mr. Cock of Chiswick; for picotees, exhibited by Mr. T. Hogg of Paddington; for cucumbers, exhibited by Mr. Snow, gardener to Earl De Grey, F.H.S.; for cockscombs, from Mr. Mills, F.H.S., gardener to N. M. Rothschild, Esq.,

F.H.S.; for melocactuses, exhibited by Mr. Dennis, of Chelsea; for ferns, exhibited by Mr. Redding, gardener to Mrs. Marryat, F.H.S.; for grapes, exhibited by Mr. Buck of Blackheath, F.H.S.; for heartsease, exhibited by Messrs. Lane and Son, of Great Berkhampstead; for heaths, exhibited by Messrs. Rollisson, of Tooting; for melons, exhibited by Mr. Clark, gardener to T. Venables, Esq.; for Gongòra (a new species), exhibited by S. Rucker, Esq., jun., F.H.S.; for pelargoniums, exhibited by Mr. Cock of Chiswick; for Providence pine-apples, exhibited by C. G. Cooke, Esq., F.H.S.; for nectarines, exhibited by Mr. Gibbs, gardener to D. Haigh, Esq., of Streatham; for nectarines, exhibited by Mr. Nieman, gardener to P. C. Labouchere, Esq., F.H.S.; for roses (Chinese, &c.), exhibited by Mr. S. Hooker, F.H.S.; for roses (garden), exhibited by Mr. Wood of Maresfield, Sussex; for roses (garden), exhibited by Mr. Paul of Cheshunt; for a specimen of a stove plant, from Mr. Redding, gardener to Mrs. Marryat, F.H.S.; for a specimen of a stove plant, from Mr. Spence, gardener to E. Durant, Esq., F.H.S.; for a specimen of a green-house plant, exhibited by Mr. D. Ferguson, gardener to P. C. Labouchere, Esq., F.H.S.; for a specimen of a New Holland plant, exhibited by Mr. D. Mackay, gardener to R. Mangles, Esq., F.H.S.; for a specimen of a Cape plant, from Mr. Douglas, gardener to Earl De Grey, F.H.S.; for a hardy herbaceous plant, exhibited by Mr. Marshall, gardener to Mrs. Langley.

The Silver Banksian Medal. — For calceolarias, exhibited by Mr. Jackson of Kingston; for pelargoniums, exhibited by Mr. Gaines of Battersea; for roses (Chinese, &c.), exhibited by Mr. Paul of Cheshunt; for cherries, exhibited by Mr. Meyers of Brentford; for droseras cultivated under glass, from the Rev. W. Hincks, York; for hydrangeas, exhibited by Mr. Mills, gardener to N. M. Rothschild, Esq., F.H.S.; for large fuchsias, exhibited by Mr. R. Scott, gardener to J. Boulcott, Esq., F.H.S.; for Crássula coccínea, exhibited by Mr. Buck of Chelsea.

The company at the gardens were nearly as numerous as at the preceding exhibition. The total number of tickets purchased was 17,600, and the total number presented, 16,534. The following remarks on the articles exhibited are by a correspondent who was present:—"Among the articles of fruit presented for competition, I observed, what I believe to be hitherto unrivalled; a cluster of black Hamburg grapes, weighing 8 lb. 6 oz.; and near them, some exquisite specimens of the white muscat of Alexandria. About 12 dishes of grapes were exhibited, two beautiful dishes of cherries, and 8 specimens of melons; among which the Hoosainee, and other Persian sorts, were fine; and there were a beautiful specimen of the scarlet rock, and two immense black rocks, weighing, I should think, 16 lb. each. I also observed 5 dishes of peaches, and 4 dishes of very superior nectarines; also 7 specimens of pine apples, one of which was an elegant-shaped queen: these, with 10 braces of very handsome cucumbers, constituted the whole show of fruits; and I was much surprised to find that no gold medal was awarded for any of the articles exhibited.

Among the specimens of flowers, I particularly admired the following Orchídeæ: — Oncídium papílio, Gongòra maculàta, and sp.; Epidéndrum bicornùtum, Cynòchus Loddigèsii, Zygopétalum Cochleària, and Maxillaria; Cattlèya Forbèsii, Oncídium flexuòsum, and Lanceànum; Bifrenària aurantìaca, Maxillària díscolor. I observed only 3 species of alstrœmerias; viz. A. pulchélla, A. aúrea, and A. psittacìna. Three British species of sundew (Drósera) were exhibited, grown in a small saucer of moss, under a bell-glass. I was also much delighted with Manéttia cordàta, Lýchnis coronàta, Ceropègia élegans, Russéllia júncea, a remarkably fine specimen; several species of Húmea élegans (one, I should think, 10 ft. high); a cut flower of Magnòlia macrophýlla; and, in a smaller tent, carnations, pinks, and pansies of some merit. The show of roses was extensive and interesting. — *F. July* 9. 1836.

THE

GARDENER'S MAGAZINE,

SEPTEMBER, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Botanical and Horticultural Tour in Lombardy.* By Signor GIUSEPPE MANETTI.

I NOW sit down to fulfil my promise to you respecting my botanical and horticultural tour, which will contain whatever I think will be interesting to you in the gardens of Lombardy, not only as respects botany and horticulture, but every thing else that appears to me worthy of notice. I do not intend to speak of all the gardens in Lombardy indiscriminately, because, by undertaking such a task, I should plunge into a sea from which I could not easily extricate myself; but I shall treat of those gardens only which are the most celebrated, and which present the greatest interest with regard to the object in view. I ought, perhaps, to begin with the garden in which I am employed; but, as I have often spoken about it to you already, I think I shall prefer commencing with that of Desio.

Desio is a large village, about four leagues north of Milan, and about one and a half north-west from Monza. The soil is of that kind which is here usually called *ladino*, or arable, and is either black, or calcareous, and very fertile. There are several villas in Desio; but the most beautiful is that called La Casino, which is now the property of Signor Traversi.

At the epoch of the introduction of the taste for landscape and pleasure gardens in what is commonly called the English style, the late Marquis Ferdinando Casani, in 1777, laid out this villa, and formed a garden to it of 200 superficial Milanese perches. The universal opinion is, that Casani spent all his fortune on this garden, because his heirs, after his death, put it up for sale; and, indeed, it is not wonderful that so much money was spent, as, the ground here being perfectly flat, every elevation of the soil must have been made by art. Besides the ground being cleverly laid out, the trees are planted and grouped

with judgment; and none of them are placed at random, which is generally the case when such a trust is confided to the care of those who are inexperienced, or who have not studied nature. Here, on the contrary, the gradations of the different colours of the foliage are so displayed as to afford abundant sources of variety and pleasure. In short, the eye continually wanders from one beauty to another, and particularly so around the lake, where the scenes are always new, always grand, and always worthy of the poet's song. The charms of nature are so completely reproduced and created by art, that one may say, with the poet of Armida, —

" L' arte che tutta fa, nulla si scopra."

There is no profusion of buildings or ornaments, which, when crowded together in a garden, without the necessary attention being paid to situation and suitableness, rather fatigues than enlivens the spectator. Amongst the edifices is one dedicated to the immortal Tasso; and amongst the other buildings is a coffee-house ornamented with beautiful pictures in the Egyptian style, and a beautiful statue of Apollo, admirably executed. There is a small temple, in which there is a statue of Hymen, and an apartment dedicated to Tasso. Four beautiful fresco paintings adorn the interior of this room; the effect of which, contrasted with the exterior of the building, consisting of boards unequally put together, and having the upper part shaded by a penthouse of straw, gives to the mind a great and delightful surprise on entering at the rustic gate. The inexhaustible Tasso has supplied subjects for the skilful pencil of Binozzi, which decorate this room. In one picture we see Erminia, clothed in the arms (which are much too heavy for her) of the warrior maiden Clorinda.

" O con quanta fatica ella sostiene
L' inegual, peso e muove lenti i passi."

" Heavy and slow, she moves along with pain,
And scarce her feet the unwonted weight sustain."

In the second, Erminia is seen with the shepherd, in that asylum of peace, where the din of arms is never heard.

——— " Nì strepito de Marte
Ancor turbo questa remota parte."

——— " Removed to distance far,
And never startled with the din of war."

In the third, —

" Nella scorza de faggi e degli allori
Segnio l' amato nome in mille guise."

" On the smooth beechen rind the pensive dame
Carves in a thousand forms her Tancred's name."

In the fourth, Erminia is seen, accompanied by the faithful

Vafrino, at the spot where Argante has slain, or rather fearfully wounded, a warrior, who lies —

——— " La gran faccia
Sien volto al ciel, e morto ancor minaccia."
" His face was upward turn'd, with dauntless air,
His aspect menaced, even in death severe."

In another part of the picture Vafrino is seen untying the helmet of the recumbent warrior, and recognising in him his master Tancred, whom at first he believes to be dead.

This villa is from the design of Piranesi; and, although this celebrated architect has faults, it is to him we owe the principles of the total reform which has taken place in the architecture of Milan. In the house in question, he has committed the error which is so common in most of his buildings; that is, it is without a base; or, to explain myself better, they are kept too low. Signor Traversi told me that he entertained some thoughts of rebuilding the mansion on this account. The garden was laid out by Antonio Villaresi, a gardener at Florence, and the father of the late Villaresi, the enlightened director of these royal gardens; and it was here that Luigi Villaresi was born, and imbibed from his father his taste for landscape-gardening. Signor Traversi has erected a tower from the design of Pelagi, which looks like a monastery; the architecture of which is a mixed Gothic, and which is adorned with basso relievos, ancient and modern, in different styles, the subjects of which are taken from sacred and profane history. The sum of 130,000*l.* must have been spent on this building. In it there is a spacious gallery, used at present as a study by those cultivators of the fine arts who pass the summer with Signor Traversi, but which was formerly ornamented with the arms of ancient warriors.

According to the strict rules of art, the garden here is much too near the house, it only being about 600 ft. from it; and the house is, also, so large, that it would require a garden ten times the size of the present one. No attention has been paid to the great law, that all garden constructions and edifices should be made subordinate to the geometric scale of the house, so that there may be a just proportion between them and the mansion; and a due attention should also be paid to the distances between the objects, and to the whole extent of the garden. Sometimes an edifice that is exceedingly rich, and of immense magnitude, overpowers the impression which the natural scene imitated in the pleasure-grounds should produce. The building has another defect, which is, that it is not erected on a knoll, or rising ground, as such an edifice requires a marked kind of situation.

In the first part, which is called the ancient grove, which was planted when the garden was formed, in 1777, the following

trees are worth mentioning: — Magnòl*ia* grandiflòra, 50 ft. high, with a trunk 1 ft. 10 in. in diameter at 3 ft. from the ground, and the diameter of the head 30 ft.; *F*àgus sylvática atropurpùrea, 60 ft. high, diameter of the trunk 22 in., and of the head 44 ft.; *P*ìnus *S*tròbus, 70 ft. high, diameter of the trunk 30 in., and of the head 40 ft.; *J*ùglans nigra, 62 ft. high, diameter of the trunk nearly 27 in., and of the head 40 ft.; Gymnócladus canadénsis, 65 ft. high, diameter of the trunk 18 in., and of the head 22 ft.; *P*ìnus *T*æ`da, 62 ft. high, diameter of the head 24 ft., and of the trunk 24 in.; *A*càcia *Julibríssin*, 66 ft. high, diameter of the head 24 ft., and of the trunk 28 in.; Robín*ia* Pseùd-*A*càcia umbraculífera, 40 ft. high, the diameter of the head 24 ft., and of the trunk 24 in.

In the parterre, which is in the Italian style, and situated before the green-house, there is a rich collection of roses, amongst which there are several of great beauty, procured by the present director, Giovanni Casoretti, whose abilities, intelligence, and politeness are beyond eulogium. The names of these roses are as follows: — Hayez, Traversi, Maffeis, Strambio, Cabrisi, Byron, Rossini, la rose tendre, la Padulli, la marchese, la color di paglia, la trompeuse, la belle Judith, l'Elodie, la Bartolotti, and la Pirzi. There are a Magnòl*ia* pyramidàta, 12 ft. high, which branches out from its base; Magnòl*ia* auriculàta, 16 ft. high, with a trunk which measured, at 1 ft. from the ground, 7½ in. in circumference; and a Magnòl*ia* grandiflòra magordénsis, which appears to me to be a hybrid, not very distinct from M. grandiflòra præ`cox; the only properties which distinguish it being, as I am told, that the flower is rather larger than that of M. g. præ`cox, and expands rather later. To tell the truth, I have never seen it in flower myself; but I have written to Signor Casoretti to send me one when they are in their full beauty, in order that I may compare it with those of M. g. præ`cox. It is 15 ft. high, with a trunk 9 in. in circumference. Magnòl*ia* grácilis is 10 ft. high, branching out from its base, and occupying a space of 22 ft. in circumference. Magnòl*ia* macrophýlla is 20 ft. high, with a trunk 11 in. in circumference, and the head 10 ft. in diameter. Last year this beautiful plant produced and ripened seeds; and this spring more than 150 plants were produced from it, amongst which Signor Casoretti hopes to obtain new varieties, having fecundated some of the flowers with the pollen of M. purpùrea and M. conspícua. About eight years ago, Signor Casoretti obtained a variety of M. obovàta (M. purpùrea), which has all the characteristics of its parent except that it is only a foot and a half high, and which he therefore calls M. obovàta pùmila.

The pine-apple stoves which have lately been constructed are still heated by the old method, that is, by flues; and about

3000 plants are skilfully cultivated, from which, one year with another, 750 pine-apples are obtained. The value of this fruit in Milan, when of a moderate size (that is, when about thirty ounces in weight), is about eight livres Milanese; that is, six francs, or 5*s*. The kinds grown are, the queen, the globe, the Otaheite, white Providence, green Providence, Antigua, Antigua queen, Havannah, black Jamaica, Madeira, il via spruona, &c. In one part of the stove, they are cultivated in the manner indicated in the *Gard. Mag.*, vol. v. p. 427. Some of the fruit treated in this manner have been found to weigh seventy-two ounces; but it is said that the flavour is not so good as that of the pines grown, or plants raised, in pots. I, however, did not find this to be the case; and I cannot even guess the reason of so foolish an assertion.

There are more than 5000 sorts of camellias cultivated here, amongst which there are several of very great beauty, obtained by Signor Casoretti by means of artificial fecundation, which are as follows: — grandiflòra, Monti, amplipétala, Leonardi, longisépala, Traversi, Bazzoni, l' albo variegàta, Manetti, &c. Amongst the peonies are the *Moútan* phœnícea, *M.* cárnea, *M.* incarnàta, and *M.* inodòra. Amongst the rhododendrons, there are *R.* arbòreum mutábile, 12 ft. high, and the trunk 3 in. in diameter; *R.* campanulàtum; *R. c*innamòmeum; and an Azàlea *l*edifòlia, 12 ft. high, which was in full flower, and in perfect beauty, when I visited the garden on May 12. Amongst the fuchsias, there were F. globòsa and Adolphìn*a*. Amongst the dryandras, there were D. armàta and longifòlia; amongst the banksias, B. coccínea and Lambért*i*. Amongst the pelargoniums, which are cultivated in great numbers, there were P. olýmpicum, reticulàtum, velutìnum, v. d' Arrufens, v. atrocruéntum, Palæmon, Poiteau*ànum*, Hephbourn*ànum*, &c. I say nothing of the dahlias, because their number was infinite. The gigantic and dwarf sorts are both cultivated here; the latter of which we call Inglesi, as we received the first of them from England. Every method of propagation is used by Signor Casoretti. The rose is multiplied by slit-grafting, at all times of the year, with complete success. The camellia and rhododendron are treated in the manner described in your Magazine, vol. ii. p. 33., as practised by Mr. Wm. Pike; the article having been translated by me, and inserted in our *Giornale Agrario*.

I do not speak of the fruits or vegetables here, as they are not much attended to, and there is little of interest in the mode of cultivating them. The neighbourhood of Desio is so celebrated for the excellence of its peaches, that, in the market at Milan, those who come to purchase that fruit always enquire if they are from Desio; and they have obtained the name of Desio peaches. The peach trees are planted by the sides of the vines in the

fields, and thus serve as a support for them. This fruit produces an annual income of 12,000 livres, Milanese money, to Desio, when the year is favourable. They have suffered much this year on account of the frost and cold in spring. In the beginning of May, we had one degree of frost for two or three nights.

I have sent you, through the Baron Jacquin, the dried flowers and the seeds of the *Pópulus dilatàta*. In the same parcel you will find a small glass phial containing the oil of the Taxòdium dístichum, which I mentioned in a former letter, and which, according to the opinion of several well-informed medical men, might be used for the same purposes as the oil of turpentine now is. The celebrated Baron de Grimm, aulic counsellor, &c., a very scientific man, told me that a very small dose of this oil gives a tone to the stomach, and that it has a diuretic effect. Next autumn I will give you a notice respecting the quantity that can be obtained from a given weight of cones.

ART. II. *A brief Description of the Gardens at Adare, the Residence of the Earl of Dunraven, in the County of Limerick.* By Mr. ANDREW COGHLAN, Head Gardener there.

AGREEABLY to your request, I proceed to give you a brief description of the Adare gardens; reserving the demesne, the park, the forest, and other interesting matters, for a future article.

At the entrance into the premises stands a commodious garden-house, tastefully built, and displaying magnificence and comfort, both interiorly and exteriorly: contiguous to which are a melon-yard, with pits and frames; and mushroom, tool, and compost sheds.

The gardens, which contain more than three Irish acres, and are so highly celebrated for their fine fruit trees, particularly apricots, figs, and peaches, are surrounded, and divided into three equal parts, by lofty walls faced with brick, and communicating with each other by great double stone arches. In the middle garden stands a fig tree; a rarity indeed, for its equal would be sought for throughout this country in vain; having never been known to fail, and generally producing two yearly crops, one in June and the other in August. In the lower, or cherry, garden stands a curious chain of rocks, beautifully planted with alpine plants, rising to a great eminence, and surrounded by a pond planted with water lilies; on the banks of which are some quince trees, that are remarkable for their fine fruit. The interest of this spot is increased by the circumstance of an eagle having taken up his residence here; where he sits perched upon the tallest rock, while the small birds look upon him with terror,

and depart from his presence with precipitation; so that he answers the double purpose of use and ornament.

Adjoining is the Earl of Dunraven's splendid new house, which, when finished, will stand unrivalled for beauty and elegance by any other in the kingdom; being built in the richest abbey style of ancient Gothic architecture, and embellished with countless ornaments on the cornices, mouldings of windows, &c. The building is flanked with towers more than 70 ft. high; and in the centre of the bay, or oriel, window are sculptured the arms of several noblemen.

To the south of this noble edifice lies the pleasure-ground, containing more than twenty acres; at the end of which is a well-constructed heath-house, on the verge of the beautiful river Maig, which flows through the demesne, close to the mansion, and the falls on which are very interesting. This pleasure-ground, which is surrounded with beautiful oak and elm trees of immense magnitude, strikes the eye of the beholder with an appearance of the most pleasing undulations, heightened by its picturesque situation along the banks of the river, where a great curiosity presents itself in a grand line of thirty English elm trees, more than 150 ft. high, and girting 14 ft. on an average. These beautiful trees stand in regular order on the brink of the river, across the bed of which, their roots extend, and derive their nourishment from thence. Amongst the great trees is a renowned and venerable ash, under the roots of which the treasure of His Lordship's ancestors lay concealed during the troubles of 1688. This highly favoured tree is 15 ft. in girt. A little further on, in the pleasure-ground, stands a cock's-spur thorn, forming itself into an arbour, surrounded by an evergreen privet hedge, planted with standard roses; the intention of which was to hide the naked stems of the roses. You next behold three cast-iron bowers, which you approach, passing first under three magnificent iron rail double arches, planted with roses. A little further on appear some beautiful cedars of Lebanon, in grand style, near which are an American border, and a Portugal laurel 35 yards in circumference. Close by are a green-house, and a grapery of exquisite beauty, surrounded by a garden of evergreens. A large yucca, above 40 ft. high, stands at the end of the green-house, and makes a noble appearance: it flowers every second year. Several acacias, in good bloom, grow hard by, one of which girts 9 ft.; with some beautiful Portugal laurels and evergreen oaks. In the evergreen garden are several clumps of rockwork, planted with alpine plants. Outside the iron railing stands a beautiful specimen of the hickory tree, 6 ft. in circumference; with several huge elms and silver firs, sweet chestnut, and walnut trees, one of which is 9 ft. in girt, and the branches

thereof 70 ft. in circumference; the branch circumference of the hickory being 90 ft.

A little further on appears a castellated wall, beautifully planted with magnolias, *Sophòra* japónica, Edwárds*ia* grandiflòra, and E. microphýlla; myrtles, camellias, *N*èrium spléndens, pomegranates, with a vine at the extremity (a never-failing sweet-water grape); and a great profusion of other ornamental plants, too numerous for insertion.

Such is the improved and flourishing state of horticulture in this quarter, that I had the honour of being adjudged a beautifully ornamented silver prize cup, of great value, given by the high sheriff of this county to the Limerick Horticultural Society at their last meeting; which cup was awarded to me by a majority of nine prizes.

The *F*ìcus elástica, which you have mentioned, stood out in the open air until Christmas, when it was killed by the frost. The yucca has stood in the open air these 40 years.

Adare, April 6. 1836.

Art. III. *On the Vegetation of Plants having solid Bulbs; and particularly on that of the Saffron* (*Cròcus satìvus*); *also on the Functions of Bulbs in general.* By Dr. Augustus Trinchinetti. Translated from the Italian.

It appears to me so very extraordinary that so little should be known of the vegetation and use of solid, or tuberous, bulbs, as they may be called; that I trust that I shall be excused for offering to the public the result of a few experiments which I have made on the subject. Having chosen the crocus for making observations on, I shall speak first, and most diffusely, of that plant.

The bulb of the saffron (*C*ròcus satìvus), examined in its dormant state, consists of a parenchymatous starchy substance; which forms a flattish globular body, surrounded by dry, loosely fibred coats, succeeding each other like scales, and forming funnels placed one within the other, and gradually decreasing in size, which can be easily separated, but which are all attached at their base. If you take away these membranous funnels, you will find a solid whitish bulb within them, somewhat compressed in the upper part, and marked horizontally with circular lines, which are nothing more than the bases of the membranous funnels, or coats, which have been thrown off by the bulb, or taken away from it. In the centre of the upper part of this bulb, or near the centre of it, there are three, or sometimes even more, cones, formed of finer funnel-shaped coats, under each of which appears a small tubercle, that is the germ of the offset, or new bulb,

intended to be developed in the next growth. There are likewise various marks scattered all over the bulb, without regular order, and of different sizes, formed of very fine coats, and containing small germs, which are developed according to the quantity of nourishment received by the parent bulb; and which sometimes may, perhaps, become abortive when the parent bulb is too small to afford them support.

The bulb, if cut open while in this dormant state, only presents a homogeneous milk-white mass, the organisation of which is not visible.

When it begins to vegetate, it sends out circumferential fibrous roots, and developes one or more germs, which increase into one or more little bundles, each formed of a sheath, enclosing leaves, and the largest containing, also, the flower. These little bundles have a slight expansion at their base; which, being cut through lengthwise, discovers a smaller bulb, surrounded by coats, the outer of which proceed from the sheaths above mentioned, and the inner ones from the bases of the leaves, and both, combined, forming a small solid substance.

If, when the vegetation has considerably advanced (say about a month after flowering), these small bulbs are again cut through, and a part of the large bulb from which they sprang is included in the section, the portion where the coats terminate will be found very much increased in size, and also divided into two parts of different substances (see *fig.* 73.); one of which, the germ (*c*), is almost of a conical figure, with its base uppermost: it has in its centre one or more tubercles; and its point, penetrating downwards, terminates towards the centre of the old bulb at *f*, where it joins a similar part, proceeding from each of the offsets, and whence the circumferential roots (*gg*) have their origin. This germ is of a yellowish colour, and fibrous structure, and forms the central and lower part of the little bulb, or base of the flower sheath, which forms above the large bulb. From the structure of this part, its position, and the circumferential and fusiform roots (which will be described presently) proceeding from it, I consider it as the vital speck, or germ, of the little bundle, or sheath, which springs from its upper part. The other portion (*d*), which remains to be described, has the appearance of the old bulb; being of a milk-white colour, and of a homogeneous texture, ex-

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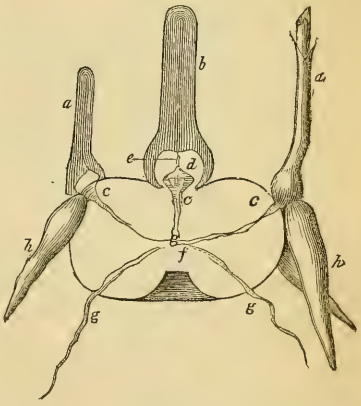

cept the threads, or filaments, at *e*, which are more or less apparent, and which cross it vertically, proceeding from each of the tubercles before mentioned.

It has been observed, that, as soon as vegetation commences, the offsets of the bulb send down from their base or side one or more large fusiform roots (*h h*), which have their origin in the internal part, or germ, of the solid substance above described. Whether these are intended to assist the circumferential fibrous roots in the office of absorption, need not be discussed here, as it is apparent that these latter cannot absorb sufficient matter for the formation of the offsets: and this is proved more fully, by observing that there are sometimes no fusiform roots when only one offset is developed; the circumferential roots, in that case, appearing to be sufficient for its nourishment.

As vegetation proceeds, the offsets are found to augment in bulk; but, when observed internally, their germs are found not to have increased at all, and that only the parts which surround them are enlarged; so that, when the bulb is completely developed, the germ has vanished, leaving only a faint trace of shade, showing where it has been, and which may be observed in the lower part of the bulb.

In proportion as the offsets become larger, the parent bulb diminishes, becomes yellow, and dried up, presenting only a fibrous cellular structure; which, when the new bulb has attained its utmost growth, becomes black, and dwindles away to a very small substance, that, sooner or later, disappears altogether. The circumferential roots decay with the bulb, and the fusiform roots also; the leaves become yellow, wither, and finally rot off; and their bases, which have become the inner coats of the dried bulb, with their internal sheaths, remain as the involucrum of the offset. The bulb thus passes on into its dormant state, presenting the above described characteristics.

The newly formed bulbs, which, at first, participated in the vitality of the old ones (by means of the prolongation of their germs, which united nearly in the centre of the old bulb, and were the origin of the circumferential roots), now enjoy an individual vitality: they have no longer any germ, as that by degrees has withered, and finally disappeared; and these bulbs, in their turn, can now only be considered as a mass of matter containing the germs of new plants, which are to be developed at the next season of vegetation.

I have observed that the manner in which the bulbs of the *Gladìolus commùnis* vegetate is very little different from what I have just described.

The *Cólchicum autumnàle* also differs but little from the crocus in the manner of reproducing its bulbs; with the exception that in the colchicum the offsets always appear at the side of

the parent bulb; and, having a free base, they immediately, without passing through the large bulb, send down capillary roots, which thus, probably, perform the office of the fusiform roots produced by the crocus. When this bulb is cut, the germ is found of the same form as that of the saffron, except that the point penetrates the old bulb laterally, and disappears in it, without producing any circumferential roots. As all the coats of the colchicum entirely surround the bulb, when the latter begins to decay, it is not found partly naked, like that of the crocus, which has its coats one above another like scales, that are pushed up higher by degrees as the bulb increases in size; but appears a mass of dry coats, which contain the old bulb, reduced to a small withered substance, which soon afterwards becomes rotten.

The Fumària bulbòsa γ sólida *Lin.* (*Corydàlis bulbòsa Dec.*) has also some analogy with the crocus and other plants, in the mode of reproducing its bulbs, or tubers, whichever they may be called. In its dormant state, it presents a white starchy mass, which contains an olive-shaped substance, situated vertically in its centre, with its broadest end downwards, which is of a yellowish colour, and of a slightly fibrous structure. When the bulb begins to grow, the roots proceed from the lower part of the olive-shaped substance; and, at the same time, one or more shoots rise from the upper part, which continue to grow and produce flowers. When the old bulb, or tuber, has done growing, the offsets begin to be developed; and, as it has been observed that they are always in the centre of the parent bulb, and as that is exactly the spot occupied by the olive-shaped substance, it may be inferred that the offsets have their origin in it. As the offsets increase in size, the substance of the parent bulb diminishes, till, by degrees, it changes into a spongy involucre; which, by being continually pressed by the new bulbs, is soon reduced to a membrane, and then disappears. As soon as the new bulbs are completely formed, the roots and the stems of the old bulb fall off; and the new bulbs remain in a dormant state till the next season of vegetation.

Having anatomically examined some of the solid bulbs in various stages of their vegetation, let us now consider the use which nature intends these bulbs to answer.

Linnæus considered bulbs as hybernacula; that is, as winter storehouses, or bodies intended to preserve the germ of the future plant, while vegetation is at rest; and to administer with their own substance its first nourishment, as the seed does to the embryo with the albuminous matter which it contains in its cotyledons.

Nobody can doubt that bulbs were intended both to preserve and to nourish the germ: but, if they were formed for these pur-

poses only, why do they continue during the life of the plant; contrary to the habit of the buds in the branches of trees, and of the albuminous matter contained in the cotyledons of seeds, which, soon after the bud, or young plant, has been developed, disappear, or, at least, change their nature? Why are they, though they slowly diminish in bulk, preserved during all the course of vegetation; and why do they not perish, like the leaves? These reflections induced me to think that the bulb must have some important function to perform during the whole life of the plant; no part being given by Nature without an intention.

Can we suppose that the parent bulb is preserved for the purpose of supplying the offsets with its own substance; and will it be believed (as some have asserted) that this substance forms the offsets, although their united mass is often four, six, and even more times bigger than the bulb itself? If it has been proved that the deposition of the materials composing this substance is formed from the descending sap; if we see, ourselves, that the offsets of the crocus, and of the other bulbous plants we have mentioned, evidently grow from the outward to the inward part, it will not be believed, I think, that the substance of the parent bulb, being put in motion, can be immediately conveyed to the offsets; because, besides the objection of the latter being much bigger than the former, how can the substance circulate in the plant and leaves, &c., without undergoing a change? Or, can it be modified in the leaves, and then return again to its original state? This would be contrary to common sense.

What, then, can be the use of the bulb during vegetation? The following fact gave rise to my ideas on the subject: —

I put some dry bulbs on a board; and, although they could not push out roots, I found they sprouted as vigorously as those in the ground; and some of them were so strong, that they even flowered, and continued growing for some time after they had done so. As they had no roots, the growth could be only in consequence of the nourishment received from the substance composing the bulbs; and, when I examined them, I found that, although they did not appear to be diminished in size, they were become exceedingly light; and that their white substance was so small, that the upper half of the bulb consisted only of empty coats. From this, and also from observing that the growth of the plant was the same as that of those which had roots, I formed the idea that the substance of the bulb was intended not only for the first developement, but also for the future growth and nourishment of the plant.

I took out of the ground the bulb of a crocus which had arrived at the state of flowering; and I did not perceive any diminution in its size, weight, or usual solidity. We must not conclude from this, however, that the substance of the bulb had

not contributed to the nourishment of the plant; since the roots with which it was furnished were quite sufficient, by the nourishment they extracted from the soil, to restore the substance that might have been expended. I kept this bulb out of the soil for some time; and found that the roots soon dried up, but that the leaves continued to vegetate till the white part of the bulb had become reduced to a little withered point. Thus I obtained another fact in support of my opinion.

The manner in which the bulb decays, according to the ordinary course of vegetation, cannot be better explained than by admitting this particular mode of nutrition. As soon as the bundles, already spoken of, are completely developed, they begin to afford nourishment to the offsets. The leaves of these bundles, which before elaborated the sap sent up to them by the roots, to supply nourishing matter to restore the substance lost by the parent bulb, now, having formed with their bases the innermost coats of the offsets, deposit the nourishment they contain to augment the bulk of the latter.

The substance of the bulb continues to be absorbed and circulated; passing to the leaves from the germ, probably by the filaments (*e* in *fig.* 73.) which issue from each of its tubercles; and, as we have already seen, the substance being no longer reproduced, the parent bulb necessarily decreases in bulk, till, by little and little, it disappears. What merits particular attention here is, that the leaves become yellow as the substance of the old bulb diminishes, and, like it, perish.

It has been observed, that plants having solid bulbs contain in all their parts a great deal of mucilage, into which it is well known that starchy substances are easily converted; and this observation, combined with the delicate texture of the plants (a texture analogous to that of young plants or leaves, which have had no other nourishment than the starchy substance contained in the cotyledons or alburnum from which they spring), serves still further to corroborate my opinion. Solid bulbs are, then, according to my hypothesis, masses of starchy matter, provided by nature to serve as a support to the young plant, in the same manner as the albumen of the egg serves to nourish the chicken.

Whether scaly bulbs and tubers are destined by nature to perform the same office, I have not yet had sufficient experience to determine: but, as they contain a mucilaginous, or starchy, substance; and as the parts that proceed from them abound in a similar kind of mucilaginous matter, and have all the delicacy of texture mentioned; and as I have observed that the onion, while kept out of the ground, germinates, and continues to grow till it has reduced the bulb to a congeries of withered coats; that the *Scilla*, in a similar situation, will even flower; and that the

tubers of the potato put out shoots, and nourish them for some time; I think it may be admitted, that not only solid bulbs, but also those that are scaly and tuberous, are intended to nourish the plant with their substance.

Fig. 73. is a fac-simile of the engraving given by Dr. Trinchinetti, to illustrate his pamphlet; and represents a bulb of saffron with two offsets, and a central flower, cut through longitudinally. In this figure, *a a* are the sheaths of the bundles of leaves produced by the two offsets; and *b* the main bundle proceeding from the old bulb, and containing, also, the flower; *c c c* are the vital specks, or germs; *d*, the starchy milk-white matter which forms the solid part of the bulb, and which is deposited by the leaves of the offsets on their germs, and taken up in the old bulb for the support of the leaves and flowers; *e* is a kind of thread, which serves for the conveyance of the starchy matter between the germ and the leaves; *f* is the central point in the old bulb, connected by fibres with the germs of the principal stem and offsets, whence the circumferential roots (*g g*) have their origin; and *h h* are the fusiform roots sent down by the offsets.

Art. IV. *Notice of a Sketch of an Arrangement of the Botanical Families in Natural Groups, Alliances, and Races; with Remarks* by Sir Edward Ffrench Bromhead, Bart., F.R.S.; London and Edinburgh; published in the *Edinburgh New Philosophical Journal* for April, 1836. By J. D.

Sir E. F. Bromhead views botany as now in a state of interregnum; and his treatise may be considered as a new form of government, which he has proposed for the regulation of it. Dr. Lindley has already published one, which is noticed in p. 37—49.; and Dr. Von Martius has published another.

Sir E. F. Bromhead's description of the nature of his arrangement is brief, and not explicit; he, perhaps, purposing it for the attention of proficients rather than students, to the former of whom much description and explication might be deemed needless. To oneself, in the capacity of student, the following seem to be, at least some of, the characteristic points of it. First, as to definitions of principles: of these he has twelve, of which it may be sufficient, to give some notion of the author's scheme of arrangement, to supply explanation of the following:—"Families having any similarity of structure are, in that respect, said to have a relation." This seems to be, perhaps, something more than the relation of analogy. (See Lindley's *Key*, § 560.) The term families seems used as an equivalent for the terms orders and suborders, the latter taken either separately or together. "Related families lying in the same neighbourhood are said to have

an affinity." It appears from his remarks, that neighbourhood is constituted by the condition of a continuous connexion of relation of one species of plant, or group of species of plants, with others. "A group is a collection of families having an affinity." Sir E. F. Bromhead's group seems identical in rank with Dr. Lindley's alliance. (See *Gard. Mag.*, p. 37.) "An alliance consists of a circulating series of groups." The alliance of Sir E. F. Bromhead seems to be identical in rank with the group of Dr. Lindley. "The two great botanical divisions are named the chenopodeous and thymelæous races." It may here be a fit place to state, that, in the scheme of arrangement presented, the natural families (orders and suborders, but mainly the former) are assorted upon two opposite pages, each family under the race, the alliance, and the group to which it is deemed to belong; and, if one has understood right, each family, group, and alliance in such a position in its own race as to indicate its deemed affinity, and each so opposite to a family, group, or alliance, in the opposite, as to indicate its deemed relation, not affinity, to that family, group, or alliance. There are two other definitions which one would regard as meant in further explanation of this part of the scheme; if one could but understand them; namely, these: — "The groups and alliances of the two races, in the same numerical order from the initial group, are said to be parallel." "Successions of groups related to other successions, direct or reversed, in the same or separate races, are said to correspond."

The following matter, quoted, with a slight degree of adaptation, from the work in question, may contribute something to elucidate the foregoing; and, if it do not, may serve, with the foregoing, to have the not useless effect of showing the reader something of the nature of ideally grouping species of plants according to the measure of similarity in their structure, which is what is attempted to be done in what is called natural classification; or, at least, the difficulty of doing this. In the series of families, groups, and alliances that are related by affinity (that is, under each race taken separately, as one understands it), all the adjoining families, or groups, or alliances, whichever one be taken, are related to each other: the parallel series is in a great measure limited to the families, or groups, or alliances, parallel, without strikingly extending to the contiguous families, groups, or alliances. A great source of error has been the endeavour to force together all the families which show relation: our course, on the contrary, should be to form groups of families continuously connected, throwing aside those which do not easily come in succession, for future enquiry, as being probably parallel, or of accidental resemblance. The families so thrown aside will often most unexpectedly form themselves into natural groups, after

cumbering many other series. There is a general tendency in the groups to form themselves into a reentering, or fusiform, series: the same tendency is shown in sets of groups. This causes the greatest difficulty in arrangement; as families which at first appear adjoining, may form the terminating points of the group: when two corresponding groups lie near, the combined effect of relation and affinity is most embarrassing.

There is, indeed, much difficulty in the formation of natural groups; and a still greater difficulty in the arrangement of these groups with reference to each other. We cannot call a scheme satisfactory, until the maximum of allied families is brought together, nor until each family is placed between two others to which it is more nearly related than to any other. The true natural scheme remains to be collected by induction, from a comparison of the arrangement of species in genera, genera in families, and families in groups, alliances, and races. The materials for judging of these affinities are more numerous than we could have expected; Sir E. F. Bromhead has enumerated these, or some of them.

Sir E. F. Bromhead has stated that the object which he has had in view, in forming his sketch of an arrangement, has not been to follow his own judgment, or that of any writer whatsoever; but to bring together the greatest possible number of admitted affinities, and, if possible, in continuous succession. He considers his sketch as one for future correction, in which certain families and groups may have their places changed; but that the whole may present something like a fixed basis to work upon, and definite tangible limits of enquiry. He has not characterised any of the races, alliances, or groups that he has formed; and deems it premature to do so, until some outline of arrangement has been recognised by botanists. His sentiment is, that "Analysis should precede synthesis, and definition follow knowledge."

ART. V. *A few Facts illustrative of the Cause of Canker, and other Diseases, in Fruit Trees.* By Mr. T. RIVERS, jun.

A FEW facts in the culture of fruit trees have caught my notice, which may perhaps serve in some way to elucidate the cause of canker and disease in those useful occupants of our gardens. The green chisel pear tree, in our soils, is particularly subject to canker, every shoot dying half-way down the season after being produced; this taking place alike in wet and dry, warm and cold, seasons, and, consequently, the trees, in the course of a few years, getting to be a confused mass of cankered and dead branches, full of moss and disease. Latterly, I have observed

all these diseased trees attacked by a grub, which has perforated the stem in every direction, making channels large enough to admit the finger (as you will see by the part of a branch sent for inspection); from which, in the summer, extravasated sap exudes, on which wasps and hornets delight to feed. In two or three years after being attacked, the trees, if left to the devastations of the grub, will assuredly die. I have for several years observed the wonderful effects produced by grafting some of the new Belgic pears on unhealthy trees, of tender sorts, in transforming them at once into health and productiveness; and this induced me to try the experiment on those trees which were being devoured alive. I calculated that, if, by some analogous change, the sap could be made healthy, it would also make it unpalatable to these worms of corruption.

It is now perhaps three or four years since I commenced operations, by grafting on diseased and half-devoured green chisel pear trees, the glout morceau; the autumn, or Williams's, bon chrétien; Marie Louise, passe Colmar, and other good hardy sorts, and the effect is beyond measure surprising. Trees that *must* have died in two or three years are now full of health and vigour, and are covered with bloom buds; not a speck of canker or disease is to be seen, and in two years from grafting the grubs left the trees; the sap having become either too abundant, or too healthy, for their appetites.

The difficulty is to ascertain, before grafting, what sort of Flemish pear will suit the soil; for often, after two or three years of deceitful vigour, the graft, if the sort is not hardy enough, will become diseased, and disappoint all expectations. Therefore, before decapitating the old pear trees, advice should be asked on this score; and I believe that any practical man of observation can at once say what sort will flourish, if you tell him the substratum; though it really seems that many of the Belgian pears will grow and bear in any soil and situation, at least in this southern part of England.

I am aware that I am advancing no novelty in what follows; but this sudden change from disease and death to health and vigour is quite worth a moment's consideration, either from the physiologist, or the commercially interested fruit-grower. By giving a tree shoots hardy enough to stand against our cold and moist climate, you give it the only proper and effectual organs of respiration and elaboration; and the consequences are, continued health and productiveness. It is interesting to observe the total reverse of this, if some of the old and tender sorts of apples and pears are allowed to grow, and "have their way," alongside trees grafted with hardy varieties. The shoots of the tender sorts, even the winter after being produced, generally begin to canker and decay: the sap, in spring, losing its proper

and healthy channels, forces out at the bases of these cankered shoots others that, in summer, are strong and luxuriant, but which again, in like manner, in the following winter, canker and die. The juices of the plants, from not being properly elaborated, become diseased, and food fit only to nourish those animals that seem created to feast on decay; while the whole tree becomes a confused mass of dead and dying branches. From close observation of the effect of these last two or three favourable warm summers, I cannot think this altogether produced by the climate, but that it arises from some inexplicable effect proceeding from the variation of soils; for, in situations which, as far as regards climate, are more moist and cold than any in this part of England, I have seen sorts that canker here flourish without spot or blemish. I am, however, almost equally at a loss when I impute it to unfavourable soils, as we have here a most remarkable variation in soils, from a dark strong clay, to a rich friable stratum of loam, 10 ft. in thickness, resting on a substratum of dry sand; *apparently* the most favourable combination possible for fruit trees: and yet, even here, some of the old varieties of pears, such as crassane, brown beurré, Colmar, &c., in five years from the graft, canker, and seldom show a fruit-spur; but graft these cankered trees with new and hardy sorts, and fruitfulness and health will immediately take the places of disease and death.

The grand point in fruit culture is, to have sorts producing shoots that do not die at the extremities; they will then furnish leaves enough for all the offices of nature. This is no new doctrine, as we have been often told the *effect* of fruit trees in producing tender shoots; but the *cause* is still worth enquiring into: for I well know that it has often, and with apparent justice, been attributed to cold seasons and wet soils; though I know equally well that it occurs in seasons and soils quite the reverse. How, then, shall we account for the circulating fluids being so inimical to health in some varieties of fruit, and not in others? I can also assert, from experience, that sorts of fruit recently obtained from seeds are not by any means all exempt from canker; for several seedling apples and pears (perhaps the average may be one in a hundred) I have found equally or even more tender than our old varieties: I have grafted these tender striplings with robust sorts, and have at once changed their nature. This is interesting, and, to a reflective mind (it must not be overburthened with the cares of a nursery), offers a vast field of enquiry. I must conclude with one recommendation: let the fruit amateur or orchardist, the instant he finds a fruit tree making shoots it cannot support, either root it up, and plant it afresh; or graft it with some robust and productive variety.

Sawbridgeworth Nursery, Herts, April 20. 1836.

ART. VI. *Some Account, and partly in Sequel to the foregoing Communication, of Four Species of Insect that feed, while in the Larva State, upon the Wood of Trees.* By JOHN DENSON, junior.

THE log of pear tree wood which Mr. Rivers has supplied is perforated with many channels, various in direction, most of them in figure comparable, but perhaps not aptly, to a compressed cylinder, and of size about from ½ in. to 1 in. wide one way, and about ½ in. wide another. The wood is dead, dry, and hard, and the channels seem as if they had been formed a good while. Their great size led me to think that they must have been formed by the goat moth (*Cóssus* Lignipérda *Fabricius*) in the larva state, when, I believe, it is larger than any of those species of insects, when in the same state, which occur in Britain, that are known to feed, in this state, upon the wood of trees. The subsequent acquisition, from Mr. Rivers, of two living insects in the larva state of the species that has perforated the wood of the pear trees has induced me to be of opinion that the species is not the goat moth, but, perhaps, the smaller stag beetle (*Dórcus* parallelopípedus *Stephens*), of which an account will be found below.

Most of the following matter was prepared previously to the acquisition of the living insects from Mr. Rivers; and I wish to advertise the reader of a sentiment that pervaded me while engaged in the preparation of it, that it may account to him for any seeming pedantry or formality that I suppose may be found in the manner of the matter. The sentiment was, the desire to show my younger brother-gardeners something of a specimen of the manner in which the history of insects should be investigated and stated, and this as a contribution to the end, which I hold to be greatly desirable, namely, that brother-gardeners should cease to present their ideas, whether facts or conceptions, on insects, in the vague manner in which they have been too wont to do.

Some preliminary remarks on insects in general. — The following considerations, trite though they may be to many, may be useful to those to whom they are not trite.

The successive generations of every species of insect proceed from eggs borne by female parents, of that species; and the eggs are brought forth, in most species, in an unhatched state: in some species they are hatched into larvas (*larvæ*) or pupas (*pupæ*) before they are brought forth. Means for an abundant multiplication of the individuals of insects obtain in the great number of eggs which insects bear, and in their instinctive habit of depositing them, or the larvas and pupas brought forth from them, in places suitable for the sustenance and welfare of their young.

Insects are remarkable for the amount of their numerical increase; and the following statements, taken from Kirby and Spence's *Introduction to Entomology*, ed. 1826, may serve to give definiteness to thought on this point. "The fertility of insects far exceeds that of birds, and is surpassed only by that of fishes (the sturgeon is said to lay 1,500,000 eggs, and the cod-fish 9,000,000). But the number of eggs laid by different species, sometimes even of the same natural family, is extremely various. Thus, the species whose egg is hatched to a pupa before it is brought forth may be regarded as producing only a simple egg: *Músca* meridiàna *L.*, a common fly, lays 2; other flies, 6 or 8; the flea, 12; the burying beetle (Necróphorus vespíllo), 30; May flies (Trichóptera *K.*), under 100; the silkworm moth, about 500; the great goat moth (*Cóssus* Lignipérda), 1000; the tiger moth (Callimórpha Càja), 1600; some Cócci, 2000, others 4000; the wasp, at least 30,000; the queen bee varies considerably in the number of eggs that she produces in one season: in some cases it may amount to 40,000 or 50,000, or more," &c. (iii. 89.)

The states through which insects pass are four: the egg; the larva (caterpillar, grub, and maggot, are names for particular kinds of larva); the pupa

(a chrysalis is a pupa of a golden colour); and the imago, or fully developed state.

Insects produce some interference with the pecuniary interests of man in the amount of food that they consume: it is in the larva state that they eat most. It is in the imago state only that they are capable of reproducing their kind. It seems, from the *Magazine of Natural History*, vol. vii. 246, 247., that extreme cold does not destroy the life in insects' eggs or pupas, but that it may destroy the immature larvas.

A description and history of a species of insect, to be complete, should include an account of its person, and of the circumstances attending it, in each of its four states. This must be, in many cases, an almost unattainable object; but it is not the less desirable or necessary for the end of completeness; and the greatest approximation to it that can be made should be made.

Cóssus Lignipe'rda *Fabricius: fig.* 74.; *a*, larva; *b*, cocoon; *c*, pupa; *d*, imago. *The Goat Moth, the Great Goat Moth.*

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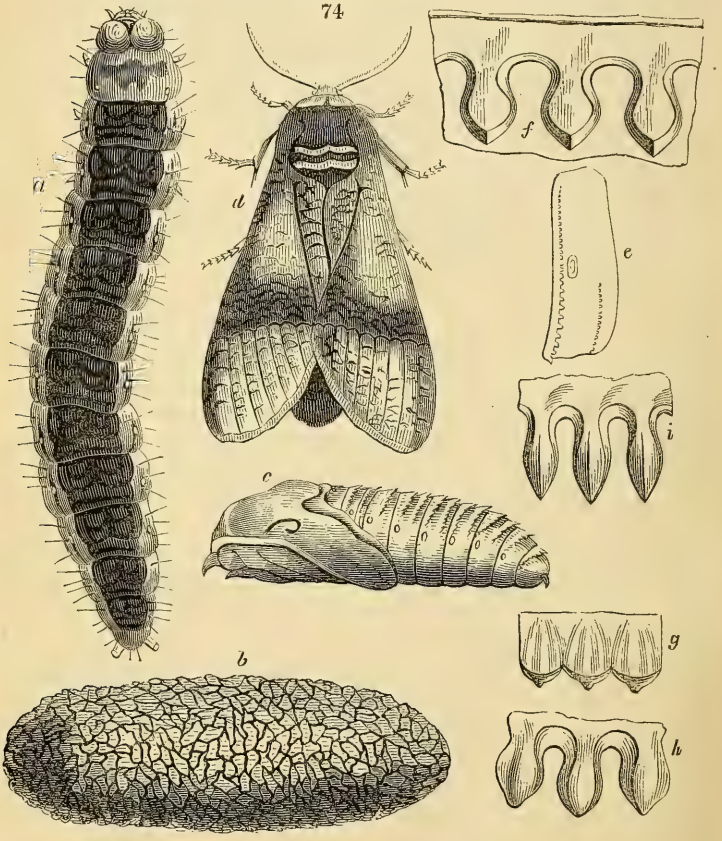


Classification. Linnæan order, Lepidóptera; section, Noctúrna *Latreille.* Natural order in Newman's system, Cossites: in *Ent. Mag.*, vol. ii. p. 383.

Etymology. *Cóssus*: possibly from the same source as *cossum*, a virulent ulcer of the nose: in relation to the insect's offensive odour. Lignipérda, from *lignum*, wood, and *perdo*, to destroy; in expression of its

consumption of wood, or, perhaps, of its unfitting of wood for timber by its erosions. Goat Moth is in expression of a strong odour, like that of a goat, which is very obvious in the larva and imago, and, perhaps, is founded in the juices of the animal; and, if so, it is likely that it obtains in the pupa, and even in the egg

Facts on the person and habits of the species under its four states: —

Egg. It has been quoted above, that the species lays 1000 eggs: it is meant that an individual female, at a single course of laying, lays this number. It is stated, that the imago appears in the end of June and beginning of July; it is usual with the female of this species to deposit eggs soon after coming forth as an imago; so that a clew is hence supplied as to about the time at which the eggs are laid. The eggs are small for the size of the imago.

Larva. (*fig.* 74. *a.*) Dull yellow, with a brown-red back; yellowish underneath; head black, with eight breathing-holes on each side. (Ren. *Conspect.*) The body of the larva is sprinkled with slender hairs. The larvæ "which feed on the wood of the oak are paler in colour than those which feed upon the willow." (*Standish*, in Sam. *Ent. Comp.*) When is the larva hatched? The larva sometimes exceeds in size *fig.* 74. *a*; the species is stated to continue three years in the state of larva; the smallness of the egg, as compared with the largeness of the larva, would strengthen this idea, and prepare us to perceive that it would be likely to effect an extensive consumption of wood in the progress of its growth. The larva diffuses a strong scent, like that of a goat, by which its place of residence may be discovered to persons passing trees that are much infested by the larvæ. (*Samouelle.*) The green woodpecker preys on the larva; and its stomach, on dissection, is sometimes almost intolerable from the stench of it: see Mr. Robertson's statement farther on. The kinds of tree upon whose wood the larva has been known to feed in Britain are, willows of the species *S*àlix álba and càprea, alder, oak, ash, walnut, aspen, and poplar. Mr. P. J. Brown has communicated, in the *Mag. of Nat. Hist.*, vol. viii. p. 559., from Meisner, that it, in Switzerland, is "every where sufficiently common," and that "the larva is found in willow, oak, beech, lime, ash, apple, and plum trees; not only in decayed, but in healthy ones also." Mr. E. Murphy has found (Paxton and Harrison's *Horticultural Register*, and this Magazine, vol. vii. p. 604.) that, of common alder (*A*lnus glutinòsa) and round-leafed willow (*S*àlix càprea), ten trees growing in low moist situations were infested, for one in a situation of an opposite nature; and has conjectured that, possibly, the great quantity of water absorbed by the trees in the former situation may render its wood more palatable: and he has submitted, as more probable, that the soft wood of such trees being more porous than those growing on high and dry ground, it offers less opposition to the larva's progress.

Facts on the species, as learned from a larva artificially secured: communicated by Mr. J. Robertson, nurseryman, Kilkenny: —

Early in March, 1831, a caterpillar of the goat moth (*C*óssus Lignipérda) was brought to me, about 3 in. long, by $1\frac{1}{4}$ in. in circumference. It had been found embedded in the plank of an oak recently cut down, and excited much surprise, as no aperture was discovered by which it could have made its entrance. It being enclosed in a phial about $2\frac{1}{2}$ in. in diameter, I procured as much sawdust from the tree it was found in as covered it between 2 in. and 3 in., in expectation that it might feed on it, and then laid it aside. The caterpillar appeared restless for some days, but then immerged itself completely in the sawdust, and lay apparently coiled up and quiescent at the bottom of the phial. After some time, reflecting that, should it effect its change, in that situation, from the chrysalis to the imago state, it might be encumbered by the loose sawdust under which it lay buried, I examined it with the intention of removing a portion of the dust from above it, and was surprised to find the whole interwoven firmly together by fine silken threads, having an aperture over the chrysalis, which state it had entered into, forming a tube about the diameter of a pencil-case, leading from the chrysalis to the surface. The interwoven mass was unconnected with the sides of the phial, but the chrysalis appeared attached to it.

It lay dormant in this condition until the beginning of June, when I found that it had burst its cerements, and was changed into a large moth of about 1 in. in length, of an ash colour, with clouded wings. It was seated on the top of the sawdust, and occupied in laying a number of small scaly eggs connected in strings, or bunches. The tube was filled with the shell of the chrysalis, which it left behind in its passage. The moth continued alive for about three weeks longer, apparently motionless and inanimate unless disturbed, when it showed signs of life; and, though I opened the mouth of the phial to set it at liberty, it did not avail itself of the opportunity; whether through weakness or choice I know not. On opening the phial, such a putrid stench, resembling the ordure of mice, filled the apartment, that, though I immediately removed it, it was for some days an annoyance.

I think a moment's consideration may show us that Divine Wisdom has endowed this animal not only with instinct, but with a degree of rationality which enabled it to foresee, under the novel circumstances amongst which it was placed, the imminent dangers which awaited it on its transition to a future state, and to take such precautions as would most effectually secure it against them. Instinct alone is ever blind and undeviating, and reason only can accommodate itself to emergencies as they arise. — *J. Robertson. Kilkenny, October* 2. 1831.

It is an instinctive habit of the species to do, under ordinary circumstances, as this individual did under extraordinary ones.

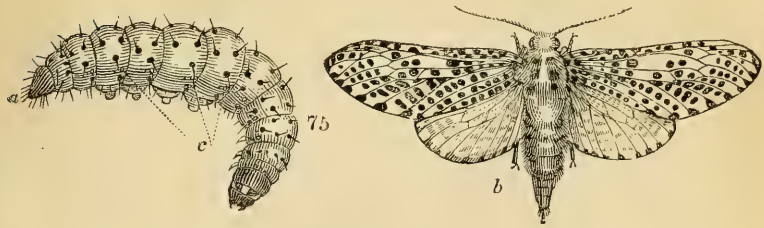
Pupa (*fig.* 74. *c*) brown; the hinder edge of its abdominal segments bearing prickles directed backwards. Before the larva becomes a pupa it spins a strong web, intermixed with particles of wood, which constitutes its cocoon (*fig.* 74. *b*), within which it becomes a pupa: it is stated to become one in May. In species of insect whose pupæ "are enclosed in trees, and spin a cocoon," the pupæ are furnished with points on the head, with which they make an opening in the cocoon, provisionally to their progressing to light and air, wherein they are to exist under the changed form of imago. The spines upon the abdominal segments of the pupa have been interpreted to subserve to the same end, as their direction admits progression, and hinders retrogression. (Kirby and Spence, *Int.*; and G. H. in *Magazine of Natural History*, vol. ii. p. 210.)

Fig. 74. *e*, *f*, *g*, *h*, *i*, are representations, magnified, of the spines upon certain of the abdominal segments: *e* represents the 4th abdominal segment, seen laterally; *f*, three of the basal row of teeth; *g*, three of the hinder row of teeth: *h*, three of the basal row of teeth of the 8th abdominal segment; *i*, three of the basal row of teeth of the 9th abdominal segment. The figures are copied from the posthumous work of Lyonnet.

It is proper to state that the larva, in some instances, changes to a pupa deep in the ground. I state this, first, on the authority of Mr. T. Rivers, jun., who has known one to be found in such a situation, enveloped in a cocoon, or covering, formed, I have either understood him or have fancied, partly of soil. Mr. Rivers remarked its powerful and peculiar odour; and this identifies the insect as the *Cóssus* Lignipérda. Secondly, on the fact of my having seen a very large (perhaps more than one) larva, that, from its size, must have been full grown, or nearly so, walking on the surface of the ground in hot sunny weather. It is not probable that it was roaming in quest of a fresh tree as an object of food; and, if a tree to undergo its change to a pupa in was the object sought, it seems needless that it should have left the tree in which it had gone through its course of feeding.

Imago. (*fig.* 74. *d.*) Wings of the male $2\frac{5}{10}$ in. to $3\frac{1}{4}$ in.; of the female, $3\frac{1}{2}$ in. to $3\frac{3}{4}$: clouded with grey and brown, and having numerous slanting black streaks; corselet whitish, with a posterior black band. (Rennie's *Conspectus.*) Mr. Robertson has briefly described it above. It appears in the end of June and beginning of July. It flies by night, as is implied by the sectional name Noctúrna (*Insécta* is the word understood).

ZEUZE`RA Æ'SCULI *Latreille: fig.* 75.; *a*, the larva; *b*, the imago, male.
The Wood Leopard Moth.



Classification. Linnæan order, Lepidóptera; section, Noctúrna *Latreille.* Natural order in Newman's system, Cossìtes: in *Ent. Mag.*, ii. p. 383.

Etymology. Zeuzèra: I have not been able to discover the meaning of this. Æ'sculi is in expression of the fact that the species feeds upon the wood of the *Æ'sculus* Hippocástanum, or horsechestnut tree, although this is but one of several sorts of trees upon which it feeds: see below. Wood Leopard Moth, a kind of moth that is spotted like a leopard, and passes its larva and pupa state in wood.

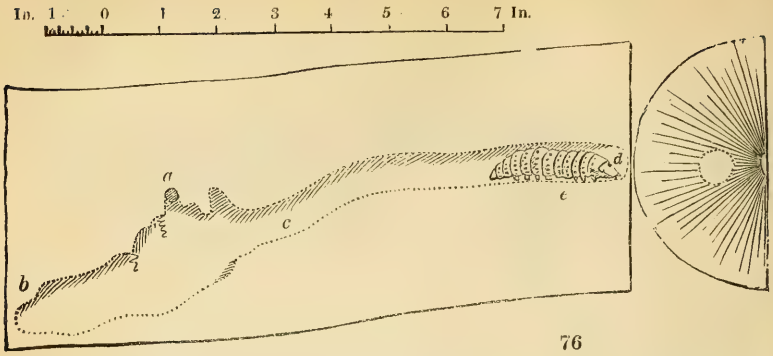
The following information on the person and habits of this species is compiled chiefly from contributions to the *Magazine of Natural History*, by Andrew Mathews (vol. ii. p. 66, 67.); G. H. (vol. ii. p. 210.); and D. G. Kerridge, Ipswich (vol. ii. p. 291, 292.); and from Rennie's *Conspectus of Moths and Butterflies.*

Egg. The female moth lays her eggs upon the body of the tree, during July or August.

Larva. *Fig.* 75. *a* represents a larva of the natural size; but whether or not the size was that of completed growth is not stated: *c*, three of the spiracles, or breathing-holes. *e* in *fig.* 76. is rather for a diagram to exhibit the position of the larva, under circumstances to be soon explained, than the larva in its personal characteristics. The larva is of a deep yellow, dotted with black, and has a black head and tail: it is furnished with powerful jaws. The larva, on being hatched, feeds upon the bark of the tree, but shortly after penetrates the solid wood. The following particulars on one are published in the *Magazine of Natural History*, vol. ii. p. 66, 67., contributed by Mr. A. Mathews, now a travelling collector of natural objects in South America:—

"On May 10. 1828, I observed, whilst examining the trunk of a pear tree in my garden, at between 4 ft. and 5 ft. from the ground, a substance resembling decayed sawdust, apparently protruding from beneath the bark, of about the size of a small pea. Upon removal, I found that the bark had been perforated by some insect; and, on removing some of the bark, I was enabled to trace the course taken by the insect, which may be better explained by the assistance of the annexed sketch. (*fig.* 76.) The insect, upon entering the bark at *a*, appeared to have taken a downward direction, as the cavity was not more than an eighth of an inch sunk into the wood till reaching *b*, where it was rather more than three eighths, and partly filled with the excrement of the larva: at *c*, the cavity began gradually to approach towards the centre of the tree, and take a regular shape, and continued at about half an inch in diameter to *d*; the distance from *b* to *d* being 11½ in.: from *d* to the circumference of the tree was 1½ in. When the whole cavity was exposed, the larva appeared as at *e*, with its head upwards."

On the length of time in which Zeuzèra æ'sculi continues in the larva state, I find the following information, which is not conclusive:—G. H. (*Mag. Nat. Hist.*, vol. ii. p. 210.) had, on March 5. 1829, four larvas from a quince tree, two apparently fully grown, and two half-grown; and has concluded, hence,



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that the species is two years in the larva state: he has added, " In this and other respects, size and colour excepted, the larvæ of the wood leopard moth resemble the larvæ of the willow goat" moth (*Cóssus Lignipérda*). The opinions of another contributor to the *Mag. of Nat. Hist.*, D. G. Kerridge, Ipswich, are (vol. ii. p. 290.), that the larva is not hatched before August, and becomes torpid by November; and that in this short time it cannot have become fully grown; and that it resumes feeding the following spring, and attains its full growth during the summer.

There are questions on the instincts of the larva, which are so connected with the subject of pupa, that it will be fitter to notice them under this subject.

It is known that the larva has fed in trees of the following kinds: garden pear, garden service, quince, elm, ash (*Mag. Nat. Hist.*, vol. ii. p. 66. 210. 291.); and apple, walnut, lime, horsechestnut, beech, birch, oak. (Rennie's *Conspectus of Moths and Butterflies.*)

Pupa. The larva changes to the pupa in the tree, just beneath the bark, within a thin web which it had spun. The pupa is of a pale brown colour: it has a row of sharp short spines, directed backwards, upon each of its abdominal segments. When the insect is about to change out of the pupa state into the imago one, the pupa forces its way out, by a channel, to the circumference, or nearly to it, that it had produced previously to its undergoing the change from larva to pupa, by alternately contracting and lengthening itself, and by the spines on its abdominal segments catching against the sides of the channel; and it is able to push hard enough to break away the bark to a sufficient extent to admit the exit of itself in the imago state. From what is stated in the *Mag. of Nat. Hist.*, vol. ii. p. 290., it is possible that a month and a few days is the term of time that the insect continues in the pupa state. Mr. Mathews has communicated in his account, that he accidentally let the chisel slip against the side of the larva that is the theme of that account; and that " the wound, though but slight at first, was sufficient to cause its death after it had changed to a pupa."

There are two questions on the instincts of the larva, which a consideration of the conditions of the pupa may so much tend to make clear, that it will be better to propose them under this head. The pupa is not capable of gnawing wood; and, in the instance of the species under consideration, and some other species, is not capable of retrograding along the channel that the larva has gnawed, in consequence of the abdominal segments each bearing a row of sharp short spines, that, on contact with the wall of the channel, would prevent regression. The imago is not capable of gnawing wood, its mouth being of the sucker-like kind, and called in entomology an antlia. It is opposed to likeliness, that a larva should turn round in a channel that it has but gnawed of dimensions sufficient to admit its own progress; and it is opposed to entomological rule, that an imago should come forth from the posterior end of a

pupa: it follows from all these conditions, that a larva must either gnaw to the surface, or very nearly to it; or that no imago can come forth to the light and air from the larva. It is found that larvæ do this; and the questions on their instincts with which one may, consequently, instruct oneself, are: How does the larva, when in a tree of considerable diameter, discover the direction of the circumference? and how can it lengthen, as would seem to be necessary on some occasions, the natural period of its course of eating?

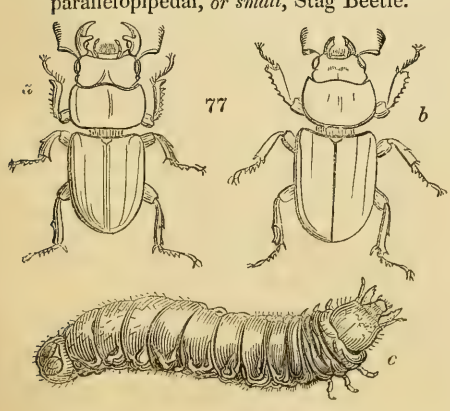
Mr. Mathews, in the communication cited above, has enquired whether the larva undergoes its changes in the tree, and in what manner the imago extricates itself: he has added, "It appeared to me that the cavity at and near the entrance (*a*) (in *fig.* 76.) was much too small for the exit of the insect in either the larva or imago state." On this matter the following remarks were subsequently contributed, and have not been previously published.

"Lepidopterous insects [which are also antliate ones] whose larvæ feed on timber, had they no means of extrication after their metamorphosis except through the original small aperture, must remain captive till they died. When the larva has approached maturity, it will weaken the bark; and sometimes perforate it, filling up the outlet with dung, or some temporary door. Even mandibulate insects [those that, in the imago state, have mandibles to prehend and divide their food with] are, in their pupa state, generally found near the surface of the bodies which have supported them; though, under particular circumstances, they have been known to eat their way to liberty through a sheet of lead." — [*Lansdown Guilding. St. Vincent, May* 1. 1830.]

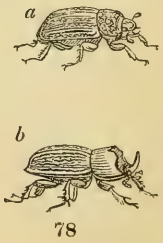
The author of the preceding paragraph, except the parts of it that are enclosed in crotchets, was a distinguished naturalist. It is pleasing to learn, on such valid authority, that some insects in the larva state have the wonderful instinct to make provision for their convenience in the imago one. The idea of the larva filling the outlet with dung, appears to me objectionable; and, as one may assume, that it could only obtain this material from behind itself, either this idea, or my previously expressed one, that a larva cannot turn round in the channel it has gnawed, must be given up.

Imago. (*fig.* 75. *b.*) Wings of the male, $2\frac{1}{16}$ in.; of the female, $2\frac{2}{3}$ in. to $2\frac{5}{16}$ in.; somewhat naked, and translucent; snow white, with the veins and upper edge yellowish; thickly scattered over with numerous bluish black spots. Spots upon the second pair of wings fainter; fewer, except on the margins; none at the inner angle. Thorax white, except 12 black spots. It appears in July, and lays its eggs during July or August. It is rather rare. (Chiefly Rennie's *Conspectus.*)

Do'rcus parallelopi'pedus Stephens: fig. 77.; *a*, male; *b*, female; *c*, larva. The parallelopipedal, *or small*, Stag Beetle.



Sinode'ndron cyli'ndricum *Fabricius: fig.* 78.; *a*, female; *b*, male. The *sub*-cylindrical Sinodendrum.



Classification. Linnæan order, Coleóptera. Groups of other systematists: Mandibulàta, Pentámera, *M*elolónthidæ *Leach*. Natural order in Newman's system; *L*ucanites in the *Entomological Magazine*, vol. ii. p. 416.

Etymology. *D*órcus is derived from *dorkos*, a stag: the mandibles of the male have a similarity to the antlers of a stag: the name Stag Beetle includes the same idea. Parallelopípedus, one may suppose, implies that the imago's form is that of a parallelopiped.

Sinodéndron is from *sinō*, to injure, and *dendron*, a tree; in expression of the supposed case that this S. cylíndricum preys upon healthy trees, to the injury of them. Cylíndricum, in expression of the form of the imago.

Facts on the Habits of the Larva and Imago of D*órcus parallelopípedus, and of those of Sinodéndron cylíndricum.* The Rev. W. T. Bree, M. A., Allesley Rectory, near Coventry, Warwickshire, has, in a contribution of his to the *Magazine of Natural History*, published in vol. vi. p. 327—335. of that work, communicated information to the following amount on this subject:—A living aged ash tree, standing on his premises, was blown down on Dec. 3. 1832. Its trunk, for about 18 ft. up from the part that had been level with the ground, was hollow and decayed at the centre, and afforded some twenty or thirty good barrow-loads of rotten wood. Throughout this carious portion of the tree there occurred numerous individuals, both larvas and imagoes, of the *D*órcus parallelopípedus, and of its usual associate, Sinodéndron cylíndricum; but not a single pupa was discovered: they had perforated it in all directions. Many were found pursuing their occupations in the decayed timber at the distance of 18 ft. from the ground; "to which height they must have worked their way from the bottom." *D*órcus parallelopípedus and Sinodéndron cylíndricum are usual inhabitants of the interior of decayed ash trees, dwelling together promiscuously, and, as it seems, in perfect harmony. Mr. Bree was satisfied that they do not commit any "injury on the living or sound wood; attacking such only as they find far gone in a state of decay."

*D*órcus parallelopípedus.

Egg. Not any fact is in possession, or within reach, for adducing in relation to the egg.

Larva. (*fig.* 77. *c.*) Information on the larva is given above, under "*Facts*," &c. Mr. Bree has communicated farther, that "The larva of the *D*órcus, it strikes me, is very large in proportion to the beetle which is produced from it; being nearly equal in size to the cockchafer grub, which it very much resembles, except that, instead of being, like that, of a cream colour, it is rather of a bluer white." I suppose that the two insects in the larva state, which Mr. Rivers has supplied, may be of this species, but I doubt about it. I conclude that they were not of the *C*óssus Lignipérda, because not any of the kind of odour so notable in this species escaped from them. To the species of which they are, whatever this is, and to the history of the larva state of it, belong facts to be found stated in Mr. Rivers's communication and those which I have stated in p. 463., on the condition of the log of pear tree wood. The only conclusive means of discovering the species is, by ascertaining the characteristics of the imago that is developed from the larva: both the living larvas that Mr. Rivers had supplied have escaped. Each of them was a little longer and stouter than the figure *c*; but that figure was delineated from a dead individual, sent to the draughtsman in spirits of wine; and, as it is probable that it was put into the spirits when alive, it might contract in the dying; and there is not means of ascertaining that it and the two larvas had been of equal age and growth. If the larvas supplied by Mr. Rivers were of this species, it is right to state that the wood of the log of pear tree wood did not seem "far gone in a state of decay," but dead, dry, and hard.

Pupa. It seems inferable from the "*Facts*," &c., above, that December is not an eligible time in which to seek the pupa.

Imago. (*fig.* 77.; *a*, male; *b*, female.) In the "*Facts*," &c., above, is information on this. It "may be obtained in June and July, in the neighbourhood of willows." (Samouelle's *Entomologist's Useful Compendium.*) It is not

improbable that Mr. Samouelle means that it is then to be found externally to the tree. It was in December that Mr. Bree found imagoes along with larvas, in the decayed wood of the interior of an ash tree. On the authority of Marsham, the species inhabits the wood of ash, willow, and elm. It is stated in Kirby and Spence's *Introduction to Entomology*, of this species in the imago state, that it " will bear almost any weight that passes over it upon the ground; the head and trunk forming a slight angle with the abdomen."

Sinodéndrum cylíndricum.

Egg. Information remains to be acquired.

Larva. There is some information in the " *Facts*," &c., above.

Pupa. It seems from the " *Facts*," &c., above, that the pupa is not occurrent in December.

Imago. (*fig.* 78.; *a*, female; *b*, male.) Information is in the " *Facts*," &c., above: the following is additional: — Some description of the imago's person. — Cylindric, black, shining, impressed-punctate, cicatriculose; the punctures umbilicated; the umbilici perforated. The male with a conic-compressed horn on the head; the female with a short one. Antennæ with a lamellated club, that is not capable of being folded; the lamellæ very short, resembling the teeth of a saw. Maxillæ coriaceous, bilobate. (Samouelle's *Entomologist's Useful Compendium.*)

The haunts and topography of it. It " inhabits old trees, especially the ash. It is very abundant near Cheltenham and Plymouth." (*Id.*)

Mr. Rivers has noticed (p. 461.) *that the Wasp and the Hornet delight to feed upon the Sap of Pear Trees. It is a kindred Fact that the extravasated Sap of dying Elm Trees is, when to be found, appropriated by Insects as Food: thus supplying One of countless Instances of the Truth of the Sentiment that, in Nature, not Anything is wasted.* In the *Magazine of Natural History*, vol. vii. p. 525—530., is an account of flies, hornets, and wasps, as observed feeding upon the extravasated sap of some elm trees. Before the instances given there, of the appropriation, by insects, of the extravasating sap of elms, were published, I received, on Sept. 20. 1834, a notice of another instance of it; this: — The elm tree which has had the branch of another elm tree naturally inarched upon it, has been, this year, a very interesting object to us, by butterflies, hornets, wasps, and green flies feeding on the sap by day; and different moths by night. — *J. D., sen.* See, also, *M. N. H.* vii. 265. 475.

ART. VII. *A Series of Designs for laying out Suburban Gardens and Grounds, from One Perch to several Acres in Extent.* By Mr. T. RUTGER. Design 11. *For laying out a Place of Half an Acre in Extent.* Design 12. *For laying out a Place containing Three Quarters of an Acre.*

THIS design (*fig.* 79.), No. 11. of the series, encloses half an acre. The stable is placed on the right, with a way to it from the main road. The shaded part at the south of the house is intended for a veranda. A small pond for gold and silver fishes

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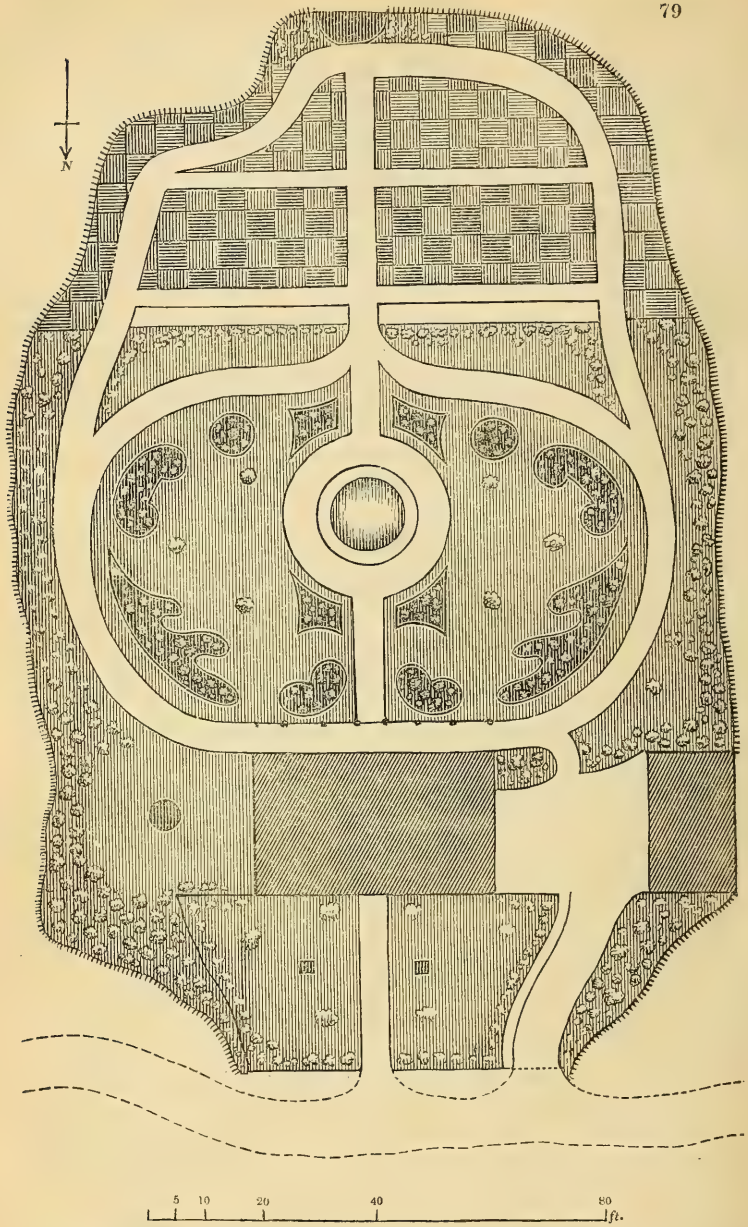

is introduced in the centre of the flower-garden; and at the back of this garden is a wall, to separate it from the kitchen-garden, and also for the purpose of giving the latter a portion

of wall for fruit trees, while the face next the flower-garden (if the wall run from north to south) may serve as a conservative wall. At the extremity of the straight walk is an alcove, or tea-room. The two small squares in front are for articles of embellishment; and the circle on the left of the house may be made use of in the same way.

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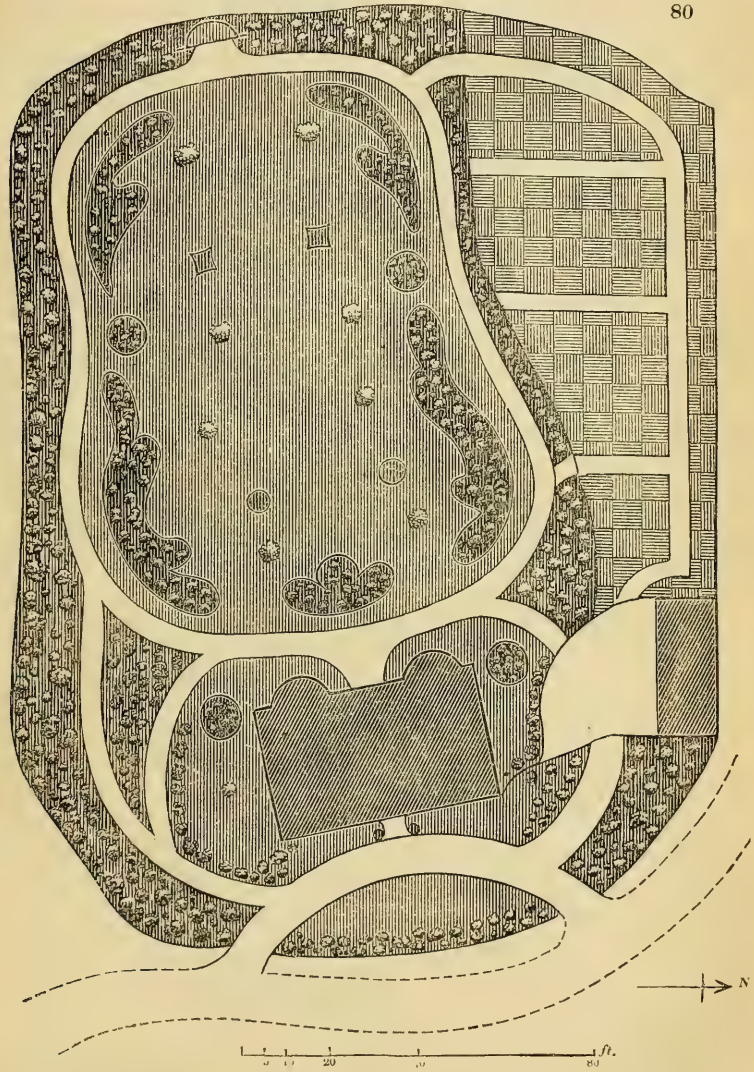


Design No. 12. (*fig.* 80.) About three quarters of an acre is the extent of this enclosure. The stable and its yard stand

on the right, to which an entrance is effected within the premises. A wall is supposed to stand at the back of the kitchen-garden for fruit trees, and an alcove, or reading-room, is placed at the extremity of the lawn in front of the house.

Portland Place, 1835.

ART. VIII. *Plan of a small Garden in the Town of Godalming, Surrey, laid out for H. Marshal, Esq., Solicitor, by Richard Varden, Esq., Architect, in* 1833. Communicated by Mr. VARDEN.

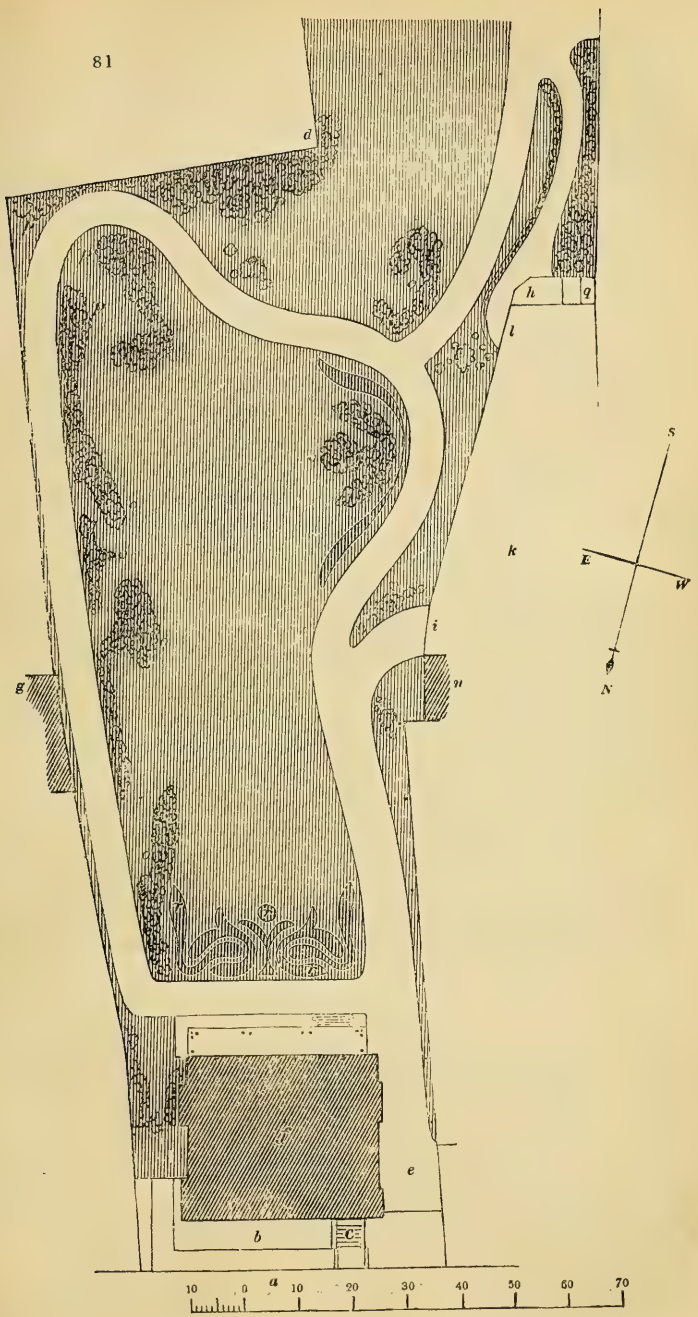
THE front of the house (*fig.* 81.*f*) is close to the street (*a*), and the back is towards the garden, which gradually ascends from it to a paddock, whence the ground rises rather sharply, till it terminates in a steep wooded hill, from the summit of which there is a pleasing view of the town, and of a grassy valley enclosed by steep copse-covered hills, with the river Wey winding through it; the whole terminating with the chalk hills and cliffs of Guildford.

The garden was overrun and shaded by straggling trees of very little beauty, that gave it a damp and cheerless appearance. I had these removed, and the surface of the ground lowered, for the walk to cross the lawn without being seen from the drawing-room windows; the earth was shifted lower down the hill, and formed in such a manner as to give an appearance, when seen from the garden, of the house being on slightly rising ground. This alteration gave the whole surface of the lawn an undulation, that greatly enlarged its apparent extent.

In *fig.* 81. *a* is the street; *b*, the front garden; *c*, the steps to the front door; *e*, the carriage entrance. The house is at *f*, having against it, on the lawn, or south side, a gay-looking red-striped veranda, the stone floor of which is supported on piers so as to admit light to the rooms in the basement, by an area paved with white glazed tiles, and surrounded by sloping rough flint walls, planted with sun roses (helianthemums), and other dwarf rock plants.

The garden, on the east side, as far as *g*, is enclosed by different erections, the outline of which has been formed so as, when covered with creepers, to resemble a part of an extensive old English building. To this point the view is quite confined; but over the wall beyond, which is finished with buttresses and pinnacles, so as to display advantageously the climbing plants covering it, may be seen a part of the steep wooded hills before mentioned.

Between the points *d h* are visible the paddock, and a garden sloping up the hill. *i* is the coach gate into the yard *k*; and *l* is a door for the horse to pass to and from the paddock, without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going along the garden; the path used being enclosed by a thick yew hedge, clipped on the inner, but left rough on the outer, side.

The stable is at *h*; and the end of the building may be covered with passion flowers and trumpet flowers (Passiflòra cærùlea and *Técoma* radìcans), to which may be added *C*aprifòlium japónicum, &c. The wall between this and the street is covered with ivy, and there is a row of good-sized horsechestnut trees to hide the neighbouring buildings. The walls and fences are covered with nearly every kind of creeping plant to be obtained, that will stand the winter without protection. The shrubs are nearly all evergreens, mostly of small growth, and consist of a great many different species. Those of the same colour of foliage are grouped together, in order that each mass may, by its depth or brightness of tone, form a satisfactory contrast with its neighbours. In some places they nearly approximate, but in others the difference of tint is very great: the points *o o* are the lightest, and *p p* the darkest; so that, when viewed from the house, the former will appear to stand strongly out from the latter, and will give (at least, I hope so) the effect of considerable space between.

Wherever it was possible, the walks were hidden, so that the breadth of the lawn, and the repose of the whole scene, might not be disturbed by the sight of much glaring gravel. Thus, the left-hand walk is concealed by the planting, while that across the lawn is sunk out of sight from the drawing-room, and the path to the paddock is marked by a clump of American plants (*q*). The beds marked *r r r* are exclusively devoted to herbaceous flowers and roses. Unfortunately, I have not preserved a list of the shrubs, but they are all evergreen; the common and Portugal laurels being, however, almost excluded: not from their being deficient in beauty, but because their preponderance in gardens is now so great, as to produce a monotonous effect wherever we go; and this I wished to avoid.

Worcester, Sept., 1835.

ART. IX. *On the Systems of cropping Kitchen-Gardens adopted by the best private and commercial Gardeners; with an Attempt to reduce them to fixed Principles.* By W. D. S.

THE subject of cropping the ground in kitchen-gardens embraces the preparation of the soil, the insertion of the seeds or plants, their after-culture, the gathering of the crop, and the system according to which one crop is made to succeed another. As the discussion of all these points, however, would involve the repetition of what is already well known to every gardener, the

article now submitted to the reader, and for which his indulgence is entreated, is limited to what is properly called cropping, or the succession of crops. Crops, in kitchen-gardens, are put in the ground according to three distinct plans, or systems, which may be termed successional cropping, simultaneous cropping, and permanent cropping.

Successional Cropping is that in which the ground is wholly occupied with one crop at one time, to be succeeded by another crop, also wholly of one kind: for example, onions to be followed by winter turnips, or potatoes to be followed by borecole.

Simultaneous Cropping is that in which several crops are all coming forward in the ground at the same time: for example, onions, lettuce, and radishes, sown broadcast; or peas, potatoes, broccoli, and spinach, sown in rows.

Permanent Cropping is where a crop remains on the ground several years; such as sea-kale, rhubarb, asparagus, strawberries, &c.

To these modes might be added, *mixed ligneous and herbaceous cropping;* such as growing herbaceous crops among gooseberries, currants, raspberries, and other fruit shrubs, and among fruit trees. The practice of growing culinary crops among fruit shrubs is, however, nearly exploded in the best gardens; on account of the injury done to the shrubs, when they are young and small, by the roots and shade of the culinary crops; and of the injury done to the culinary crops, when the shrubs are grown up, by the shade and confinement which they produce. For the same reasons, cropping between trees is by no means desirable in small gardens, where the trees must necessarily be at no great distance from each other; but, in the case of very large gardens, such as those of commercial gardeners, where trees are planted in close rows at 20, 30, or 40 yards apart, so as to shelter the ground, the cropping may be carried on in the spaces between the rows of trees, on the principles which regulate successional, simultaneous, or permanent cropping, in ground where there are neither trees nor shrubs.

The object to be attained by a system of cropping is that of procuring the greatest quantity, and the best quality, of the desired kind of produce, at the least possible expense of labour, time, and manure; and, in order that this object may be effectually obtained, there are certain principles which ought to be adopted as guides. The chief of these is to be derived from a knowledge of what specific benefit or injury every culinary plant does to the soil, with reference to any other culinary plant. It ought to be known whether particular plants injure the soil by exhausting it of particular principles; or whether, as has been lately conjectured by De Candolle, and as some think proved,

the soil is rendered unfit for the growth of the same or any allied species, by excretions from the roots of plants; while the same excretions, acting in the way of manure, add to the fitness of the soil for the production of other species. The prevailing opinion, as every one knows, has long been, that plants exhaust the soil, generally, of vegetable food; particularly of that kind of food which is peculiar to the species growing on it for the time being. For example, both potatoes and onions exhaust the soil generally; while the potato deprives it of something which is necessary to insure the reproduction of good crops of potatoes; and the onion of something which is necessary for the reproduction of large crops of onions. According to the theory of De Candolle, both crops exhaust the soil generally, and both render it unfit for the repetition of the particular kind of crop: but this injury, according to his hypothesis, is not effected by depriving the soil of the particular kind of nutriment requisite for the particular kind of species; but by excreting into it substances peculiar to the species with which it has been cropped, which substances render it unfit for having these crops repeated. Both these theories, or rather perhaps hypotheses, are attended with some difficulty in the case of plants which remain a great many years on the same soil; as, for example, perennial-rooted herbaceous plants and trees. The difficulty, however, is got over in both systems: by the first, or old, theory, the annual dropping and decay of the foliage is said to supply at once general nourishment and particular nourishment; and by the second, or new, theory, the same dropping of the leaves, by the general nourishment which it supplies, is said to neutralise the particular excretions. It must be confessed, that it is not very obvious how general nourishment, dropped on the surface of the soil, can neutralise the excrementitious matter deposited many feet beneath the surface; as in the case of long-rooted herbaceous plants, like the saintfoin, lucern, &c.; and deep-rooting trees, such as the oak, &c. Nevertheless, we find that these plants will remain a longer period on the same soil than others, the roots of which never go to any great depth beneath the surface; such as the fibrous-rooted grasses, the strawberry, &c., and the pine and fir tribe. We mention these things to show, that though it is not yet determined which is the true theory, yet that the fact of plants injuring, or diminishing, the fertility of the soil, both generally and particularly, does not admit of a doubt.

In the absence of principles founded on whichever of these hypotheses may be true, recourse is obliged to be had to rules drawn from the experience and observation of those who believe in the old theory. These rules, as adopted by the best gardeners, are as follows:—

Crops of plants belonging to the same natural order or tribe,

or to the natural order and tribe most nearly allied to them, should not follow each other. Thus, turnips should not follow any of the cabbage tribe, sea-kale, or horseradish; nor peas, beans.

Plants which draw their nourishment chiefly from the surface of the soil should not follow each other, but should alternate with those which draw their nourishment in great part from the subsoil. Hence, carrots and beets should not follow each other; nor onions and potatoes.

Plants which draw a great deal of nourishment from the soil should succeed, or be succeeded by, plants which draw less nourishment. Hence, a crop grown for its fruit, such as the pea; or for its roots or bulbs, such as the potato or the onion; should be followed by such as are grown solely for their leaves, such as the common borecole, the celery, the lettuce, &c.

Plants which remain for several years on the soil, such as strawberries, rhubarb, asparagus, &c., should not be succeeded by other plants which remain a long time on the soil, but by crops of short duration; and the soil should be continued under such crops for as long a period as it remained under a permanent crop. Hence, in judiciously cropped gardens, the strawberry compartment is changed every three or four years, till it has gone the circuit of all the compartments; and asparagus beds, sea-kale, &c., are renewed on the same principles.

Plants, the produce of which is collected during summer, should be succeeded by those of which the produce is chiefly gathered in winter or spring. The object of this rule is, to prevent too active and exhausting crops from following each other in succession.

Plants in gardens are sometimes allowed to ripen their seeds; in which case two seed-bearing crops should not follow each other in succession.

These rules, and others of a like kind, apply generally to the three different systems for the succession of crops; and they are independent altogether of other rules or principles which may be drawn from the nature of the plants themselves; such as some requiring an extraordinary proportion of air, light, shade, moisture, &c.: or from the nature of the changes intended to be made on them by cultivation, such as blanching, succulency, magnitude, &c. We shall now notice the different systems separately.

Successional Cropping. — The plants best calculated for this mode of cropping are such as require, during almost every period of their growth, the fullest exposure to the light and air; and as remain, also, a considerable time in the soil: these are, the turnip, the onion, the potato, the beet, the carrot, &c. If any of these crops are raised and brought forward under the

shade of others, they will be materially injured both in quality and quantity; though, at the same time, while they are merely germinating, shade will not injure them. Hence, successional cropping may be carried on in breadths of 20 ft. or 30 ft., between rows of tall-growing articles, without injury; which approximates this manner of cropping to the simultaneous mode, which, wherever the soil is rich, is by far the most profitable.

The simultaneous Mode of Cropping is founded on the principles, that most plants, when germinating, and for some time afterwards, thrive best in the shade; and that tall-growing plants, which require to receive the light on each side, should be sown, or planted, at some distance from each other. Hence, tall-growing peas are sown in rows 10 ft. or 12 ft. apart; and between them are planted rows of the cabbage tribe; and, again, between these are sown rows of spinach, lettuce, or radishes, &c. Hence, also, beans are planted in the same rows with potatoes or with cabbages (an old practice in the cottage-gardens of Scotland); and so on. The great object, in this kind of cropping, is, to have crops on the ground, in different stages of growth; so that, the moment the soil and the surface are released from one crop, another may be in an advanced state, and ready, as it were, to supply its place. For this purpose, whenever one crop is removed, its place ought to be instantly supplied by plants adapted for producing another crop of the proper nature to succeed it. For example, where rows of tall marrowfat peas have rows of broccoli between them, then, the moment the peas are removed, a trench for celery may be formed where each row of peas stood; and between the rows of broccoli, in the places where lettuces were produced early in the season, may be sown drills of winter spinach.

Permanent Cropping is the simplest of all modes, and requires no farther explanation than what has been given in treating of the subject of cropping generally.

Of these three modes of cropping, the first is the one best calculated for poor soils, or for gardens where the supply of manure is limited; the second cannot be prosecuted with success, except in soils which are light and extremely rich; and the third cannot be considered as influenced by the soil. It may be proper to observe here, that a system of cropping can be carried to a much higher degree of perfection in a commercial garden, on a large scale, than in a private one; because in the former, whenever one crop is in perfection, it is removed, and sent to market at once; whereas, in a private garden, it is removed by driblets. Hence, in small gardens, where labour and manure are of less consequence than economising the extent of surface, it will often be found desirable to have a small reserve garden, with several frames, pots, and other requisites. As soon

as one plant, or a few plants, of any crop, in a condition for gathering, are removed, the soil should be stirred, and a plant or plants (which should have been some days before potted in preparation) should be turned out of the pot, its fibres being carefully spread out, and water supplied, so as to make it commence growing immediately. The use of potting is to prevent the plant from experiencing the slightest check in its removal; and, in autumn, as is well known, the loss of a single day, by the flagging of a plant, is of the utmost consequence.

A valuable addition to this article would be, a series of the schemes of cropping pursued both by private and commercial gardeners, in all parts of the country: these many of the readers of this Magazine are well able to supply; and they may rest certain that they could hardly render a greater service to their younger professional brethren, than by sending articles on this subject to you for publication. I would particularly beg the attention of your correspondent Mr. Fish to this subject; and also that of Mr. Forsyth, Mr. Errington, Mr. Glendinning, Mr. Cuthill, and other writers, who have already, on various occasions, instructed and delighted the readers of this Magazine.

Hampstead, July, 1836.

ART. X. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Sir William Jackson Hooker, LL.D., &c.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Leguminòsæ, or *Fabàceæ.*

2066. TRIFO'LIUM § Heads of flowers involucred. Leaflets of the involucre connate at the base. [1833
**fucàtum Lindl.* tinted ○ or ?1 ju Pa Y and Bsh California 1834 S black p. Bot. reg.

A pretty annual clover, introduced from California, by Mr. Douglas, which flowered for the first time in July, 1835; but ripened no seeds, and was afterwards lost. "This new species belongs to the curious set of clovers, whose bracts collect into an involucre, like those of an umbelliferous plant: among them, it

is by far the most showy, with its cream-coloured flowers, just blushing where the sun strikes them." (*Bot. Reg.*, Aug.)

Rosàceæ.

5106. CRATÆGUS 12927 tanacetifòlia, Bot. reg. t. 1884.; Arb. brit. p. 823.

Spec. Char., &c. Leaves pinnatifid, pubescent, cuneate at the base; segments linear, serrate with glanded teeth. Bracteas leafy, pectinate, glanded, remaining under the fruit. Fruit solitary, sessile, depressedly spherical, pubescent. Nut with a very thick shell. Leaves pubescent, never smooth, greenish, somewhat canescent, apex with sharp glandular teeth. Stipules semi-sagittate, serrate. Flowers corymbose, subsessile. Fruit solitary, sessile, yellow, depressed, subpentagynous, supported by foliaceous, glandulously pectinate, persistent bracteas. Nuts or stones 5, bony, with a very thick shell.

"Obviously known from *C.* odoratíssima and orientàlis, both by its yellow, solitary, sessile fruit, to which a small number of leafy bracts adhere irregularly; but also by its regularly pinnatifid leaves, the fine toothings of which are all tipped with a gland." This species is a native of all the higher mountains of Greece; and, according to Sir J. E. Smith, is the *mĕspilŏn* of Dioscorides; "a spinous tree, with leaves like hawthorn, fruit like a little apple, sweet, with three hard seeds." (*Bot. Reg.*, Aug.)

12928 odoratíssima, Bot. reg. t. 1885

Spec. Char., &c. Leavès trifid and pinnatifid, incisely serrate, cuneate at the base, greyly tomentose. Fruit spherical, pubescent, containing 5 stones, whose shells are thin.

Leaves greyly tomentose, afterwards greener, never smooth. Stipules falcate, entire. Peduncles tomentose. Fruit brick-coloured, pubescent, subpentagynous, with 5 bony stones, the shell not very thick.

"A common bush on the hills adjoining the Black Sea, and elsewhere in the Crimea. It is described, by Bieberstein, as growing to the size of the common hawthorn. It differs from *C.* orientàlis [our *C.* o. sanguínea *Arb. Brit.*, p. 828.], not alone in the colour of its fruit, but in its leaves never becoming smooth, in its stipules being small and undivided, and in the stones that enclose the seeds not being particularly thick-sided." (*Bot. Reg.*, Aug.)

The figures of this species and the preceding one are most beautifully executed and coloured; and the specific character and description appear to us drawn up with more than ordinary care and accuracy. We are most happy to see this, because we trust it will tend to spread wide a taste for a genus of ligneous plants which never yet have had justice done to them.

Compósitæ, § *Cichoràceæ*, §§ *Hieracièæ.*

*LASIOPUS *D. Don* (*Lasios*, hairy, and *pous*, a foot; in allusion to the woolly footstalks to its heads of flowers.) [2. s. 340

*sonchòides *D. Don* Sowthistle-like △ or ♃ au.o Y Armenia ? 1834 D co Sw. fl.-gard.

Introduced by Mr. Anderson of the Chelsea Garden, from

Dr. Fischer, of the Petersburg Garden. "The plant has little beauty to recommend it; and, were it not that it constitutes a very interesting addition to a small group of the *C*ichoràceæ, we should hardly have been justified in inserting a figure of it in this work." (*Brit. Fl.-Gard.*, Aug.)

Scrophulariàceæ.

‡1803*a*. APTO'SIMUM *Burch.* (*a*, privative, and *ptōsimos*, deciduous; capsules remaining long after the seeds have fallen out. — *Burchell.*) [Bot. reg. 1882
‡deprèssum *Burch.* depressed-*postured* ♃ ⊔ or prostrate o.d B C.G.H ... ...

A green-house undershrub, raised by Dr. Lehmann of Hamburg; and, though not yet introduced into Britain, it will doubtless be so in the course of the present or the next year. (*Bot. Reg.*, Aug.)

Verbenàceæ.

1749. *V*ERBE'NA *e*rinöides
15654 2 Sabìni D. Don Sabine's ♃m △ or ½ jn.o Chile 1834 C and L co Sw. fl.-gard. 2. s. 347
This is identical with *V.* multifida var. contrácta *Lindl.*, noticed in our Vol. XI. p. 377.

reversed hairs." It is known in gardens under the name of *V*erbèna Sabìni; and "differs from the normal variety of *e*rinöides only by its dwarfer, denser, and more glabrous habit, and rich purple flowers." It is a very general plant throughout Chile, in dry exposed situations, from 7000 ft. to 8000 ft. above the level of the sea, where it is esteemed for its diuretic properties. (*Brit. Fl.-Gard.*, Aug.)

Acanthàceæ.

1734. THUNBE'RG*IA* 15538 alàta
*2 albiflòra *Hook.* white-flowered ♃ □ or 4 my.s W ... ... C p.l Bot. mag. 3512

This variety having a white limb to the corolla, the flower forms a more striking object than that of the species, from the greater contrast of the dark stain in the centre with the lobes of the corolla. It appears to have been raised accidentally from seed, but in what garden we have not heard. (*Bot. Mag.*, Aug.) Though more striking, this variety is not nearly so handsome as the species. Both may be raised on heat, and planted out in the open border during summer.

Primulàceæ.

*450*a*. DOUGLA'S*IA* Lindl.
*nivàlis *Lindl.* snow △ or ¼ ap P Rocky Mountains 1827 S s.p Bot. reg. 1886

This plant was named by Dr. Lindley, "some years ago [*Brande's Journal*, Jan. 1828, p. 383.], in compliment to Mr. Douglas, whose zeal in the collection of seeds and dried specimens of plants, and whose untimely end, have richly earned for him a niche in the long gallery of departed science..... Upon his journey across the Rocky Mountains, in April, 1827, in lat. 52° N., lon. 118° W., at an estimated elevation of 12,000 ft. above the level of the sea, the attention of Mr. Douglas was attracted by a brilliant purple patch amidst the surrounding snow. On approaching it, he was surprised to find that the colour which had arrested his eye was caused by the blossoms of a little plant, from which the superincumbent snow had not yet melted away.

The well-known Saxífraga oppositifòlia immediately occurred to his recollection; and he at first imagined that he had either discovered that species, or one nearly allied to it; but, upon closer inspection, he perceived that it was no Saxífraga, but a genus apparently new." Specimens having been examined by Dr. Lindley, he found it closely akin both to Prímula and Andrósace; but differing from both these genera in its "ovarium, which exhibits the greatest instance of reduction of ovules yet known in the order; and its dispermous capsule, with oblong concave seeds, readily and essentially distinguish it." The plant was raised in the Horticultural Society's Garden, and flowered in 1835, and subsequently in April 1836, from seeds sent home by Mr. Douglas. It grows pretty freely in peat and sand, ripening its seeds sparingly. In the Horticultural Society's Garden, it is kept in the green-house, only two plants of it having been raised; but it is probable that it will thrive better treated like an alpine plant, in a cold-frame. There is a second species, Douglàs*ia* árctica *Hook.*, which was collected by Dr. Richardson on the shores of the Arctic Sea. (*Bot. Reg.*, Aug.)

O*rchidàceæ.*

2540. ONCI'DIUM [Bot. reg. 1887
*Lanceà*num* Lindl. Lance's ɛ [△] or and fra 1⅓ jn.jl V.Y.C Surinam 1834 D p.r.w.

A splendid plant, "than which a more acceptable addition to the hot-houses of this country has seldom been made." It was brought over by John Henry Lance, Esq., in 1834, upon his return to England from Surinam. Dr. Lindley mentions a plant of this species which he saw in the rich collection of epiphytes, belonging to the Messrs. Rollisson of Tooting, June 29. 1836, which he considered as the most perfect instance of successful cultivation which he had yet witnessed among epiphytes. The plant had leaves 18 in. long, and upwards of thirty flowers 2¼ in. in expansion, with all the markings of the sepals and petals of the richest chocolate brown, and of the lip of the deepest violet. In fragrance, there was a resemblance to the spicy odour of that sweetest of all flowers, Aérides cornùtum." This plant was exhibited at the Horticultural Society's Garden on July 9.; and, as appears by our report, p. 443., the gold Knightian medal was awarded for it. In the Horticultural Society's Garden, Oncídium Lance*ànum* is cultivated along with other epiphytes, in "a damp hot-house facing the north. It is planted in a mixture of sandy peat, potsherds, and decayed wood; and under these circumstances it thrives very well." In Surinam, it is found generally attached to the stems or branches of the tamarind, the sapodilla, or the calabash trees, appearing to prefer those to any other: however, on being tied to the branches of the orange, the soursop, the mammee, and even the Brugmáns*ia* arbòrea, it grew well upon them all. (*Bot. Reg.*, Aug.)

2541. CYRTOPO'DIUM ⌈p.r.w Bot. mag. 2507
punctàtum *Lindl.* spotted ɛ̸ ⊡ or 3 ap.my Gsh Y and R spotted with R Brazil 1823 D
Synonyme: Epidéndrum punctàtum, Lin. Sp. p. 1348., and Hort. Brit. No. 22732.

A superb plant, sent, many years ago, from Brazil, by William Swainson, Esq., and which never flowered in this country till the spring of 1835, when the plant in the Glasgow Botanic Garden produced the fine specimen now figured. The pseudo-bulbs of this species are 1½ ft. to 2 ft. long. The flowers are large and handsome, with the petals and sepals oblong, wavy, yellow, the latter chiefly spotted with red purple. (*Bot. Reg.*, Aug.)

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

A NEWLY RECOMMENDED Remedy for destroying the Red Spider on plants is said to consist of syringing the plants with water in which common salt has been dissolved. A teaspoonful of salt to a gallon of water is as much as can be used with safety; and it will be well to wash the tree with pure water a day or two after the application of the salt. (*Scotsman*, April 20. 1836.)

Three Crops a Year of Wheat, as hinted at by one of your correspondents in Vols. X. and XI., or of any other annual plant, in the climate of Britain, I conceive to be impossible. According to my experience, the same sorts of wheat, sown at different periods, from Feb. 24. to May 5., have ripened in 158 days, 140, 122, 106, and the last-sown quantity, on May 5., in 86 days. Does it follow from this, that, because a crop has ripened in 86 days, and there are above four times 86 days in the year, that four crops a year can be obtained, or even two? By no means. Adanson started a hypothesis respecting the duration of annual plants, which appears to me to be founded on truth, though it may not, perhaps, be correct to the letter. It is, that every species requires a certain number of degrees of heat to arrive at maturity; and that, according to the climate, and the time of sowing, a certain period, more or less long, was required to bring it to maturity; and, accordingly, that the plant would have its life proportionally shortened or prolonged. This proposition, which, if carried too far, would lead to error, when combined with other circumstances necessary for the accomplishment of the different periods of vegetation, may give rise to very interesting and very true ideas on the subject. — *Vilmorin. Paris, May,* 1836.

Art. II. *Domestic Notices.*

ENGLAND.

HORTICULTURAL Fêtes are now becoming fashionable, both among public bodies and private individuals. One was given in the Surrey Zoological Gardens on July 26., which was numerously attended by persons of all ranks; one was given at Vauxhall on the 2d of August; and several have been given by the different noblemen and others who have villas near town. We could mention a number of particular instances; but this general notice will suffice for our present purpose, which is, to suggest to proprietors of parks and villas, in different parts of the country, the idea of occasionally adopting the Russian practice of giving a fête to all the neighbouring public, high and low, without

exception of rank. Fêtes of this kind used to be common in the neighbourhood of St. Petersburg, during the time of the Empress Catherine; and we have been present at two or three given in May, 1814, in the neighbourhood of Moscow. Of course, the idea of admitting the great mass of society indiscriminately into an English pleasure-ground will startle a number of our readers. They would destroy every thing: and, after all, what is to be gained by it? To these objections we reply, that the English public is not quite so bad as it is represented to be: but, granting that it is at present rather rude, admitting it to scenes of beauty and refinement will prove the most effectual manner of educating its feelings. As to the question of what is to be gained by the proprietors, we answer, the noblest and the greatest of all gains, either earthly or heavenly — that is the consciousness of making a great number of people happy. No doubt, there are some who are not accustomed to take this view of the subject; and to others, the horror of coming in contact with so many common people will absorb every other idea. The exclusiveness produced by wealth and rank is not favourable to the cultivation of general sympathy; and it shall not be our business here to say much on the subject. We merely throw out the hint, as we would drop a seed of a favourite plant by the road side, or on a piece of waste ground, for a chance of its taking root. We will not let slip the occasion, however, of stating that by far the greater number of landed proprietors in this country are most liberal in showing, not only their grounds, but houses, to all the public, without exception, certain days in the week throughout the year. Exhibitions of this kind must have a decided tendency to humanise the feelings and raise the taste. This desirable result will also be promoted in the highest degree by Mr. Buckingham's admirable proposal, which, though it may be defeated in the present parliament, must ultimately be successful: we mean that of having public gardens, literary institutions, and museums, to every town and village, or parish, supported by all, and for the benefit of all.

Perhaps we shall be one day gratified by seeing such noblemen as the Duke of Devonshire, the Earl of Mansfield, and others who have villas in the immediate vicinity of London, throw open their grounds for the admission of all persons on a Sunday afternoon. The former nobleman has already frequently shown the most praiseworthy liberality in permitting his princely grounds at Chatsworth to be open, on grand occasions, to the public of Sheffield, without, we believe, ever having had his plants injured by the persons thus admitted; and we have no doubt the London public would be equally careful not to abuse the kindness shown to them. We say this with more confidence, from seeing the manner in which the flowers, &c., are spared both in the Regent's Park and Surrey Zoological Gardens, even on the days of the horticultural fêtes, when any person can obtain admittance to the latter, who can command a shilling. Were our suggestion acted on, we should advise every proprietor whose grounds are thrown open to place placards at the gate, &c., recommending his plants to the care of the public, as is done in the public gardens at Frankfort, and other places in Germany.

A public Pleasure-Garden at Lichfield is now beginning to occupy the conversation of the citizens, the influential party of whom are not without hopes of procuring the establishment of one worthy of the extent and the celebrity of that ancient city. — *J. G. Lichfield, July* 13. 1836. An interesting letter on the subject of establishing an arboretum in the neighbourhood of Lichfield, by J. G., was published in the *Staffordshire Examiner* of July 6., which we shall probably copy into a future Number. — *Cond.*

Cèreus speciosissimus.—There is at present growing against the back wall of a vinery belonging to Mr. Peter Pequin of this island (Jersey) two plants of Cèreus speciosissimus, one of which extends 22 ft., and the other 24 ft., in length, by about 6½ ft. high; both plants being trained horizontally. They have been planted out in the border about ten years, and have borne a constant profusion of flowers every year. They have at present upwards of 200 flowers and flower buds on them; from 30 to 40 of which are expanded, and

many of which measure from 7 in. to 8 in. in diameter, having a most imposing effect. I would beg to observe that the roof of the vinery is completely covered with vines, and that no artificial heat has been applied. — *Bernard Saunders. Island of Jersey, June* 7. 1836.

Heraclèum ásperum, the Siberian Cow Parsnep. — This magnificent umbelliferous plant, when grown in good soil, will attain the height of upwards of 12 ft. Even in our crowded garden at Bayswater, it last year (1835) was 12 ft. high when it came into flower; and the largest of its radical leaves measured nearly 5 ft., from the junction of the footstalk with the stem, to the extremity of its central lobe. This year, a plant reached the height of 10 ft., though crowded among trees and bushes. Its seeds are now (July 29.) ripe; and we intend to distribute them among our friends: not because the plant is useful, for we do not know any use to which it can be applied; but because it is extremely interesting from the rapidity of its growth, and the great size which it attains in five months. The plant is a biennial, and, of course, does not flower the first year; but, if sown in July, it will attain considerable strength before winter, die down to the ground in December, and spring up again in the beginning of February with extraordinary vigour. By watering the soil round our plant, in April and May, with hot water, so as to raise its temperature, we have caused it to grow sometimes at the rate of above an inch a day; and afterwards, by watering with liquid manure, we have had the foliage of extraordinary size and beauty. The plant is to us a great source of enjoyment during the spring of every year. We do not know a more suitable herbaceous plant for the retired corner of a churchyard, or for a glade in a wood; and we have, accordingly, given one friend, who is making a tour in the north of England and Ireland, and another, who is gone to Norway, seeds for depositing in proper places. We do not know any herbaceous plant that attains so large a size in so short a period, unless we except the gourd tribe; and, as it is as hardy as a dock or a thistle, we think it an excellent plant to give a beginner a taste for the study of vegetable phenomena. The plant is quite common in the neighbourhood of London; but, if any distant reader should wish to have a few seeds, by franking a letter to us at 39. Paternoster Row, we shall be happy to send him a supply.—*Cond.*

The Grapery at Kinmel Park. — A writer in the *Caernarvon and Denbigh Herald* of July 16., who "had the gratification of visiting Kinmel, the princely mansion of Lord Dinorben (a nobleman whose name," the writer truly observes, "derives a far more splendid lustre from his patriotism and generosity than from his coronet"), was much delighted with every thing; but, when he entered the hot-houses, his "surprise and admiration were raised to the highest pitch." He adds, "I believe I may with safety assert that the abundance of grapes in their different stages is not, under an equal space of glass, to be exceeded in any part of the kingdom; and I shall give the dimensions of a bunch which I selected for examination, at random, without searching for the largest. It was of the second succession crop, and had not yet reached its maturity. It measured across the shoulders 2 ft. 5 in.; it was in length 2 ft. 6 in.; the diameter of the leaf was 18 in.; and, when the bunch is full grown, it will probably measure each way about 4 in. more." We shall be greatly obliged to our correspondent Mr. Forrest, the very skilful gardener at Kinmel Park, if, after the bunch is ripe and gathered, he will let us know the weight and the number of berries it contains.— *Cond.*

Forming Meadows, by Inoculation, in One Year.—The following particulars are curious: they will amuse the scientific farmer, and be hailed as an "important agricultural discovery" by the enthusiastic and wealthy empirical practitioner. Wedlake's newly invented turf-separating machine, for the laying down of land by inoculation. The machine, in magnitude and general appearance, resembles a straw-cutter; and the mode of using it is as follows: — The land intended to be laid down should be perfectly clean; and it should be levelled and rolled; then, with the paring-plough, pare the turf from a common, waste, or elsewhere; and place the turf in heaps, that the wind may dry

it, which will make it separate easier. Put the turf in the machine, which will separate it into small fibres. Harrow the field with a light harrow before you sow it. Take the fibres, which have been through the machine, in baskets, and sow it, broad cast, over the land; after it is sown, run a light roll over the field, which will compress it, and mat it together. It will, by the above process, become a good meadow the following year. Turf prepared in this manner is sometimes sown on wheat, intended for a meadow. It nourishes the corn while it is growing; and, as the stubble decays, it becomes a fine pasture. If there is a difficulty in getting turf, select one of the most mossy meadows, and apply a small grooving plough, which has been manufactured for that purpose, which can be drawn by a pony, and which will take off the turf about 3 in. wide, and 1¼ in. deep. You will very much improve your meadows by these means; and you will destroy the moss, and encourage a new vegetation. Experience has proved that the grooves, 14 in. apart, have had the desired effect.

Art. III. *Ploughing by Steam.*

From the commencement of this Magazine, we have advocated the idea of applying steam to the plough, as well as to the thrashing-machine; and we have lately had the pleasure of hearing of this idea being realised. In Vol. VI. for 1830, p. 106., a notice is given of a reward offered by Henry Handley, Esq., of Culverthorpe, near Sleaford, in Lincolnshire (one of the M.P.'s for the county), of 100 guineas for the invention of a steam-plough. Such a plough, combining an apparatus for draining and cultivating bogs, has been invented by John Heathcoat, Esq., M.P. for Tiverton, and tried, in June last, on the Red Moss, near Bolton, in Lancashire. According to the local newspapers, "about six acres of raw moss were turned up in a few hours, and turned up in the most extraordinary style; sods 18 in. in breadth, and 9 in. in thickness, being cut from the furrow, and completely reversed in position; the upper surface of the sod being placed exactly where the lower surface had been before."

It would occupy too much room in a periodical in which agriculture is kept subordinate to gardening, either to describe the machine (of which we were shown a model by the inventor, in 1835), or to give an account of what took place at the trial; but we shall refer those who are interested in the subject to the *Morning Chronicle* of June 22., in which they will find a copious account of the experiment at Bolton-le-Moors, by Mr. Handley; and to the same journal of June 25., in which they will find a column of valuable remarks on the important benefit likely to result from Mr. Heathcoat's invention; and we shall conclude with some extracts from a paper, which has been privately circulated, but not published, entitled "A brief Description of Mr. Heathcoat's Patents for his Invention of new or improved Methods of Draining and Cultivating Land; and new or improved Machinery and Apparatus applicable thereto; which Machinery and Apparatus may be applied to divers other useful Purposes."

After a brief description of the machine, and various remarks on its application, occur the following paragraphs: —

"That the steam-engine would, at no very distant day, supply the place of animal labour in agriculture, and become as mighty an instrument in augmenting the productiveness of the soil, as it has proved in creating and economising manufactures, in navigating the ocean, and in travelling on land, was many years since predicted by Franklin — a prediction reiterated by Davy, and, latterly, acknowledged and enforced, as a great desideratum in science, by many distinguished agriculturists. The successful application of Mr. Heathcoat's invention to the culture of bogs — the most repellent and obstinate of waste lands — leaves no room to doubt of its applicability to soils already in

cultivation. Coals are now procurable, throughout Great Britain, at prices which have caused the steam-engine to be extensively introduced as a substitute for animal labour in many of the processes connected with agriculture. Thrashing, cleaning, and grinding corn, hay-chopping, turnip-slicing, &c., are now performed by small engines fixed on farm premises: even the churn has its steam-engine, managed by the dairy-maid; and so great is the advantage arising to the dairy-farmer from the regularity of motion, and economy produced by it, that hundreds of small engines, for this simple purpose alone, are used in the north of England and in Scotland. But these are humble savings compared with the benefits to be derived from the vast steam power which may be brought to bear on the soil itself. Those agriculturists who are acquainted with the effects produced by the valuable subsoil plough, recently invented by Mr. Smith of Deanston, will readily appreciate the importance of an invention which will enable them to employ that kind of plough at a much diminished cost per acre. Mr. Smith's plough, with steam power, will effect a revolution in agriculture. Implements of husbandry have hitherto been restricted, in form, weight, and dimensions, to the powers and manageableness of a team of horses. A new class of instruments will take their place: the stiffest soils may be broken up and pulverised to any desired depth; strong clays, the natural wheat lands, may be profitably cultivated, rendered more fertile, and fitted to bear a better and more systematic rotation of crops.

"Such are a few of the benefits which land-owners and agriculturists will derive from the substitution of steam for animal power in husbandry. It is also no slight advantage, in a national point of view, that this important change will be effected, unaccompanied by any of those temporary evils which too frequently attend the application of mechanical discoveries to existing arts. This invention will not displace a single human being from his accustomed healthy occupations: it will, on the contrary, occasion new and increased employment for agricultural labourers; it will restore to the support of man a considerable portion of that large amount of produce now sacrificed to the maintenance of agricultural horses; it will furnish local employment to the rapidly increasing rural population of the empire, by rescuing millions of acres of bog and waste land from obnoxious sterility *; it will fix on their native soil multitudes of those poor Irish labourers, who annually migrate to Great Britain in search of work and food, or who are forced, with numbers of our own countrymen, to suffer the hardships and dangers inseparable from emigration to wild and distant regions."

Since the above was sent to press, the *Mechanics Magazine* for July 30.

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* *Extract from the "Fourth Report of the Parliamentary Commissioners appointed to inquire into the nature and extent of the several Bogs in Ireland; and the practicability of draining and cultivating them:* 1814."—"The extent of peat soil in Ireland exceeds 2,830,000 English acres." The instructions to the engineers limited their surveys to bogs containing 500 acres and upwards; but it appears from the same Report that the extent of the smaller bogs in Ireland amounts to no less than 170,600 acres. "A soil covered with peat, is a soil covered not only with fuel, but likewise with manure. It is the excess of manure only which is detrimental; and it is much more easy to destroy it than to create it. To cultivate a bog is a much less difficult task than to improve a sand. If there is a proper level to admit of draining, the larger the scale of operations, the less must the comparative expense be; *because machinery may, for many purposes, take the place of manual labour;* and the trials that have been already made by private individuals, and which are stated in the different Reports, prove not only the feasibility of the general project, but afford strong grounds to believe that any capital expended upon it, after mature and well-digested plans, would, in a very few years, afford a great and increasing interest, and would contribute to the wealth, prosperity, and population of the island."—*Sir H. Davy to the Commissioners, Feb.* 1. 1811.

has been published, in which is a notice of a steam-plough, projected by Mr. Dickson, Engineer, 9. Charlotte Street, Blackfriars' Road, London. Mr. Dickson says, "About the time that the Leeds railway was done, when high-pressure engines were much improved, the idea of thrashing by steam led me to think of making a portable plough, applicable to all kinds of land. Now that public companies are forming that will require the use of such things, perhaps my old plan may be useful to some of them." (*Mech. Mag.*, vol. xxv. p. 290.)

Mr. Dickson adds that, perhaps ere long, steam-ploughs will be "going about, and undertaking to plough fields for whoever may desire their assistance, and with very little more preparation than is now required to place a portable thrashing-mill:" which reminds us of similar ideas expressed by us in this Magazine for 1828, vol. iii. p. 242—244. To this article we beg the attention of such of our readers as are interested in the application of steam power to the cultivation of the soil.

The *Edinburgh Chronicle* states that Mr. Alexander Craig of Carlton Street, Edinburgh, has taken out a patent for an American steam-plough, which costs much less than Mr. Heathcoat's, but, probably, is not sufficiently powerful for bogs. "The steam, generated in a boiler, passes out through a tube leading into a tubular horizontal shaft: on opposite sides and near the extremities of which are two apertures through which the steam escapes. The revolving shaft is contained within a cylindrical casing, and turns, when in a proper state of action, about 3000 times in a minute, on exactly the same principle as Barker's mill. It is so simple, that it can be put up and kept in operation by any man of ordinary ingenuity. The running part consists of but one piece of cast steel, dispensing with cylinder, piston, valves, crank, and fly-wheel: and hence its great cheapness." (*Morn. Chron.*, Aug. 8.)

Art. IV. *Retrospective Criticism.*

Analysis of Vegetables and Manures.—Having read, in p. 319., some remarks on the value of bones as a manure, and some account of their component parts, specifying that they contain a considerable portion of carbonate and phosphate of lime, I consider this paper to be only a seed sown which may produce abundance of useful information, both to the horticulturist and agriculturist. If some of your correspondents, who have the opportunities and time to devote to, and who would feel pleasure in, the experiment, were to analyse all the different sorts of vegetables in general use, stating the different matters they contain, and the component parts of the different manures, &c.; and, also, if it is to be understood that those manures should be used which contain the greatest portion of the same matter as the vegetable to be grown, &c.; it would be of the greatest use. Besides this, it should be stated what influence the different ingredients have on the vegetables; such as how saline matters, phosphate of lime, carbonate of lime, magnesia, chalk, oil, &c., operate.

If this were well managed, so as to appear in a small pamphlet, and at a little money, it would be very useful: not to spin the thread to a great length, for the advantage of the book-maker, and the puzzling of illiterate men's brains. A man who is not in the habit of reading is frightened at the first sight of a large book. — *J. D. Parks. Dartford Nursery, Kent, July* 24. 1836.

Variegated-leaved Plants. — I quite agree with you, that too much attention is paid by cultivators to diseased varieties. I hate all variegations: they look unwholesome, and always give me the idea of having been eaten and brought up again. Even the variegated holly, I do not admire. — *W. T. B. Allesley, Dec.* 5. 1835.

The Formation of Arboretums. — The perusal of the remarks contained in this Magazine, on the formation of arboretums, has suggested to me the idea that they might be rendered of immense practical utility as regards the intro-

duction of such new kinds of timber trees as might be grown to advantage in our country. It is far from improbable, that estates, containing large tracts of forest, might be doubled in value, by being planted with either quicker-growing, or higher-priced, timber than they at present produce. Several of the German species of *P*ìnus would be of inestimable advantage to us, both from their enormous size, and the superior quality of their timber. I have seen a French species in the garden of Sir Oswald Mosley, at Rollaston Hall, Staffordshire, which far surpasses either the spruce or silver fir, or even larch, in the celerity of its growth.

What splendid results might we not expect, could we grow, ourselves, instead of importing, the costly trees which produce the timber used by cabinet-makers and turners; and which we at present purchase under the double disadvantage of a high duty and an uncertain supply. My knowledge of botany is but slender; you may therefore deem the very idea of introducing some of the trees contained in the following list preposterous: but I may plead two excuses; first, the scanty degree of information possessed either by botanists or by commercial men on this subject; and, secondly, the number of species now naturalised which were formerly thought tender. It may be an interesting subject of enquiry to some of your almost innumerable correspondents, whether any of the following woods might become articles of British production: — Mahogany, rosewood, zebra-wood, camwood, logwood, ebony, tulip-wood, satin-wood, Botany Bay wood, cork tree. It is possible that I may be over sanguine; but I anticipate not only the general use of these woods for furniture, but that the floors of our mansions may, like those of the palace of the Prince of Orange, at Brussels, consist of alternate layers of rosewood and satin-wood. — *Y. D. Doncaster, July* 15. 1836.

The woods mentioned by our correspondent are nearly all stove plants in this country; and some of them have not yet been introduced. The idea of their ripening their timber here is, therefore, quite chimerical; but, as some of our readers may like to know a few particulars respecting them, we have given the short enumeration below: —

Mahogany (Swietè*nia Mahágoni* L.) is a native of the West Indies and South America, where it grows to the height of 80 ft. It belongs to the natural order Cedreleàceæ, and is nearly allied to Cedrèla odoràta, the Barbadoes, or bastard, cedar. The tree has pinnate leaves, and yellowish inconspicuous flowers. It has been cultivated in our stoves since 1734.

The Rosewood (Physocalýmna floribúnda) is a native of Brazil. It belongs to the natural order *L*ythràceæ, and is nearly allied to Lagerstrœ'm*ia* índica, which it greatly resembles in flowers, and general appearance. It is a handsome tree, about 30 ft. high, and is not yet introduced.

Zebra-wood appears to be the name for a coarser kind of rosewood; the variation probably arising from soil and situation.

Camwood (Bàphia nítida) is used in dyeing. It is a native of Sierra Leone, where it grows about 50 ft. high; having impari-pinnate leaves, and white or yellow flowers. It has been in our stoves since 1793.

Logwood (Hæmatóxylon campechiànum) is a native of Jamaica, where it is much used for hedges. When suffered to grow alone, it makes a tree about 20 ft. high, with yellow leguminous flowers. The trunk is generally crooked, and seldom thicker than a man's thigh. It grows best in sandy or peaty soil, and has been in our stoves since 1732.

Ebony. The best black ebony is the wood of the *D*iospỳros *E*'benum, a native of Madagascar, the Mauritius, and Ceylon, which would require a stove in this country. It belongs to the natural order *E*benàceæ, and resembles in appearance the *D. L*òtus, and *D.* virginiàna of our gardens.

The American, or yellow, Ebony, which is the kind usually employed for walkingsticks, and sometimes for inlaying, is the wood of *Br*ỳa *E*'benus, a West Indian shrub, or low tree, with bright yellow flowers, belonging to the natural order Leguminàceæ. The trunk is seldom above 3 in. or 4 in. in diameter, but the wood is very tough and flexible.

Tulip wood. If by this is meant the wood of the tulip tree (Liriodéndron Tulipífera), it is common in North America, under the name of poplar; but the kind here mentioned is probably only another variation of rosewood, some what different in the veining.

Satin-wood is generally supposed to be the Feròlia guianénsis of Aublet; which is said to be a large tree, with alternate oval leaves, and flowers disposed in bunches at the extremity of the branches. It is allied to the order Rosàceæ; but has never been seen in a living state in Europe.

Botany Bay Wood. This is probably the gigantic species, or kind, of mahogany found in great abundance at the Swan River, and in other parts of Australia, mentioned in Vol. XI. p. 104. From the specimens of the wood sent to England, it appears to be of a coarser grain than the common mahogany, and not so beautifully veined.

The Cork Tree (Quércus Súber) is well known in our shrubberies and pleasure-grounds; but, though it stands in the open air without the slightest protection in this country, its bark does not become in a sufficiently mature state to be used as cork. — *Cond.*

The Kincairney Ash, noticed by Mr. Gorrie in Vol. X. p. 384., is certainly a very remarkable tree; and I am glad to learn that it is likely to be propagated in the Perth Nursery, as it must be an object worthy both of the nurseryman and the landscape-gardener; especially if it is found, after propagation, to retain its present singular appearance. In my own opinion, there is a species of beauty apparent in the ash, to which few trees in our woods can lay any claim, and to which even the lord of the forest, the oak, is an utter stranger: this beauty does not confine itself merely to its mutability in form, or to its exterior appearance when viewed at a distance, but it extends itself to the leaves, flowers, and seeds; the former of which will, indeed, bear the minutest inspection without endangering an opinion as to the merits which I have endeavoured to show as exclusively belonging to the tree. — *George M'Liesh. Ville parmi les Collines, Sept.* 10. 1835.

The Pendency of the Spray of the Ash is not unexceptionably the result of old age; to prove which, I may refer to a number of ash trees growing out of the rocks immediately below the Rumbling Bridge, on the Duke of Athol's estate, a few miles from Dunkeld, which are not yet, apparently, 40 years of age, and, probably, not above 30. I visited this place in the year 1826, for the purpose of seeing the beautiful and romantic waterfall immediately above the bridge; and I was struck with this emblem of humility in the trees above alluded to, which seemed to vie with one another in the lowness of their obeisance. I may further remark that I have frequently observed the same phenomenon in similar situations, and under similar circumstances. Whether the air is more ponderous at such places, from a draught being generated by the current; or whether the branches are instinctively attracted downwards from the evolution of some sort of gas from the waters, which, in opposite circumstances, abounds at a greater altitude; are questions which I shall leave for the research of those who are fitter for the task. I can, most probably, appeal to none with more propriety than to Mr. Gorrie himself, for a solution of these matters. It is not by any means uncommon to see one side of an ash tree with drooping branches, while the other evinces no propensity to such a position, but the indecisive and wavering character of the one described by Mr. Gorrie is certainly, to me at least, a perfect novelty. — *Id.*

Culture of Epiphytal Orchídeæ. — In looking over some of the numbers of the *Gardener's Magazine,* which were published during my absence in Mexico, I observe that a Lancashire correspondent, signing himself H. P. (Vol. XI. p. 252.), has favoured your readers with a few cautionary remarks upon a paper published by me on the culture of tropical Orchídeæ, which my absence has prevented me from answering sooner.

In answer to the first part of H. P.'s communication, I shall only remark that, in writing my paper, I had no intention of slighting or depreciating any practical knowledge which might have been acquired; but merely of laying

before your readers such knowledge as I had myself acquired of the nature and habits of *Orchídeæ*, deducing therefrom, and from what I had seen of them in this country, general hints for their culture.

In his second paragraph, H. P. tells us, that many of the parts of nature's harmonious plan are inimitable; a fact which I believe no one has disputed: but he also tells us that we must not pursue natural methods in the culture of *Orchídeæ*. It is needless for me to make any comment upon this assertion, and I leave it entirely to the penetration of the readers of your Magazine. H. P. also boasts of his common sense, though I candidly avow that I do not think he called in practice a very large portion of it when writing this paragraph.

H. P. continues with, "Those *Orchídeæ* that grow naturally on trees in the East or West Indies are proof against injury from excess of moisture." Undoubtedly they are so in their natural position on these said trees; but H. P.'s assertion, as applied to *Orchídeæ* in mould, will scarcely hold good in opposition to the painful experience of the most extensive and successful cultivators, who yearly see species dropping out of their collections, which their utmost attention cannot prevent from rotting off; and, though many of the stronger growing species become established, and flower well in mould, yet there are many which are lost in the trial. These facts, which are well known to all cultivators of *Orchídeæ*, seem to have escaped H. P.'s notice.

In my remarks on the culture of *Orchídeæ*, I did not intend to intimate a wish or opinion that the mode of growth recommended by me should be applied to those species which were found to grow and flower well under the ordinary treatment to which they are subjected in this country; but to the smaller and more delicate species, which seldom flower, and which seem merely to *exist* in our collections. Nevertheless, I think my plan would apply even to the stronger growing species; for at Messrs. Loddiges may be seen several species, especially Oncídium papílio, suspended on pieces of wood, flowering most abundantly, and throwing out its long white fibres on every side. And, again, at Mr. Knight's, several stanhopeas, and other genera, may be seen flowering in a smaller state than they usually do in mould, attached to a moist wall; which treatment, by exposing the roots to the atmosphere, embodies the same principle as suspending them on pieces of wood.

I could cite other instances, but these are sufficient to prove that the method is neither impracticable, nor so devoid of common sense as H. P. opines; and it must be pretty evident that we shall not go far out of our road in following, as nearly as circumstances will permit, the methods of nature, inimitable as they are to their full extent, but which are not to be left entirely out of view. From the tenor of H. P.'s remarks, he appears to be of opinion that the practical knowledge and experience of the present day, in the culture of *Orchídeæ*, are verging on perfection; but I am still of opinion that, as regards the cultivation of *Orchídeæ*, the science of horticulture is in its infancy; nor do I stand alone in this opinion, but am supported in it by many who have probably had as wide a range and as long experience as H. P. himself.

In conclusion, let me ask, why does H. P., when writing upon a subject of this kind, and commenting upon the writings of another, withhold his name? Is it that H. P. is ashamed of what he has written, or that his modesty will not allow him to take the merit of it? In a work like the *Gardener's Magazine*, devoted to the extension and interchange of knowledge, I can see no good reason why men should write under initials or a false name. — *John Henchman. Clapton, Jan.* 25. 1836.

Grafting the Vine, &c. (p. 171.) — Having seen in p. 171. an account of grafting the vine by Mr. M'Leish, it helps to confirm my former opinion, that the grafting of the vine has not, in general, been well understood. Mr. M'Leish states he has not succeeded previously: I myself have grafted many, and rarely missed. The principal cause of non-success is, from not grafting at the time when there is the best chance of a union taking place, which is when the

stock is as far advanced in growth as the setting of the fruit. The stock should then be cut down for grafting, the scion having been kept in a dormant state. The stock having been excited, its sap is more inspissated or thick, and unites with more facility. I believe it has been proved that the vine will take grafts better when the whole of the head of the plant is cut off, than when an arm, or a part of one, is taken off and the part left grafted. — *J. D. Parks. Dartford Nursery, Dartford, Kent, April* 13. 1836.

Cutting large Limbs off the Vine. — The improper mode gardeners often use in cutting large limbs off the vine (I mean in the winter season, when the plant is in a dormant state) deserves reprobation. A large branch should never, at that season, be cut so low as it is finally to remain, till the sap is up; at which time it will resist the air penetrating the pores, and heal over when cut. This injudicious mode of pruning is the cause of vines often having one side dead and hard for some distance down. Probably Mr. C. Hoare, the author of *A Treatise on the Vine*, can throw some additional light on this. He is an old friend of mine. — *Id.*

The Construction of Vineries, and the Shriveling of Grapes. (p. 244.) — Mr. Jasper Wallace (p. 244.) advises the keeping the roots entirely out of the house, considering the roots to become too much heated when inside; and that this causes a shrinking of the berries, which I conjecture is the same as I have termed shriveling. If so, I cannot be persuaded of this being the cause; for my experience proves to me that the disease is not in the root at all. I have seen both early and late grapes planted inside, in some seasons do well, and be free from anything of the kind. I should think no one can be persuaded that the heat of a vinery at 70° or 80° acting on the floor of a house could heat the earth so as to be injurious to the roots, if they once consider what a tropical climate is, and where the vine will do well. I think vine doctors are in a labyrinth, like the human body doctors, and it will take a good while for them to extricate themselves. There is too much writing from theory and conjecture, and taking up old beaten tracks (and some of them very crooked), without sifting the matter in a proper manner. I am often surprised to find how easy some persons obtain prizes and medals; and others, on a far more important subject, sink into oblivion in an instant. — *Id.*

Culture of the Potato. (p. 373.) —I have read with great pleasure the remarks of W. M. of East Ham (p. 374.) upon my communication respecting the culture of potatoes. It was my object to excite men of experience like him to publish such facts as they had collected, and by which they had probably governed their own practice; for I thought the culture of the potato demanded more attention than it had received. W. M., however, is in error when he supposes I ground my opinion on one solitary experiment: I have made many, and with various results; for the seasons have, and always will have, influence upon the crop. I made an experiment last year, but it was chiefly on the kinds of potatoes, and not on the relative merit of planting sets, or whole potatoes.

I repeat, with truth, that I have never known " the dry rot," and, perhaps, I have been very fortunate; but, whether that evil proceeds from the cause assigned by W. M., or from the one which I supposed, I am still of opinion that in cutting potatoes for sets much skill is necessary (attainable, no doubt, by some old women); and I am further of opinion, that a failure in the crop may proceed from planting the sets too soon after they are made, and before the wound is seared.

I will now give W. M. all the information in my power relating to the potato called The Agricultural. Many years ago, potatoes were discovered in a field, where it was certain the farmer had not planted them. He happened to be an intelligent man, and took care of them. After having satisfied himself of their good quality, he sent some to the Agricultural Board (Lord Carrington, as I remember, being then the president). They were cultivated by the Board, and, when a sufficient stock was provided, they were distributed over the kingdom. By means of a friend of Lord Carrington's, I got a sack. They came to me by the name of Agricultural, and so I have always

called them. They are large, white, mealy potatoes, of excellent flavour, and for roasting superior to any I ever tasted. I remember, in one year (a most favourable season, when the land was also in an excellent state), that these potatoes averaged 1 lb. each. Some weighed 22 oz., and few less than 12 oz. I shall have great pleasure in sending W. M. a few from my growing crop, if he will favour me with his address.

The present season seems to be unfavourable: there are far too many gaps in my field. I have dug in several places, but have found no trace of the potato or set. — *R. L. July*, 1836.

Erratum. — In p. 483. line 18. of a few copies, delete the words " reversed hairs."

Art. V. *Queries and Answers.*

Destruction of Crickets. (p. 376.)—It is, perhaps, not generally known, that birds will destroy crickets. Major mentions an instance, where a sparrow had become sufficiently familiar to enter a kitchen, of its carrying off a large cricket (*Major on Insects*, p. 231.); and there is no doubt but that other birds would do the same. — *J. C. Wimbledon, July* 5. 1836.

Destroying Crickets in Hot-houses. (p. 376.)—The effectiveness of the method mentioned by you of destroying them by drowning in a basin of water baited with crumbs of bread, I have frequently witnessed. Crickets with me are favourites, and my old chimney is a favourite residence of theirs. By the side of my fireplace I have a copper fixed, which is seldom used but on washing days: into this copper a number of them, owing to the lid not fitting very tight, find their way, and cannot get out without help. From this circumstance it is evident that any glazed vessel sufficiently deep would answer the purpose; and, no doubt, if baited with food, such as crumbs of bread, it would be more effective. They could be instantly killed by boiling water from a tea-kettle. By boiling water from a tea-kettle, poured on ants' nests, the ants are instantly destroyed. I have found it to have the same effect in destroying the wood bugs [woodlouse, or pill millepede, *Armadillo* vulgaris *Latr.*, and, perhaps, Porcéllio scàbra *Latr.*, occurs too] when poured from the spout into the breeding-places (behind those blocks in the corners of garden frames which support the boards), and to any crevices to which it can be applied. By having the water boiling, the insects are dead in a moment, without one convulsive struggle. — *J. Denson, sen. Waterbeach, Cambidgeshire, July* 20. 1836.

Thrips destroyed in Cucumber and Melon Frames, without Injury to the Cucumber or Melon Plants. — Take 4 oz. of tobacco, ½ oz. of the flower of sulphur; mix the sulphur with the tobacco, and smoke the frames with it, with bellows and tube, in the usual way. The sulphur must be well broken, and well mixed with the tobacco. Any leaves which happen to lie on the soil should either be propped up with sticks, or taken off. — *Agronome's Nephew. June* 21. 1836.

A gardener, who has been much troubled with the thrips, assures us that he once filled his frames with the smoke of sulphur *alone*, to such an extent, as to kill the plants; and that on the following day he observed many of the insects still alive on the dead leaves: perhaps the tobacco may add to its efficacy. — *Cond.*

Destroying the Scale on the Pine-Apple. (p. 375.)—Allow me to request your correspondent L. O. L. to favour me with a correct answer to the following simple questions: —

1. Is L. O. L. sure that the pines of his " friend," in Bedfordshire, to which he alludes, were entirely clear of the white scale at the time he reported them to be so?

2. Is L. O. L. sure that they are clear " even now?"

3. What may be L. O. L.'s reasons for not publicly giving the name and address of his friend? His friend surely can have no objections that his name be publicly known, if he has been so successful in clearing his pine plants! But Mr. L. O. L. informs us that he is sorry, very sorry indeed, that his Bed-

fordshire friend will not allow his name to be given publicly. *Query:* Did L. O. L. ever ask his friend's permission to publish his name?

4. Will L. O. L. allow me to guess at the name of his "much respected" friend, if he does not choose to save me the trouble, by giving the name of his friend at once? If L. O. L.'s statements are correct, neither L. O. L. nor his friend have any thing to fear. "Vincit omnia veritas." [Fair dealing carries every thing before it.]

L. O. L. must recollect that the public have a legitimate title to question the dubious statements of any author; and particularly in a case like that of the would-be clever L. O. L., who evidently has made a premature exit from the domination of the ferula.

L. O. L., I trust, will excuse the liberty I have assumed in proposing these problems to him for solution.

If L. O. L. should find any difficulty in answering these simple questions, will he accept of the assistance of a friend? — *Pro Bono Publico.*

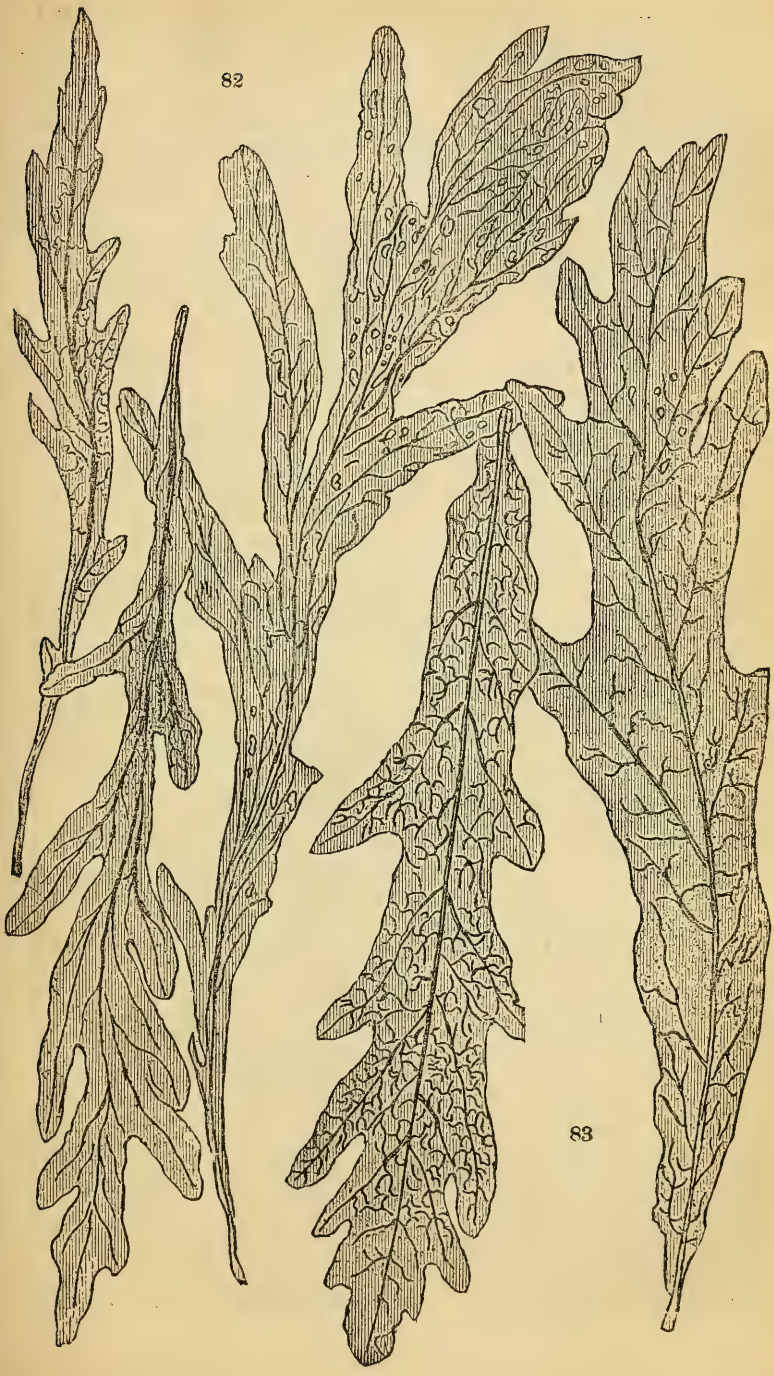
Singular Varieties of Indigenous Oaks. — If ever any singular varieties of our native oaks come in your way (as Mr. Fennessey's, for example), I should be very glad of a specimen, as I have thoughts of making a book of oak specimens, all I can meet with, together with their balls and galls, and spangles and pezizas, &c. — *W. T. Bree. Allesley Rectory, near Coventry, Dec.* 19. 1835.

Any of our readers, who may be kind enough to attend to Mr. Bree's request, may either send direct to that gentleman, by Packwood's coach, from the George and Blue Boar, Holborn; or to our care, at 39. Paternoster Row, in which case we will forward them to Mr. Bree. — *Cond.*

Mr. Fennessey's oak, referred to by Mr. Bree, is noticed in Vol. XI. p. 683.; *figs.* 82. and 83. are engravings of leaves of it of the natural size, which were intended to have been published along with the notice, but the engraver did not finish them in time.

The reddish insular Scales on the under side of oak leaves, mentioned by Mr. Lowndes (Vol. XI. p. 691.), I greatly doubt, are not parasitic plants, as he supposes. I suspect what Mr. Lowndes describes as scales, are what I, for want of a better name, call oak spangles. Surely these are insect works: I send a specimen of something of the same kind, which he, perhaps, would call a peziza; and, in truth, it greatly resembles one, though I take it to be also the work of an insect. I should like to see these oak excrescences well explained and illustrated: the subject would make a good article, or little volume; and, though the things themselves are so common, we are still much in the dark about them. — *W. T. Bree. Allesley Rectory, Dec.* 5. 1835.

The following very interesting observations, by Dr. Johnston of Berwick, bear upon the point in question: —"While I receive unconditionally the doctrine of Harvey, *omnia ex ovo*, I am not disposed to maintain that every thing described in our systems as fungi, are disseminated in accordance with it. Many fungi appear to be merely morbid alterations in the structure of vegetable textures, or diseased growths, analogous, in some respects, to the tumours and ulcerations of the animal system; and we may, perhaps, form some idea of the manner in which they may originate, by studying the various galls and excrescences produced on plants by insects. We observe that the irritation caused by the deposition and evolution of the egg will produce growths of the most curious kind; and differences in the irritation, too slight to be traced, will occasion very remarkable differences in the appearance of the growths. Thus, in the oak-leaf, one insect irritation produces a globular smooth ball; another a depressed circular tumour, covered with a hairy scarlet coat. The first is seated in the substance of the leaf, and cannot be removed without destroying the texture of the part; the other seems almost placed on the leaf, and can be detached with facility. Examples equally remarkable will occur to every one who has paid any attention to this curious subject; and the growths appear to be not less uniform and not less organised than many parasitical fungi. To suppose, therefore, that the latter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may be the result of irritations and obstructions in the cellular parenchyma, or in the circulating juices, seems not unreasonable, although the sources of the obstruction or irritation may be undiscoverable. (*Flora of Berwick upon Tweed*, vol. ii. p. 108. and 109.)

Oak Galls, &c. — This spring, several oaks in this parish have produced long strings of berries, similar in a great degree, particularly in colour, to those of the pale red currant, called the Champagne currant. I had never observed these berries before; but I am told that they have been seen, though they are not of frequent occurrence. The taste of these berry-like excrescences was insipid and clammy. — *R. L. Surrey, July*, 1836.

Pinus Pinaster as Timber. — Do you know any thing of the pinaster as timber? I have till lately been taught to believe that it was one of the most worthless of woods; but a friend tells me that it produces very hard good timber. — *W. T. B. Allesley, Dec.* 19. 1835.

Art. VI. *Covent Garden Market.*

	From £ s. d.	To £ s. d.
The Cabbage Tribe.		
Cabbage, per dozen:		
White	0 0 8	0 1 0
Red	0 4 0	0 6 0
Plants, or Coleworts	0 2 0	0 0 0
Cauliflowers, per dozen	0 2 0	0 6 0
Legumes.		
Peas, per half sieve	0 1 6	0 2 0
Peas, per sieve	0 3 0	0 4 0
Peas, per sack	0 10 0	0 12 0
Beans:		
Windsor, per half sieve	0 0 9	0 1 0
Windsor, per sack	0 5 0	0 7 0
Kidneybeans, per ½ sieve	0 1 6	0 2 6
Kidneybeans, per sieve	0 4 0	0 5 0
Tubers and Roots.		
Potatoes, per ton	3 10 0	5 0 0
Potatoes, per cwt.	0 3 6	0 5 0
Potatoes, per bushel	0 2 0	0 3 0
Turnips, White, per bunch	0 0 3	0 0 4
Carrots, per bunch	0 0 4	0 0 6
Horn, per bunch	0 0 6	0 0 8
Horseradish, per bundle	0 2 6	0 4 0
Radishes, Red, per dozen hands (24 to 30 each)	0 0 8	0 1 0
White Turnip, per bunch	0 0 2	0 0 3
The Spinach Tribe.		
Sorrel, per half sieve	0 1 0	0 0 0
The Onion Tribe.		
Onions for pickling, per ½ sieve	0 2 6	0 4 0
Garlic, per pound	0 0 6	0 0 0
Shallots, per pound	0 0 8	0 0 10
Asparaginous Plants, Salads, &c.		
Artichokes, per dozen	0 3 0	0 4 0
Lettuce, per score:		
Cos	0 2 0	0 2 6
Cabbage	0 0 9	0 1 6
Endive	0 1 6	0 2 0
Celery, per bundle (12 to 15)	0 1 0	0 1 6
Pot and Sweet Herbs.		
Parsley, per half sieve	0 1 0	0 1 6
Tarragon, per dozen bunches	0 4 0	0 0 0
Fennel, per dozen bunches	0 2 0	0 0 0
Thyme, per dozen bunches	0 2 0	0 3 0
Sage, per dozen bunches	0 2 0	0 3 0
Mint, per dozen bunches	0 3 0	0 0 0
Peppermint, p. dozen bunches	0 1 0	0 0 0
Marjoram, per dozen bunches	0 4 0	0 0 0
Savory, per dozen bunches	0 2 0	0 3 0
Basil, per dozen bunches	0 4 0	0 0 0
Rosemary, per dozen bunches	0 4 0	0 0 0
Lavender, per dozen bunches	0 3 0	0 0 0
Tansy, per dozen bunches	0 1 0	0 0 0
Stalks and Fruits for Tarts, Pickling, &c.		
Sea Samphire, per small punnet	0 0 3	0 0 4
Vegetable Marrow, per doz.	0 1 0	0 0 0
Green Capsicums, per hund.	0 1 0	0 0 0
Edible Fungi and Fuci.		
Mushrooms, per pottle	0 0 9	0 1 0
Morels, per pound	0 16 0	1 0 0
Truffles, English, per pound:	0 14 0	0 0 0
Fruits.		
Apples, Dessert, per ½ sieve:		
Kerry Pippins	0 5 0	0 0 0
Astracan	0 5 0	0 0 0
Baking, per bushel	0 3 0	0 4 0
Pears, Dessert, per half sieve		
Jargonelles	0 10 0	0 15 0
Windsor	0 4 0	0 5 0
Harvest	0 2 6	0 3 0
Peaches, per dozen	0 6 0	0 12 0
Nectarines, per dozen	0 6 0	0 12 0
Apricots, per dozen	0 3 0	0 4 0
Plums, Dessert, per ½ sieve	0 7 0	0 8 0
Plums, Dessert, per punnet	0 2 0	0 0 0
Green Gages	0 10 0	0 15 0
Cherries, Morello, per pound	0 1 0	0 2 0
Mulberries, per gallon (two pottles)	0 0 6	0 0 10
Gooseberries, per sieve	0 3 6	0 5 0
Currants, per half sieve:		
Black	0 4 6	0 0 0
White	0 3 6	0 5 0
Red, for wine	0 2 6	0 3 6
dessert	0 4 6	0 6 0
Raspberries, Red, per gallon (2 pottles)	0 0 8	0 0 10
Filberts, English, per 100lbs.	3 10 0	4 0 0
Pine-apples, per pound	0 3 0	0 6 0
Grapes, per pound:		
Hot-house	0 3 0	0 5 0
Spanish	0 1 6	0 0 0
Melons, each	0 1 6	0 5 0
Cucumbers, Frame, per brace	0 0 9	0 1 0
Pickling, per hundred	0 1 0	0 1 3
Pickling, per thousand	0 8 0	0 12 0
Oranges, per dozen	0 1 6	0 3 0
Oranges, per hundred	0 10 0	1 4 0
Lemons, per dozen	0 1 0	0 2 6
Lemons, per hundred	0 7 0	0 16 0
Sweet Almonds, per pound	0 3 0	0 0 0
Brazil Nuts, per bushel	0 16 0	0 0 0
Barcelona Nuts, per peck	0 5 6	0 0 0
Spanish Cobs, per peck	0 3 6	0 0 0

Observations.—Since the commencement of the present month, the weather has been more favourable to the growth of vegetables; and we have had a better supply than was anticipated from the long-continued drought which prevailed in the early part of the summer. Turnips are now supplied abundantly and of good quality, at a moderate price. French beans abundant, and cheap compared to the prices heretofore obtained for them. Peas are again plentiful, and more reasonable. Carrots are also in good supply at reasonable prices. Within the last ten days, potatoes have become more general in supply, at considerably reduced prices: quality excellent. All other articles as usual at this season. We have had a considerable importation of currants from Holland, and green gages from France (by steam), by which the supply of those articles has been kept up, and prices, consequently, moderate. Our own crop of currants and gooseberries has been good; but of plums and pears we have but few to come, compared to the crop of last season. The crop of filberts is also deficient as compared to that of last year. The early varieties of apples are plentiful: the later sorts, in the neighbourhood of London, are reported as being deficient; so that we may expect the prices to be maintained throughout the winter. Of the crop of this important fruit in the distant counties but little is at present known; but the weather is favourable for bringing them to maturity; so that we may expect them to be of good size and excellent quality, which will in some measure compensate for shortness of crop should it prevail. —*C. G. M. August* 22. 1836.

Art. VII. *The London Horticultural Society and Garden.*

July 19. 1836.—*Exhibited. Plants.* Alstrœmèr*ia* aúrea, A. flàva, A. Neíll*ii*; *P*hlóx Drummónd*i*, seedling Fúchs*ia*, six pelargoniums, *M*ýrtus tomentòsa, collection of roses, Melaleùca sp.; from Mr. James Young. Gomphocárpus fruticòsus, from J. F. Manbert, Esq. 24 specimens of roses, from Mrs. Marryat. Manéttia cordifòlia, Gloxín*ia* álba, from Mr. James Lane. Carnations and picotees, from Mr. T. Hogg. Double Macartney rose, *R*òsa microphýlla, yellow Noisette, Jaune Desprez, scarlet scented China, from Edmund Johnston, Esq. Acropèra Loddigès*ii*, Eulòphia macrostàchya, Cymbídium ensifòlium, Cattlèy*a* Forbès*ii*, from John Rogers, Esq., jun.

From the Garden of the Society.—Quisquàlis índica, Fúchs*ia* díscolor, Escallòn*ia* rùbra, *S*piræ'a ariæfòlia, Psoràlea macrostàchya, *L*ílium longiflòrum, *Babiàna* villòsa, Anomathèca cruénta, Veltheìm*ia* viridifòlia, Scabiòsa atropurpùrea var. grandiflòra, *L*upìnus Cruickshánks*ii*, *D*elphínium cheilánthum, *C*atanánche bícolor; Gíli*a achilleæfòlia*, G. trícolor; Collíns*ia* bícolor, Calliópsis Atkinson*iàna*; Godèt*ia* rubicúnda; G. vinòsa, *M*álope grandiflòra, Cladánthus arábicus, *Màdia* élegans, Bartòn*ia* aúrea, Campánula neglécta; *Œ*nothèra macrocárpa, *Œ.* missouriénsis; *P*hlóx acuminàta and varieties, Stenáctis speciòsa, Horkèl*ia* sp. (Dougl.), Lavátera tríloba, roses.

Fruits.—*Cherries.* Royal duke, bigarreau gros monstrueuse, bigarreau (the common), red heart, Winter's black heart. The fruit of these sorts are from standard trees. The royal duke has all the good qualities of the May duke, but ripens in succession to the latter. It was received from France, under the names of *Anglaise tardive*, and *cerise royale tardive*. These names having been also applied to other sorts, the above English name was given to prevent confusion. The French name implies an English origin; but it has not been found among the English collections in the garden. The *bigarreau gros monstrueuse* is also called *bigarreau Napoléon;* and, as such, was highly extolled, as a new sort, in some recent French publications (the *Revue Horticole*, &c.). It, however, appears to have existed before the name of that personage had acquired notoriety; for it was called *le gros bigarreau de Lanermann* in the garden of the Luxembourg in 1806; and the Baron Truchsess mentions its being in the possession of Baars of Herrenhausen, in the year 1791, under the appellation of *Lanermann's grosse kirsche*. It is generally

larger than the common bigarreau, and a most abundant bearer. Winter's black heart (*Winter's schwarze knorpelkirsche*) would be much finer in some soils, and even larger and sweeter than the black heart. It is remarkable for being a most abundant bearer. (*Notes by Mr. Thompson.*)

At a Special General Meeting held immediately after the exhibition, July 9., pursuant to notice, the following article proposed to be added to the By-Laws, and which had been previously suspended in the Meeting-Room, was read for the third time, balloted for, and unanimously agreed to: —

"Every Fellow of the Society who shall be three years in arrear of his annual contributions shall be considered to have resigned, and the council shall have power to erase his name from the list of the Society."

August 2. 1836.—*Presented.* Transactiones Academiæ Naturæ Curiosorum of Bonn, Part ii. Vol. 17., from the Society.

Exhibited. Plants. Erìca Bowie*àna*, *E.* éxigens [? exsúrgens] coccínea, *E.* ampullàcea, *E.* Irby*àna*, and a dahlia (Fairbairn's Duchess of Northumberland), from Mr. J. Fairbairn. Campánula frágilis, C. mèdia, C. gargánica, *Spártium* æthnénse, *Pỳrus prunifòlia*, from Mrs. Marryat. Four boxes of roses, from Mr. S. Hooker. *Fruits.* The original round green-fleshed melon, and a brace of cucumbers, from Mr. Cuthill. Three bunches of Muscadine grape, grown on a hot-wall, without protection, from Lord Arran's garden at Bognor.

From the Garden of the Society. Fúchs*ia* díscolor, Escallòn*ia* rùbra var. Alstrœmèr*ia* Hookèr*ii*; *Lupìnus* Cruickshánks*ii*, *L.* ornàtus; *Verbèna* sp. from Valdivia, Scabiòsa atropurpùrea grandiflòra, Tournefórt*ia* *h*eliotropiòìdes, Psoràlea glandulòsa, P. macrostàchya; *Màdia* élegans, Cladánthus arábicus, Gíli*a* achilleæfòli*a*, Godèt*ia* rubicúnda, Potentílla Tormentílla, Brodiæ*a* grandiflòra, Bartòn*ia* aúrea, Nolàna suffruticòsa, *Málope* trífida álba, Pentstèmon *r*òseus, *Pyrèthrum* inodòrum flòre plèno, Wistàr*ia* sinénsis, *Spártium* acutifòlium, *Ceanòthus* azùreus, roses, dahlias.

Prizes awarded. — *A Silver Knightian Medal* to Mrs. Fairbairn, for heaths.

Banksian Medals. — One to Mr. S. Hooker, for the roses; and one to Mrs. Marryat, for the Campánula frágilis and gargánica.

Gold Medals. — At this Meeting it was announced that the greatest value in medals, on the three days of exhibition at the garden this season, having been obtained by the following exhibitors, they had become entitled to the Society's Large Gold Medal, in conformity with the regulations: Messrs. Rollisson, May 14.; Mr. J. Green, June 11.; Messrs. Rollisson, July 9. The regulations to be observed in the exhibition of articles, and the objects for which prizes are offered at the exhibitions in the Society's Garden for the year 1837, were distributed.

August 16. — *Presented.* Proceedings of the Royal Asiatic Society, and the 13th Annual Report of the Council at the Anniversary Meeting on May 7.

Exhibited. — *Flowers.* Sinnín*gia* guttàta, S. Hélleri; Fúchs*ia* globòsa, F. grandiflòra; Myóporum parvifòlium, Ardísia crenulàta, Oncídium papílio; *Erìca* Irby*àna*, three plants; *Erìca* Parmentièr*i* *r*òsea, *Erìca* *c*erinthòìdes var., *Erìca* retórta, *Erìca* vestìta *r*òsea, *Erìca* Hartnélli; from Mrs. Lawrence. Dahlias, four boxes, ditto seedlings; one plant of a seedling Lantàna; from Mr. Salter. Dahlias, a collection by Mr. S. Gilling. *Erìca* Aiton*iàna*, and *E.* Hartnélli, from Mr. J. Fairbairn. Epidéndrum frágrans, from G. Barker, Esq. Dahlias, six stands, by Messrs. Chandler. Megaclínium máximum, Peristèria elàta, from Messrs. Loddiges. *Fruits.* A hybrid melon, raised from the Ispahan and white-fleshed-striped Hoosainee, from T. A. Knight, Esq. Grapes grown in a pot, weight 1½ lb., from P. H. Fleetwood, Esq., M.P.

Prizes awarded. — *Knightian Medals* were awarded to Mrs. Lawrence, for the above collection; and one to Mr. Loddiges, for the plants above mentioned.

Banksian Medals. — One to Mr. Salter, for his dahlias, &c.; and one to Messrs. Chandler.

THE

GARDENER'S MAGAZINE,

OCTOBER, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *Notes on Gardens and Country Seats, visited from July 27. to September 16. 1833, during a Tour through Part of Middlesex, Berkshire, Buckinghamshire, Oxfordshire, Wiltshire, Dorsetshire, Hampshire, Sussex, and Kent.* By the CONDUCTOR.

(*Continued from* vol. xi. p. 449.)

AT the interval of nearly a year we resume the notes on our tour, and print them as they were written at the time, on the evenings of every day. It may, perhaps, be necessary, for the sake of some of our readers, to premise that the time when these notes were made has very little to do with their value, whatever that value may be. That value depends entirely on the principles developed and illustrated by the criticisms made on different places and scenes; and hence, as far as the reader is concerned, it matters little whether these places and scenes were seen a few months, or a few years, before the time of publishing the remarks on them.

It would be far easier for us to fill this Magazine with papers by our correspondents, on the cultivation of particular plants or crops, than to write long articles in it ourselves; but we are guided in selecting, preparing, or writing articles for publication, solely by what we consider to be the wants of our readers, whether practical gardeners, or their employers. It will be allowed, we think, that, both in the culture of flowers and of culinary crops and fruits, the present race of gardeners have arrived at a very high degree of perfection; and their employers, who consume or enjoy these articles, we may conclude, must be very good judges of them. The articles exhibited at the horticultural shows in the neighbourhood of London, and throughout the country, afford such a proof of the practical skill of gardeners as cannot possibly be denied; and the same shows afford also a presumptive proof of the cultivated taste of the proprietors in whose gardens these productions have been raised. What we think both the employers of gardeners, and gardeners them-

selves, most deficient in, at the present day, is in what relates to taste in gardening as an elegant art; that is, in the art of laying out and planting pleasure grounds and parks, and keeping them in order afterwards. Even in laying out flower gardens, which may be considered the easiest and simplest part of landscape-gardening, the gardeners of the present day, and their employers, are strikingly deficient. Will any artist, — a painter or an architect for example, — at all acquainted with the general principles of composition in lines and forms, say that there is one flower-garden in a hundred laid out in accordance with these principles?

With respect to trees and shrubs, we would ask any one who has studied, however slightly, the collections in the arboretum of the Horticultural Society's Garden, of Messrs. Loddiges, and Messrs. Buchanan, about London; and of Mr. Donald, at Goldworth; Mr. Miller, at Bristol, and those in the Birmingham, Manchester, and other botanic and horticultural gardens in the country, how it happens that so very few of these trees and shrubs are to be found in gentlemen's pleasure grounds? To take one genus, for example, *Cratæ`gus*; how does it happen that in very few pleasure grounds more than three or four sorts are to be seen, while in the arboretums mentioned there are from thirty to fifty sorts, besides varieties? It cannot be on account of the price, because that of all the sorts is the same; viz. 1*s* 6*d.* for dwarfs, and 2*s* 6*d.* for standards. It cannot be owing to the tenderness of the sorts; because they are all grafted on the common hawthorn, and all, practically speaking, as hardy as that species.

To what, then, can the absence in our pleasure grounds of so many species of trees and shrubs, which might easily be planted there, be owing? Simply to the want of knowledge of those trees and shrubs, among gardeners and their employers. It cannot be expected that either should recommend plants that they have never seen, and of the culture of which they cannot know anything, and the names of which they would not know, even if the plants were brought before them. The truth is, that a knowledge of this branch of gardening among gardeners, and a taste for it among their employers, are both as yet in their infancy.

It appears, then, that the two grand points in which the gardeners and their employers of the present day are most deficient are, landscape gardening and arboriculture; and it is to these two points, as we have stated in the preface to our tenth volume, that we intend mainly to direct the attention of our readers, for some time to come. We have done this in our two last volumes; not, however, as our readers will be aware by referring to their contents, to the neglect of whatever is new and valuable in points

of culture; but merely to the point of avoiding the repetition of practices which have already been given in sufficient detail in our *Encyclopædia of Gardening*, and in other general works on horticulture and floriculture.

It has always been, and continues to be, our ambition to render the *Gardener's Magazine*, not a mere repetition of what has already been published many times before, but a miscellany of something additional to what has been previously laid before the gardening world in books. A reference to the general index to the first ten volumes of our work (which will soon be published,) will, we think, show such an accumulation of valuable and original matter, on points of culture, as is not to be found in any other gardening publication whatever; and if we live to complete a second decade of the magazine, we trust the general index to it will exhibit an equally original and valuable collection of papers on landscape gardening, on taste as applied to gardening generally, and of articles on trees and shrubs, and on useful and ornamental planting. Amongst these will be interspersed a series of designs for laying out garden grounds and garden buildings of every description, public and private. Having thus endeavoured to show the use of publishing criticisms on gardens and grounds, we proceed with our tour, having in our last article completed our remarks on Fonthill Abbey.

Fonthill Pavilion; James Morrison, Esq., M.P. — The late Mr. Farquhar, having taken a dislike to Fonthill, determined on dividing the estate, and selling it in portions, and on one of these he placed a nephew, and built for him a cloth manufactory. At the death of this individual, who according to all accounts was not blest with much taste, his portion was purchased by Mr. Morrison, and the kitchen wing of the mansion built by Mr. Beckford's father was turned into a residence for that gentleman. This house is badly placed, and it does not appear to us to be much improved by some immense clumps which Mr. Farquhar's nephew had planted near it. The same individual had the beautiful mosaic flooring of the cave taken up, and, in relaying it, placed a large mariner's compass of black and white marble in the centre. The orifice in the roof of this cave, by which it is lighted, is unprotected by any fence or grating, and may be considered as a trap for the destruction of men or other animals. We very nearly fell into it, and in consequence wrote to Mr. Morrison, who has since informed us that he immediately afterwards surrounded the opening by a fence. Mr. Morrison's grounds contain the larger lakes of water, some finely planted hills, and undulated valleys. The Fonthill kitchen-garden also belongs to this part of the property; but it is now let. Mr. Morrison, no doubt impressed with the state of utter ignorance into which the labourers of this part of the country are

sunk, has established a charity school in the building which Mr. Mortimer used as a manufactory, and in which all children are educated who choose to attend.

Aug. 30.—*Wardour Castle; The Earl of Arundel.*—This place takes its name from the very fine ruins of the original castle; but the modern mansion is a plain Grecian edifice with wings, without a portico to its main entrance, and not only objectionable as a piece of architecture, but as unconnected with the grounds either by mural appendages, or sufficient woody scenery. It contains a Grecian chapel, which is much admired; but, for our own taste, we have never seen a chapel either in Italy or England in that taste which can be compared with those in the Gothic manner. The situation of the house, though not marked by nature, is yet good with reference to the whole place, and the surrounding scenery as seen from it. Looking from the garden front, there is a very nobly wooded ridge, nearly a mile in length, which forms the boundary to the landscape on the left, and to the right other woods, corresponding in extent, though on less elevated ground. At the bottom of the wooded ridge is seen the ruins of the ancient castle, and, in front, a lawn of great extent leads the eye to an artificial river. The fine feature of the place is the terrace walk or drive, a mile in length, on the side of the wooded ridge. It is as fine a thing of the kind as is to be met with any where; and being open to the south and south-west, and completely sheltered from the north and north-east, it forms an admirable winter walk, or drive. It has been originally planted with oaks, silver firs, elms, beeches, hollies, and some other trees, with a general under-growth of laurel; so that in the winter season it must be particularly cheerful. The views from it, down the steep grassy slopes between the trees to the ruins, the modern house, the extensive lawns, and the water, (here seen to the greatest advantage), or over the trees to the distant country, with the hills in the horizon, are grand, varied, and interesting. In these views, Fonthill, and the tower at Stourhead, are striking objects. The soil is perfectly dry, consisting of a mixture of sand and peat, in which every thing, especially laurels, seem to grow with astonishing luxuriance. The laurels are, indeed, too conspicuous objects, and in many places they form a line much too formal along the upper edge of the walk. An attempt has been made to remove this formality by introducing rhododendrons here and there in the margin, which is so far good; but the only effective method is to open glades of turf, and to exhibit these glades stretching far up the steep sides of the hill. The great beauty of a regular, broad, and avowedly highly artificial, walk of this sort, consists in the contrast produced by the irregularity of the scenery on each side of it. The descent from this terrace to a grotto, and thence to the

ruins of the ancient castle, is fine and highly interesting. The ruins exhibit a mixture of Gothic and Grecian, the latter probably being added in the time of Elizabeth. Many of the old yews and hollies, which were formerly, it is said, cut into the forms of soldiers on guard, still remain. Near the castle is a banqueting room, most nobly kept up for the use of the public, who have free admission to the grounds at all times, and who here find a large well furnished room in which to take their refreshments, and a person to wait upon them. There is a smaller room, with a dining table, for the accommodation of any party who may wish to dine by themselves, and in the large room are numerous small tables, chairs, and sofas, in the manner of the rural coffee houses of France and Germany. Both rooms are very appropriately ornamented with prints of all the principal old castles in England. There are also panels of looking-glasses, and two fire places. The attendant lives, and has her kitchen, in the floor below. Near the ruins is an extensive piece of grotto scenery, put up by the same individual who executed the grotto at Fonthill and that at Oatlands. His name was Josiah Lane, and he was a native of the adjoining parish of Tisbury, in the workhouse of which he died last year, at a great age! He was perfectly ignorant, but certainly had a genius for this kind of construction. He used to do all the work with his own hands, and be paid at the rate of about two guineas a week; but, like other money-getting men with ill regulated minds, he never thought of making provision for age. Another good feature in the grounds of Wardour Castle is the American garden, which contains some good old specimens, especially of arbor vitæ, red cedar, tulip trees, and white spruce, and a hemlock spruce 40 ft. high, the trunk of which is 3 ft. across at the surface of the ground. There are some very large rhododendrons and azaleas, and some of the newer varieties of them, and of other American trees and shrubs, are being added from time to time. The shrubbery walk, which leads to the American ground, contains some fine specimens of platanus, Turkey evergreens, and Luccombe oaks, cedars, Portugal laurels, &c.; and here, and in a part of the American ground, a number of species of pines and firs are introduced. They are numbered with cast-iron numbers, which we regret, because, by putting the names to them at length, they would be read by the hundreds of persons who come every year to see this place; and thus a knowledge and taste for such trees might be spread throughout the country. There is nothing that we dislike more about a gentleman's seat, than to see the same forms of hothouses, and the same modes of numbering plants adopted, which are common in nurseries, excepting always the kitchen-garden, in which they are appropriate. The kitchen-garden here is divided into compartments by beautiful grass

walks, as gravel is scarce and dear. The approaches to this place, both from the London and Bath road, and the road from Hindon, are remarkably good, and their commencement is indicated by very picturesque and substantial Gothic cottages, said to be built from designs by the present lord, who, with his lady, are much attached to gardening improvements. The family being at present in Rome, the place is not kept up as it is when they are at home.

On our way to Salisbury we were repeatedly reminded not only of the necessity of guide posts, but that they should be formed of solid letters, with open intervals. So violent was the storm, and so dark the night, that we could hardly see the road; and, taking the wrong turn at Wilton, we went round by Old Sarum; thus taking a very dangerous road, and one which was more than five miles round. The tree at Old Sarum, under which the elections used to be made, was blown down the same night.

Aug. 31. and *Sept.* 1. — *The Mount, near Wilton; J. H. Flooks, Esq.* — This is a pretty little villa, recently built, and laid out by the proprietor, a gentleman who is very extensively employed as a land agent, surveyor, architect, landscape gardener, builder, and, in short, as an adviser in most descriptions of rural business. He has also extensive brick fields, and, till lately, farmed on a large scale; one of his concerns being a renter of the grounds on which sheep fairs are held. Mr. Flooks holds two fairs, one at Wilton, and the other at Britford. The former is one of the largest in England, and is held in a field of thirteen acres, near Mr. Flooks's house. This field is laid out into ninety-six compartments, parallelograms, like the beds of a garden, separated by main and subordinate grass walks. In the centre of the field, where the two main walks cross each other, is a small portable wooden house, in which Mr. Flooks sits three or four days, both before and while the market is being held, with a plan of it before him, in order to let out, either entire compartments, or any part of them, to farmers or dealers who have sheep to expose for sale. For this purpose he has a number of clerks and assistants, who, like aid-de-camps on a field of battle, are continually running to and fro. The compartments are either let to farmers for their lives, or singly at so much per day, per market, or per year. This mode of letting has brought Mr. Flooks into personal contact with all the principal sheep dealers in the West of England, and with almost every farmer within a circuit of nearly fifty miles in diameter. We have seen the list of bad debts made amongst these men, in sums from one shilling to two or three pounds, the names arranged alphabetically; and it is really frightful from its magnitude. There is a sufficiency of wicker hurdles (from 800 to 1000 dozen, and four times that

number of shores and shackles, that is, stakes and ties) on the field, to divide the ninety compartments into ten subdivisions each: so that 900 persons may have 900 separate flocks exposed for sale at the same time. There are usually from 90,000 to 100,000 sheep penned at one time.

Mr. Flooks's house is a model of comfort, convenience, and arrangement within, and the external elevation is plain, but in perfectly good taste. In the grounds his object has been to display specimens of different descriptions of garden ornaments, and more especially of the Italian open parapets formed by tiles. The first hint for these Mr. Flooks took from Lord King's, at Oakham Hall, near Cobham, noticed in a former volume; but he has greatly varied them in consequence of having his own brick and tile works, in which he can have a variety of forms moulded at pleasure. Some of these parapets are 9 in. in thickness, and others only 4 in. The appearance of the latter is very handsome, and the cost in this neighbourhood does not exceed 6*d.* the superficial foot. The cost of the others varies from 9*d.* to 1*s.*; the coping, in these cases, being brick and tile; but when the coping is of stone or composition the expense is greater. Mr. Flooks having introduced this description of parapets, and also grass steps to terraces, they are at present quite the fashion in this part of the country; and, as generally happens in similar cases, they will no doubt be often applied in situations where they are by no means appropriate. This, however, only shows the natural love which exists of variety and beauty, and it ought to afford hints, both to architects and their employers, to discriminate between what is suitable and what is unsuitable, and for this purpose to store their minds with ideas on the subject. For example, a gentleman may have a Gothic house, like the beautiful villa erected at Wilton for Lord Pembroke's steward, and may wish, after seeing those of Mr. Flooks, to have some garden fences of an architectural character. His first impression would doubtless be to imitate them; but, on second thoughts, it would occur to him, that their appearance would not be in harmony with the ornaments of his house; in other words, though connected locally, they would be disconnected architecturally and artistically, and would not indicate that unity of system, or of working of the same mind, which is necessary in the productions of every art to constitute a whole. What is he to do then? Either invent forms corresponding with those displayed in the ornamental part of his house, or have recourse to the established forms of that particular variety of Gothic architecture in which it is built. Mr. Flooks has covered his walks with a gravel almost as beautiful as that of Kensington, which he has been at the expense of bringing from a considerable distance, with a spirit which we

wish we could see greater evidence of among his wealthy and titled neighbours.

Sept. 2.—*Stonehenge.* — This ruin of what may be considered a primeval temple of philosophy, of religion, of devotion, or of instruction (for all these we consider to be essentially the same), affords some good hints for garden buildings on a large scale. A circle of pillars, whether square or round, on a large scale, joined by massive architraves, either with or without cornices, is a noble and imposing object, and would be so even if the pillars were built of brick, and covered with Roman cement. Such an ornament might form a fine termination to a wooded hill; and we do not believe there are any which would produce so grand an effect for so small a sum. The ruins of Stonehenge, though exceedingly interesting in an antiquarian point of view, are very deficient in architectural interest. The cause is their utter want of masonic forms and manipulations: if ever the chisel and the rule were employed on these stones, all evidence of it is now gone. To be convinced of the grand effect of masonic forms in giving architectural interest to ruins, we have only to recall to mind the smallest portion of any of the buildings of antiquity, which we have seen in Greece or Italy, and compare them with these gigantic fragments. On every square inch of the surface of the former, there is the impress of human labour, and the evidence of the employment of mind. Here we are obliged to search for this evidence, by convincing ourselves, that so many stones could not be placed on end by chance; and that, though not equidistant, yet still they are so placed as to form something like regular figures. On examining the stones we find they are of three different kinds; viz. the larger stones of sandstone, the smaller of granite, and two or three stones, in particular situations, of two varieties of limestone. This shows that they have been brought from different places, but still there is wanting that mathematical regularity and uniformity which are the characteristics of masonry; and we conclude by wondering how savages, that did not know how to hew, could contrive to set such stones on end, and put other stones over them. We state this as first general impressions: after considering them farther, observing the tenons, and the corresponding mortises, and reflecting on the subject, and on the countless number of years that they must have stood there, we yield to the probability of their having been originally more or less architectural.

We met here with an artist, Mr. Browne of Amesbury, author of *An Illustration of Stonehenge and Abury.* He was sitting in a kind of covered wheelbarrow, the bottom of which formed his seat; a box, which served as the feet of the wheelbarrow, protected his legs, and kept his feet from the ground, while from the sides and back were continued up glazed canvas, so as to

form a complete box. In the sides are two very small circular panes of glass, serving as spy holes. The machine is worthy the attention of other rural artists. In Mr. Browne's work, he considers Stonehenge to be erected before the flood, and Abury, a similar monument, to have been constructed under the direction of Adam, after he was driven out of Paradise, as a "remembrance of his great and sore experience in the existence of evil."

Wilton. — There is a great taste for floriculture in this ancient little borough town, and the mayor, Mr. Blackmoor, is the Secretary to the Salisbury, Devizes, and several other Horticultural Societies. We were much gratified with the conversation of this gentleman, who is not only an enthusiastic horticulturist, but a man of general good taste. Mr. Flooks introduced us to several of the inhabitants of Wilton, who had neat gardens, and we found that pinks and carnations were their favourite articles of culture. The garden of Mr. Hetley deserves notice for a sunk flower-garden, surrounded by a turf terrace, the object of which is to prevent the interruption by the flowers of the views from the windows. The descent to the flower-beds is by steps of turf, such as Mr. Flooks has introduced in his own garden, and also in the new architectural flower-garden at Longford Castle. The other parts of the grounds here have some beauties, and many faults, the chief of which is formality. It would be an easy task to add variety and intricacy, and we shall, perhaps, show how this might be done on some future occasion.

The garden of Mrs. ——— is remarkable for a fine straight canal of running water which passes through it, the sides of which are formed of oak plank; the surface of the adjoining ground is varied by flower-beds. The walks through the other parts of the grounds are so contrived that, by walking over them certain numbers of times, the extent is a mile, half a mile, or a quarter of a mile; and against a wall, an iron strap is fixed, pierced with holes, beside which is a pin suspended by a small chain; so that the pedestrian, by moving the pin from one hole to another every time he passes by, knows exactly the extent of the walk he has been taking. Some years ago, when in very bad health, we used to do the same thing at Bayswater, but in a much smaller garden. Such exercise is by no means so beneficial as that in which the mind is engaged as well as the body; for example, in walking along a public road, or through a town, or, best of all, digging, hoeing, or watering in a garden.

Wilton House; Earl of Pembroke. — Part of this building has been changed to the Gothic style, under the direction of the late James Wyatt. There is an entrance porch for carriages to drive under; in all cases a source of great comfort. Through a lobby we proceed to an entrance hall open to the roof, like that at Fonthill, at the end of which there is a flight of five or six

steps, which lead to a cloister, which surrounds a square open court. This cloister contains an extensive collection of antique sculptures, including statues, busts, therms, and relievos. We believe there is scarcely a more extensive collection in England than that in this cloister, and in the other parts of the house, though there are more costly articles in the sculpture galleries at Woburn Abbey and Deepdene. There are a number of good rooms, and in particular the saloon, which is a double cube of 30 ft. on the side. The ceiling of this room is coved, and the measurement of 30 ft. is not from the floor to the cornice, but to the highest part. The views from the windows to the grounds give no adequate idea of the extent of the park, because the latter is too much crowded with trees near the house, and because there is an architectural seat, very improperly placed as a termination to a short broad walk, conveying the idea to a stranger that there is a public road, or some interruption, or object to be concealed, behind. The view to the Palladian bridge, and that to the fine old cedars is good, and is heightened in effect by the rising grounds in the distance, well clothed with wood. The view from the library to the architectural flower-garden is the best of its kind; in the centre walk there is a fountain, and it terminates at the distance of several hundred yards in a building from a design by Hans Holbein, which was once the entrance porch to the house. It is in the impure Grecian style of that artist's time. In descending from the house to the grounds, the first cause of regret is the want of an architectural basement, but ill atoned for by placing some pedestals and vases on the naked grass. The flower-garden alluded to has an excellent general effect; the descent to it is by a broad flight of steps from the library, and it has on one side an open pillared building, elevated so as to command a view of the whole garden, and of the park scenery beyond. This scenery consists chiefly of cedars in the foreground; and their effect, in connexion with the fountain, and with the vases and other objects in the flower-garden, has a grand and Oriental air. The walks in the garden are bordered with yew tree boards rounded on the edges, instead of stone: these have been found to last ten years without repair. The beds are overgrown with shrubs or otherwise in an unsuitable state, the family not having resided here for several years. To have the proper effect, such a garden ought to be planted with low growing flowers, each compartment a mass of one sort, and every sort removed as soon as it goes out of flower, and supplied by another. The garden would then be looked down upon like a carpet from the library, and from the terrace walk which borders it on two sides. Proceeding from this garden to Holbein's porch, there is a strip of shrubbery on the right, the front of which is exceedingly well managed, in

respect to the variety of outline by the formation of bays and recesses. The trees and shrubs are of common kinds, but the finest sorts might be introduced in the same style of disposition. What we greatly approve of is, that there is no dug space in front of this shrubbery, the turf losing itself under the branches. There is not, as we have shown at length, Vol. XI. p. 412., a greater deformity in modern gardening than that produced by digging the margins of shrubberies, and planting roses and flowers in them, which from the exhaustion of the soil by the roots of the shrubs, and the stagnation of the air and shade produced by the intermixed trees, can never be otherwise than sickly. It ought to be laid down as a rule, never to be departed from, that no rose bush or flower should ever be planted but in open airy situations where they would come to perfection. This would greatly limit the labours of the gardener, and he would be able to do what he did in the way of cultivating flowers well. Surely there is no one who has attended to this subject who will not allow that it would be a great improvement in pleasure-ground scenery to get rid of those tawdry borders of sickly straggling flowers, leaving nothing in their place but turf and shrubs, or for a few years while the shrubs were young, shrubs on a dry surface! We have long tried to effect this innovation, and if we could only succeed in doing so, we are sure we should equally benefit gardeners and their employers, and add much to the beauty of every country seat.

There are a great many fine cedars in the park here, seven of which are considered to be the first planted cedars in England, and are reckoned to be about 160 years old. The largest is a bush rather than a tree, with a trunk only 5 ft. or 6 ft. in length, and 18 ft. 6 in. in circumference at the ground. It divides into numerous upright growing branches of nearly equal size, and thus forms a large orbiculate bush about 70 ft. high. From this description it will appear to be a tree of no marked character. There is another rather higher, with a straight trunk, and regularly placed branches, which, though a fine and stately tree, has also nothing remarkable in its character. Most of the other trees have assumed grander and more picturesque forms, some of their branches having taken the character of arms, and having stretched out to a considerable distance. All of these trees bear abundance of cones, which fall, or the seeds drop from them, and germinate in abundance among the grass below; a very good hint to nurserymen to sow the seeds of the pine and fir tribe, with hardly any covering of soil, and to shade them from the sun.

Standing on the Palladian bridge, and looking towards another bridge on the same river, the channel of the water appears much too straight, formal, and unvaried. The other bridge

appears to terminate the water, and gives the idea of a cul de sac. Some trees hanging over the margin, and some stones and gravel deposited along the water line, would remove this evil to a certain extent. The bed of the river is shallow, and, notwithstanding the clearness and rapidity of the stream, is covered with weeds, which, forming a nidus for insects, supply abundance of food for fish. In general the grounds may be stated to be too much covered with trees; so that the idea conveyed, in which ever direction we look, is that of a place of limited extent. There is a very good kitchen-garden; the walls and hothouses of which are exceedingly well managed by Mr. Witt, who grows most excellent pine apples, peaches and grapes. It is impossible not to regret that such a man is not furnished with the means of keeping his place in the order in which it ought to be. In the pineries, he has introduced on the front flues, shallow troughs throughout their whole length; formed by edgings of Roman cement. These are kept filled with water in warm weather, and diffuse a genial moisture throughout the whole house. By using stable urine, ammoniacal and carbonic acid gas would be diffused along with the moisture, which would have a tendency to destroy insects, and yet promote vegetation. Mr. Witt has hitherto had the greatest difficulties to surmount in growing his pines; but he has lately erected two good houses, which will diminish his labours, and no doubt increase his success.

Formerly the inhabitants of Wilton had the right of walking along the banks of the river in the park, but they are now entirely excluded, and can only by a very especial favour procure a sight of the house or grounds. The inhabitants are quite aware of the injustice which has been done them in excluding them from their ancient rights of walking by the side of the river in the park; but so powerful is a wealthy family in a small country place, that neither the corporation of Wilton united, nor any individual among them, would incur the risk of reclaiming the public right.

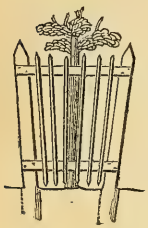
There is a steward's house here, and near it a group of labourers' cottages, which afford a fine example of what may be called the better, and best, in Gothic architecture. The first is very good, but it is tame, without boldness and freedom, and without having the characteristics of the Tudor style fully developed. The labourers' cottages are singularly bold, picturesque, and free in their general effect, and all their details, such as chimney shafts, mouldings, mullions, doors, &c., developed to perfection. The gardens round these cottages are beautifully kept; those in front are full of flowers, and flowering shrubs, and those behind are large and well stocked with vegetables. The occupiers are men employed in the grounds at Wilton.

The steward's house is surrounded by a piece of pleasure ground, enclosed with a wire fence, in imitation of the fence of wood, or hazel rods, shown in fig. 622. *Encyclopædia of Gardening*, 2d edition. The adoption of such a form in wire we maintain to be in bad taste, for the following reasons. Either a fence ought to be architectural, and avowed as a component part of the landscape, or it ought to be incidental, and rendered as inconspicuous as possible consistently with its use as a barrier. Now a wire fence can never be rendered architectural, because there can be no architecture without considerable bulk or dimensions. To be inconspicuous it ought to have consisted simply of horizontal lines, supported by a few perpendicular lines, or of perpendicular lines, supported by a few horizontal ones. Here, however, as in the figure above referred to, the wires cross each other like network; and, as if these were not enough, they are bent round at top, so as to render them still more conspicuous to the eye than if they presented network without a border. The best description of wire fence, whether for parks or pleasure grounds, is that in which strong iron uprights, shaped like swords, are inserted in the ground in masonry, so firmly as not to require bases; the breadth of the blade of the sword, being across the direction of the line of fence, and its hilt in the ground. Connect these swords by horizontal wires, not all of one size, but with the slightest wire at top, and increasing in size towards the ground. If hares are to be excluded, smaller-sized wires near the ground must be introduced between the large ones. This we consider as forming the most inconspicuous, effective, and durable of iron fences.

ART. II. *On the Introduction of Single Trees in Park Scenery.* By Mr. R. GLENDINNING.

MY remarks in the present article will be confined to directing the attention of your readers to the introduction into parks of single trees; as regards the individual species or variety, the formation of masses by their ultimate proximity when advanced in growth, and disposition at sufficient distances from one another to admit of their entire development. What has principally given birth to these remarks, are the objections which have arisen to enclosing large portions of ground for the formation of groups, and the expense attending their enclosure. Iron has been recommended to protect single trees, and has been extensively employed in enclosing large plantations; but, though I am an advocate for iron fencing generally, when used in surrounding large masses of plantation, yet the propriety of adopting it to individual trees appears to me somewhat questionable. A group will of itself give abundant density for the end in view; but,

whether single trees in a young state, thus imperceptibly, or what is technically styled invisibly, fenced with iron rods and wire, be sufficiently important as objects in extensive grounds, I very much doubt. In order to give single trees, newly planted, the necessary imposing character, I would prefer protecting them with oak boxes, which, properly made of seasoned timber, will endure for 25 or 30 years; after which, no fence will be requisite, unless for the very tender species. The following figures (84. and 85.) will show two ways by which trees may be protected from deer, &c., by oak boxes. *Fig.* 84. will be the most expensive, on account of the expense of joining the top and bottom rails to the upright posts by mortises. Whichever form is adopted, I would recommend the wood to be smoothly planed and properly painted, in order to increase its durability. I would also recommend every tree to have the botanical name, and the year when planted, engraved or stamped on a piece of sheet lead, as in *fig.* 86., and nailed to each box. This would prevent any future uncertainty as to the name and age of the tree. Cedars and other evergreen trees, which it is desirable should at all ages have their branches sweeping the ground, may be protected with iron hurdles, fastened together with bolts and nuts; so that at any future time, as the branches extend themselves, other hurdles may with facility be added, so as to increase the diameter of the circle on which the tree stands.



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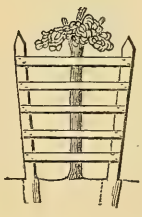

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Suppose, then, any particular part of an approach to a house was naked, and that the object was simply to clothe it, and to add to its botanical interest and importance; and that this was to be done with single trees only: — to carry this intention into effect, the principal object would be "to prevent variety from degenerating into confusion," by a judicious connection of the species employed, without repetition of them at random. This object, I think, the dotting exhibited in *fig.* 87. will accomplish, if the trees planted are those enumerated in the annexed list. To commence and continue an unbroken botanical representation in a park would be absurd; but to explain why it would be so must be the subject of another communication.

Bicton Gardens, April 14. 1836.

We hope our correspondent will pursue the subject of landscape-gardening, and what may be called botanical planting, through all its various ramifications, as they occur in actual

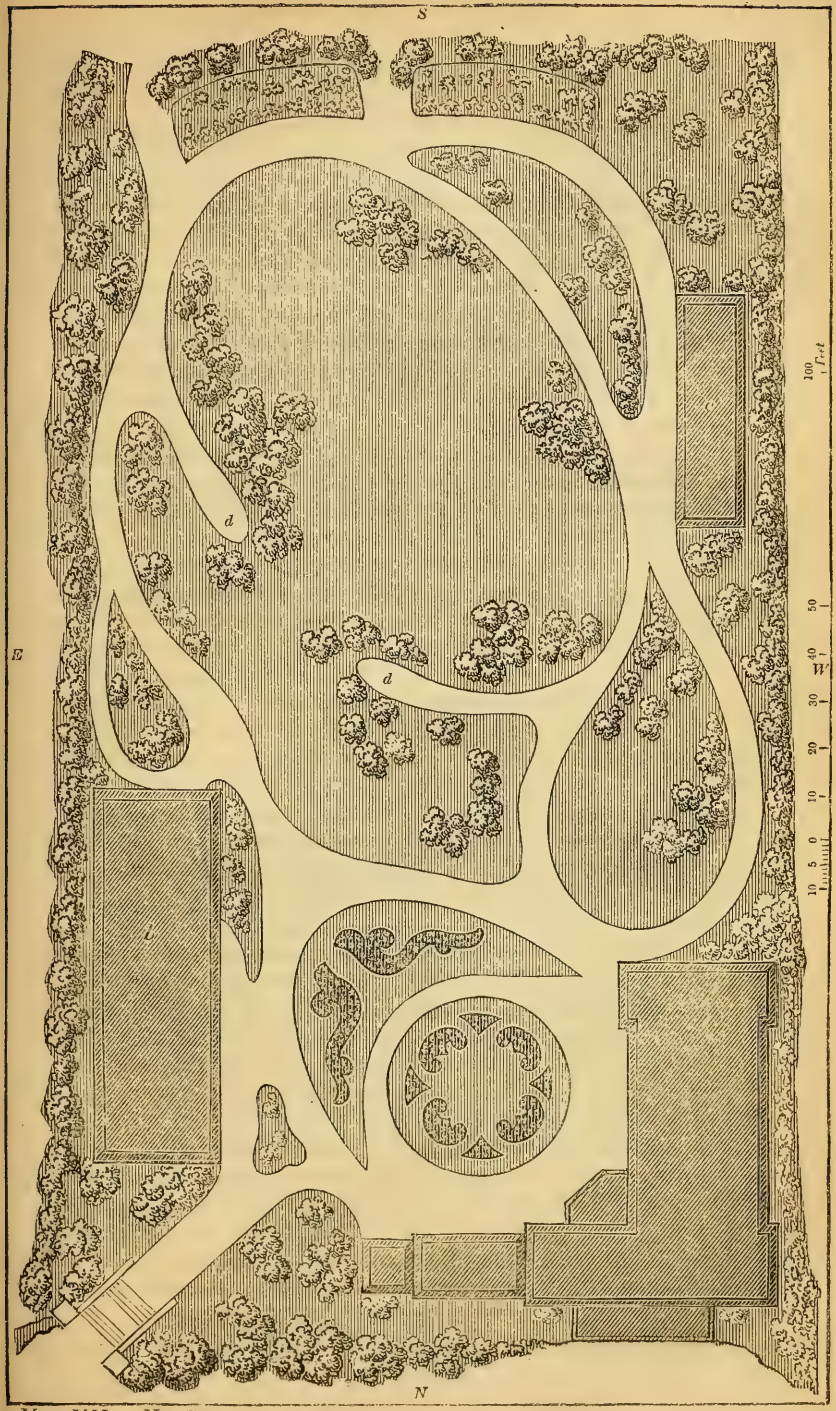
practice. We wish also that others would take up the subject, so as to cooperate with our intentions as expressed in p. 501, 502. — *Cond.*

1, Liriodéndron Tulipífera.
2, T. integrifòlia.
3, T. flàva.
4, *T*ília europæ'a pubéscens.
5, e. parvifòlia.
6, e. aŭrea.
7, e. álba.
8, e. rùbra.
9, e. platyphýlla.
10, e. laciniàta.
11, *Negúndo fraxinifòlium.*
12, Pàv*ia* flàva.
13, cárnea.
14, macrostàchya.
15, díscolor.
16, rùbra.
17, *A*'cer tatáricum.
18, *O*'pulus.
19, striàtum.
20, *p*latanöìdes.
21, Pseùdo-*P*látanus.
22, macrophýllum.
23, rùbrum.
24, eriocárpum.
25, monspessulànum.
26, spicàtum.
27, *p*latanöìdes laciniàtum.
28, Kölreutèr*ia* paniculàta.
29, *Ailántus* glandulòsa.
30, Gledítsch*ia* monospérma.
31, hórrida.
32, *U*'lmus rùbra péndula.
33, *F*àgus sylvática incìsa.
34, s. ferrugínea.
35, americàna purpùrea.
36, Quércus *S*ùber.
37, gramúntia.
38, *Taúzin.*
39, coccínea.
40, *Æ*'gilops.
41, *P*rìnus.
42, *C*érris.
43, *C.* exoniénsis nòva.
44, *B*allòta.
45, *P*héllos.
46, Liquidámbar Styracíflua.
47, *C*astànea vésca.
48, *P*látanus orientàlis.
49, or. cuneàta.
50, occidentàlis.
51, Salisbùr*ia* adiantifòlia.
52, 53, 54, three pines of sorts.
55, *C*èdrus Libàni.

ART. III. *Design for laying out the Garden of a Tavern, now building, in the Neighbourhood of Gravesend, in Kent.* By E. B. LAMB, Esq., Architect. *With a List of the Trees and Shrubs recommended for planting the Garden.* By the CONDUCTOR.

I SEND you a plan of the garden attached to the tavern I am now erecting in Kent, as it was proposed to be laid out. Some little prejudices on the part of the proprietors, on account of the expense, was the only reason for not adopting this plan in all its details; but the general outline has been retained, and the gardeners are now proceeding with it. You will perceive from the plan (*fig.* 88.), that it occupies a very limited space; but I have endeavoured to make all I could of that space, the object being to create as much variety, and lay out as many walks as could be done consistently with the preservation of breadth and apparent extent.

The letters W. E. N. S. show the cardinal points. The ground is bounded on the north by a road leading to a lofty hill, from the summit of which a most extensive view is obtained, and which is the great resort of the public during the summer. On the east it is bounded by the foot of this hill; on the south by ground intended for building on; and on the west by the road from Gravesend. The tavern (*a*, in *fig* 88.) is approached from the road by a gradual ascent, and at the back is a sunk area, in the centre of which is a circular bed for flowers, and beyond this is a sloping bed for flowers. It was found necessary to place the house considerably below the garden, as a great ascent to such a place of business from the public road is always objectionable. On each side of the sloping bed is a path; that on the north-east, leading from the house, and communicating with the ball and refreshment rooms, *b*, and with the north-east entrance. The path on the south-west side of the area communicates with the garden, &c. The south-east angle of the ground is about 4 ft. above the sunk area. The paths ascend gradually to this part, and continue winding in various directions through the grounds, varying in width as occasion requires. At the pavilion, *c*, a greater width of path is necessary, as a greater number of persons are likely to congregate there. A sunk path and tunnel is shown at *d*, *d*, and the ground planted in such a manner as to conceal this path from most situations. The ground over the tunnel and the banks of the path being planted to give as much appearance of extent as could be obtained without totally shutting out the means of communication for servants; and so as to give them a general view of the visitors to the grounds from the refreshment rooms, *b*. At the south end of the ground there are two bowers for refreshments, &c.; and in various parts of the ground are distributed seats, benches, &c.


S
E
W
N
d
d
c
c
100 Feet
50
40
30
20
10
0
10 5 0

The sloping banks of the paths approaching the tunnel are planted in a wild manner; and the tunnel is built with flints, roots, chalk, and other rough materials, strongly joined together with concrete; and various creeping plants are suffered to grow over it in every direction, so as to give a rather wild, but yet not neglected, appearance. You will perceive I have taken the idea of this tunnel from your plan for a public garden, p. 13.

Henrietta Street, Brunswick Square, Jan. 19. 1836.

THE trees and shrubs selected for Mr. Lamb's design for the Tivoli Gardens are chiefly evergreen shrubs and small flowering trees, as being more likely to be ornamental throughout the year than deciduous flowering shrubs and timber trees. It is acknowledged, however, that the latter would grow faster. The soil ought to be well prepared for the plants to the depth of 3 ft. or 4 ft.; but no peat soil will be required, as only the commonest azaleas and rhododendrons are recommended. The plants may be planted at the most irregular distances, as the intention is to produce a picturesque combination, rather than a gardenesque one; that is, rather than one in which all the plants stand singly.

I. *Principal List.*

No. in Plan.		No. of Trees.	Price per Tree. s. d.
1.	*Quércus Ilex*	3	1 0
5.	*Cérris dentàta*	7	1 6
10.	*Juníperus virginiàna*	8	2 0
13.	*Thùja occidentàlis*	5	2 0
14.	*orientàlis*	7	2 0
16.	*Cupréssus sempervìrens*	7	2 0
17.	*s. horizontàlis*	3	3 0
20.	*Pìnus Pináster*	8	0 6
25.	*Laúrus nóbilis*	7	1 0
27.	*Ilex Aquifòlium*	3	2 6
31.	*Rhámnus Alatérnus*	14	1 6
32.	*Ulex europæa flore plèno*	1	2 0
33.	*Spártium júnceum*	3	1 6
34.	*virgàtum*	1	2 0
35.	*Photínia serrulàta*	1	5 0
38.	*Aúcuba japónica*	2	1 0
39.	*Arbutus Unedo*	6	2 0
42.	*Rhododéndron* sp.	4	2 0
43.	*Phillýrea* sp.	5	1 6
44.	*Ligústrum vulgàre sempervìrens*	1	0 6
45.	*lùcidum*	1	2 6
51.	*Yúcca gloriòsa*	3	2 6
61.	*Liriodéndron Tulipífera*	1	1 6
64.	*Acèr Opalus*	1	2 0
65.	*monspessulànum*	1	2 0
66.	*Æsculus rubicúnda*	1	2 6
68.	*Pàvia rùbra*	1	2 6
69.	*flàva*	2	2 6
71.	*Kölreutèria paniculàta*	1	2 0
85.	*Rhús typhìna*	1	2 0
86.	*Sophòra japónica*	1	3 0
88.	*Cytisus Laburnum*	3	1 6
90.	*alpìnus*	9	1 6
91.	*Robínia* Ps.-*A.* umbracul.	1	2 6
92.	*viscòsa*	1	2 6
93.	*híspida*	1	5 0
96.	*Colùtea arboréscens*	1	1 6
97.	*Gleditschia sinénsis*	1	2 0
98.	*hórrida*	1	2 0
99.	*Gymnócladus canadénsis*	1	2 0
100.	*Cércis canadénsis*	1	2 0
101.	*Amýgdalus* comm. *crocárpa*	3	3 0
102.	*Armenìaca vulgàris*	1	2 0
103.	*Cérasus Pseùdo-Cérasus*	1	2 0
106.	*serrulàta*	1	2 6
107.	*Mahàleb*	1	2 0
108.	*Pàdus*	1	1 0
110.	*lusitánica*	3	1 0
111.	*Laurocérasus*	2	0 6
113.	*Méspilus Smíthii*	1	2 6
114.	*Cratægus coccínea*	1	1 6
118.	*glandulòsa*	1	1 6

No. in Plan.		No. of Trees.	Price per Tree. s. d.
120.	*Cratæ`gus subvillòsa*	1	1 6
121.	*pyrifòlia*	1	1 6
124.	*Crús-gálli*	1	1 6
125.	*arbutifòlia*	1	1 6
126.	*pyracanthifòlia*	1	1 6
127.	*salicifòlia*	1	1 6
128.	*ovalifòlia*	1	1 6
129.	*prunifòlia*	1	1 6
130.	*nìgra*	1	1 6
131.	*purpùrea*	1	1 6
134.	*flàva*	1	1 6
138.	*cordàta*	1	1 6
139.	*mexicàna*	1	1 6
140.	*Azaròlus*	1	1 6
141.	*Aròlia*	1	1 6
142.	*tanacetifòlia*	1	1 6
144.	*odoratíssima*	1	1 6
146.	*heterophýlla*	1	1 6
152.	*Oxyacántha ròsea*	1	1 6
153.	*Crat. Oxy. ròsea supérba*	1	1 6
154.	*flòre plèno*	1	1 6
155.	*Celsiàna*	1	1 6
157.	*rígida*	1	1 6
163.	*Amelánchier* Botryàpium	1	2 0
165.	*Pyrus salicifòlia*	1	2 6
167.	*spectábilis*	1	2 6
169.	*baccàta*	1	2 6
170.	*coronària*	1	2 6
175.	*vestìta*	1	2 6
176.	*aucupària*	1	2 6
177.	*americàna*	1	2 6
181.	*Vibúrnum O'pulus*	1	1 0
185.	*Córnus álba*	1	1 0
186.	*sanguínea*	1	1 0
188.	*Halèsia tetráptera*	1	2 0
195.	*Hippóphäe rhamnòides*	1	2 0
209.	*Alnus cordàta*	1	2 6
	Total, £17 1*s.*		

II. *Supplementary List.*

After the above trees are planted in the exact places indicated in the plan, the following species may be added to them wherever the gardener chooses: —

Laurustinus	30	0	6
Mezereon	10	0	6
Box	5	0	6
White Lilac	2	1	0
Persian Lilac	2	1	0
Purple Lilac	2	1	0
Hibíscus syrìacus	6	1	0
Azàlea, common sorts of	5	1	0
Ribes sanguíneum	5	1	6
Spiræ`a bélla	2	2	0
ariæfòlia	1	3	0
Rhús Cótinus	1	1	0
Total, 14*s.* 6*d.*			

The following climbers should be planted against the walls, or have poles to support them: —

Wistària Consequàna	3	2	6
Caprifòlium flexuòsum	6	1	6
Honeysuckles of sorts	6	1	0
Clematises of sorts	6	1	0
Ampelópsis *hederàcea*	2	1	0
Irish Ivy	1	0	6
Variegated Common Ivy	1	0	6
Periploca græ`ca	1	1	0
Lýcium chinénse	1	1	6
Bignònia capreolàta	1	2	0
Chimonánthus frägrans	4	2	6
Total, 15*s.*			

For the compartments in front of the house,

Roses for the semilunar bed	100	40	0
Herbaceous Plants for the Circular bed	20	5	0
Total, £2 5*s.*			

Grand Total, £20 15*s.* 6*d.*

The above prices are for middling-sized plants, except in the genus *Cratæ`gus*, where the plants are supposed to be one year from the bud or graft. Large plants of this genus will cost 2*s.* 6*d.* each, which would add 25*s.* to the above sum.

The beds on the circle in front of the house may be planted solely with flowers.

The two beds in the adjoining semilunar compartment may be planted entirely with China roses.

No rose bushes or flowering plants of any kind ought to be planted among the trees and shrubs throughout the garden, and the ground will not require to be dug or hoed about the roots after the first year. They should stand entirely on the grass, and indicate no appearance of the hoe or the spade.

ART. IV. *Design for a Gothic Flower-Garden.* By A. G. C.

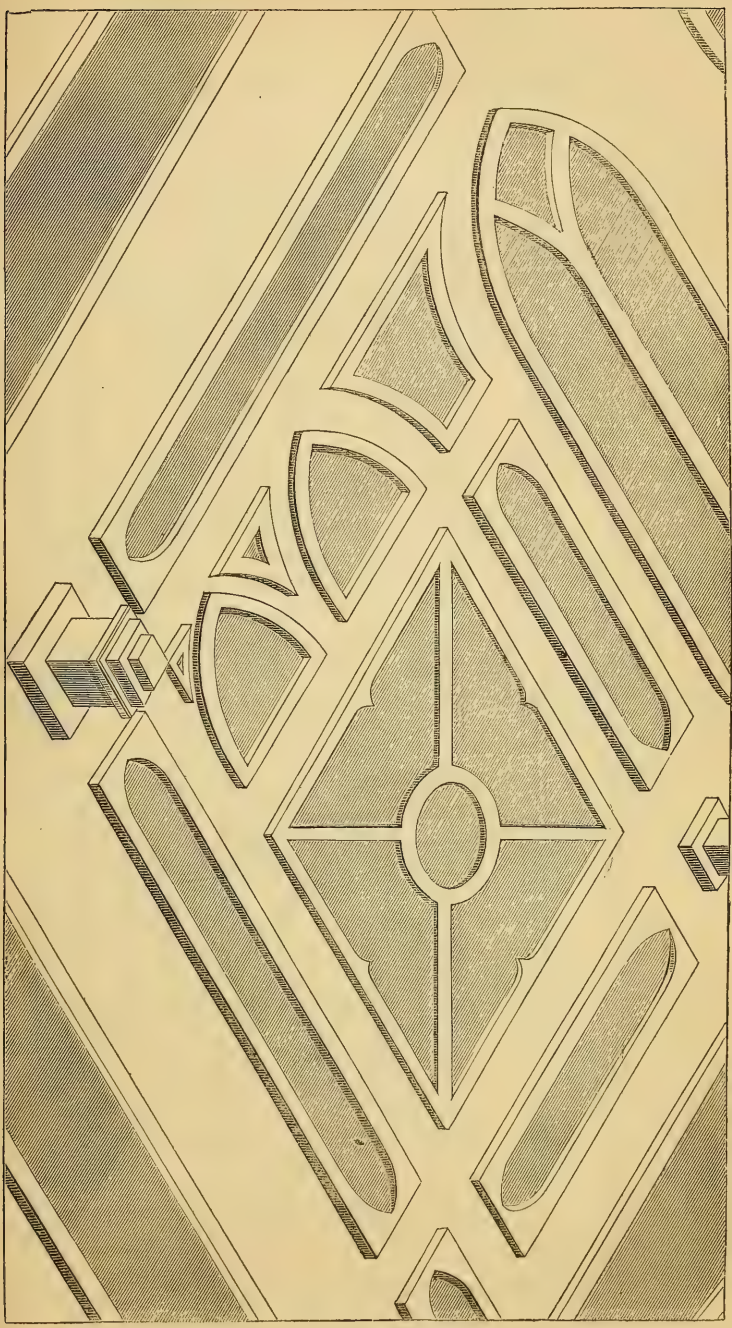
I HAVE taken the liberty of sending you a plan of a Gothic flower-garden, (*fig.* 90.), suitable to be joined to a mansion in that style of architecture.

The polygon in the centre is intended for a fountain; and I think fig. 69. p. 216. in Vol. IX. would answer well. All the lines throughout the garden which are marked in the plan are to be planted with box; the narrow space (about 9 in. wide) between the box in the flower-beds, and between the flower-beds and walks, is to be covered about 1 in. thick with very white sand or small pieces of white marble, or broken gypsum, broken sufficiently small to pass through a sieve about $\frac{1}{2}$ in. in the mesh; the dust having been sifted from the lumps, and not used. Gypsum is preferable to any of the other kinds of stone, as its whiteness has a very good effect, and shows the green box edging, and the various colours of the flowers, to great advantage.

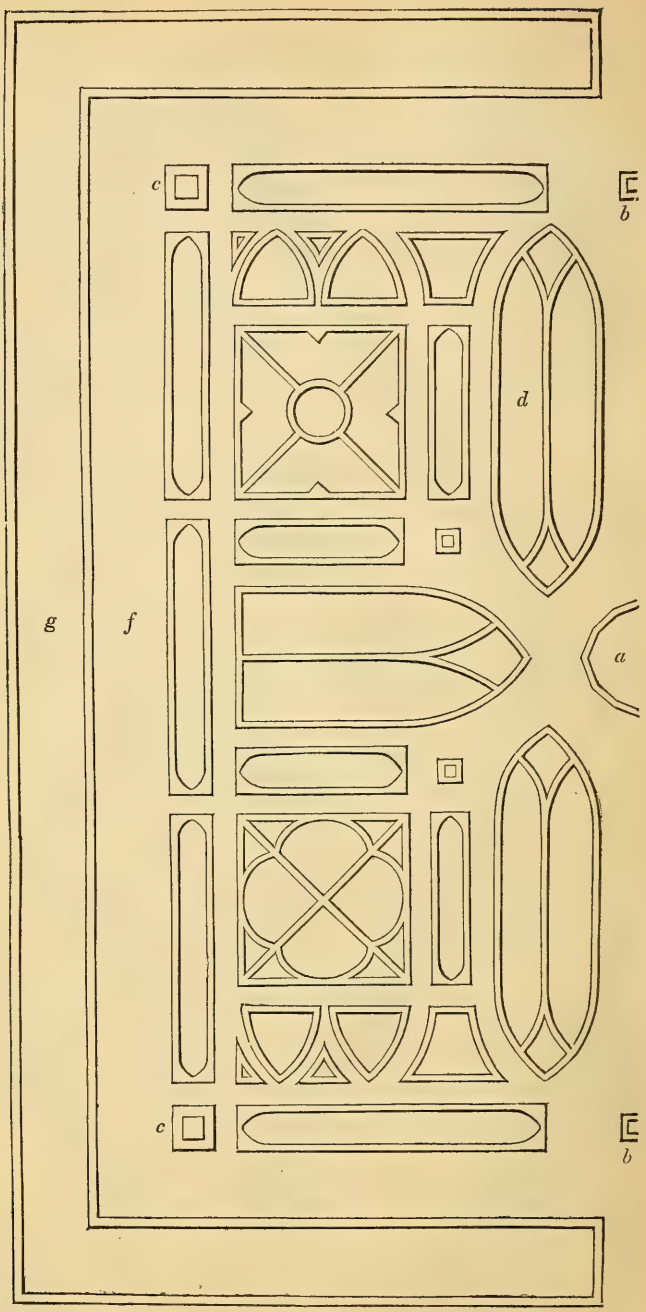
In *fig.* 90., *a* is the fountain; *b b* are statues of Flora and Diana; *c c*, vases, or in default of these, four upright cypresses, or any other upright-growing shrubs or trees; *d d*, flower-beds; *e*, gypsum or sand; *f f*, gravel walks; *g g*, American evergreens. Great attention should be paid to the arrangement of the flowers, so as to show them off to advantage: for this purpose, they should be planted in masses, the colours of which should be varied as much as possible throughout the whole. The largest beds may be planted with lobelias, salpiglossises, petunias, gladioluses, calceolarias, &c.; and the smaller beds with the dwarf sorts of verbenas, œnotheras, anagallises, nierembergias, and a great many other kinds, which it is here unnecessary to mention; as those that are likely to make such a flower-garden will, no doubt, understand what is most proper to plant it with. The plain border (*g g*) round the flower-garden is to be planted with the best sorts of evergreen shrubs; or may be otherwise planted, or covered with turf, according to the position of the building to which it is attached.

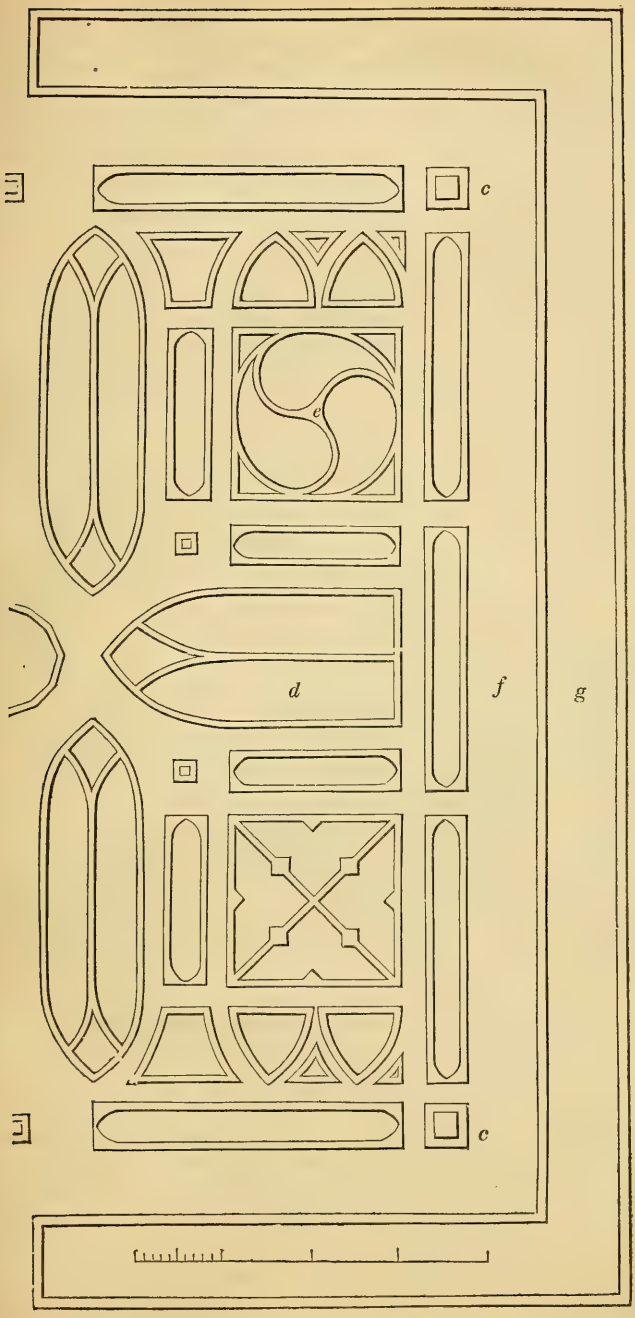
Ashbourne, March 21. 1835.

89



90




90
c
e
d
f
g
c

The greatest service which we can render the author of this design, and our readers, will be to point out what we consider to be its defects. It wants amalgamation in the parts which compose it. There is a mixture of forms, but not a union of them. Where forms are united so as to compose one harmonious whole, no one or two of them can be removed, and replaced by others of a different shape, without deranging the whole figure; but so much cannot be said of this design, because the polygon in the

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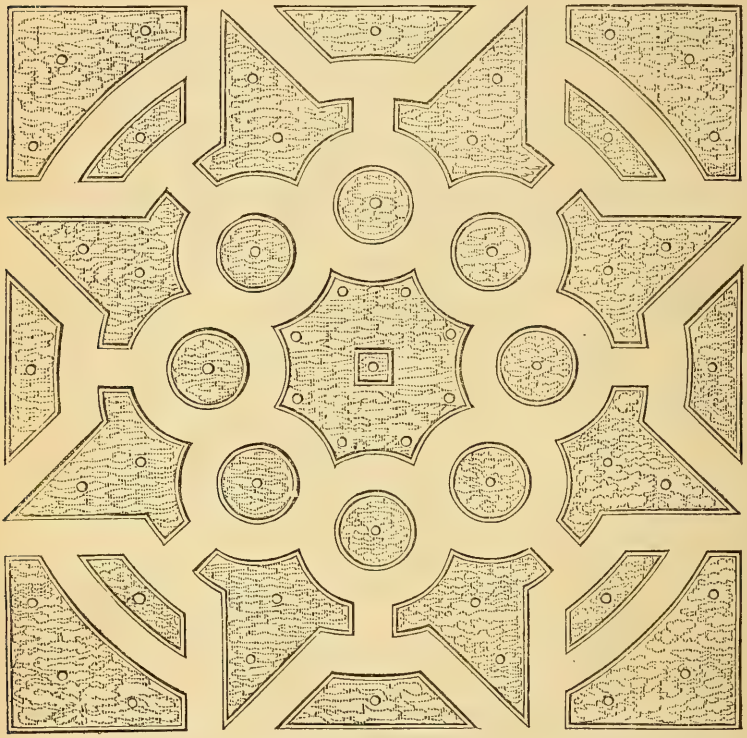


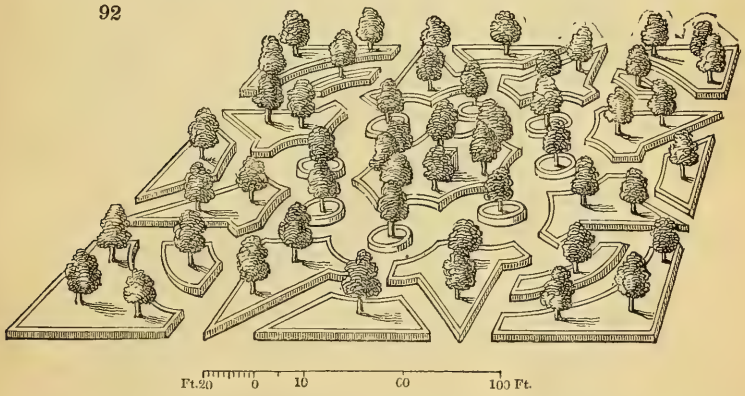
centre might be replaced by a circle, without making the design either better or worse. If it were replaced by a diamond-shaped figure, with curved sides, that shape would fit better to the Gothic curves which surround it, and, indeed, be an improvement. The spaces, also, round the statues of Flora and Diana have a bad effect, and tend, by separating the beds there to a greater width than what generally prevails, to break up the composition into two parts. The forms of some of the beds are so obviously plagiarisms of Gothic windows, and other commonplace Gothic forms as to be displeasing; and the division of the beds by narrow spaces to be covered by sand, or powdered gypsum,

has so little of the idea of utility in it, as, on that account, to be unsatisfactory; though we readily allow that this practice might be justified by what took place in former times, in those gardens, strewed with sand, shells, broken glass, &c., which Bacon ridicules, by saying, "You might see as good sights in tarts."

We mention these things, not only with a view to the improvement of the sender of the design, but for the instruction of our young readers generally in this department of gardening. If A. G. C. will try again, we have no doubt but he will be able to send us something better. We recommend him, in the mean time, to study the design which follows by Mr. Lamb, and that which precedes his own by Mr. Varden.

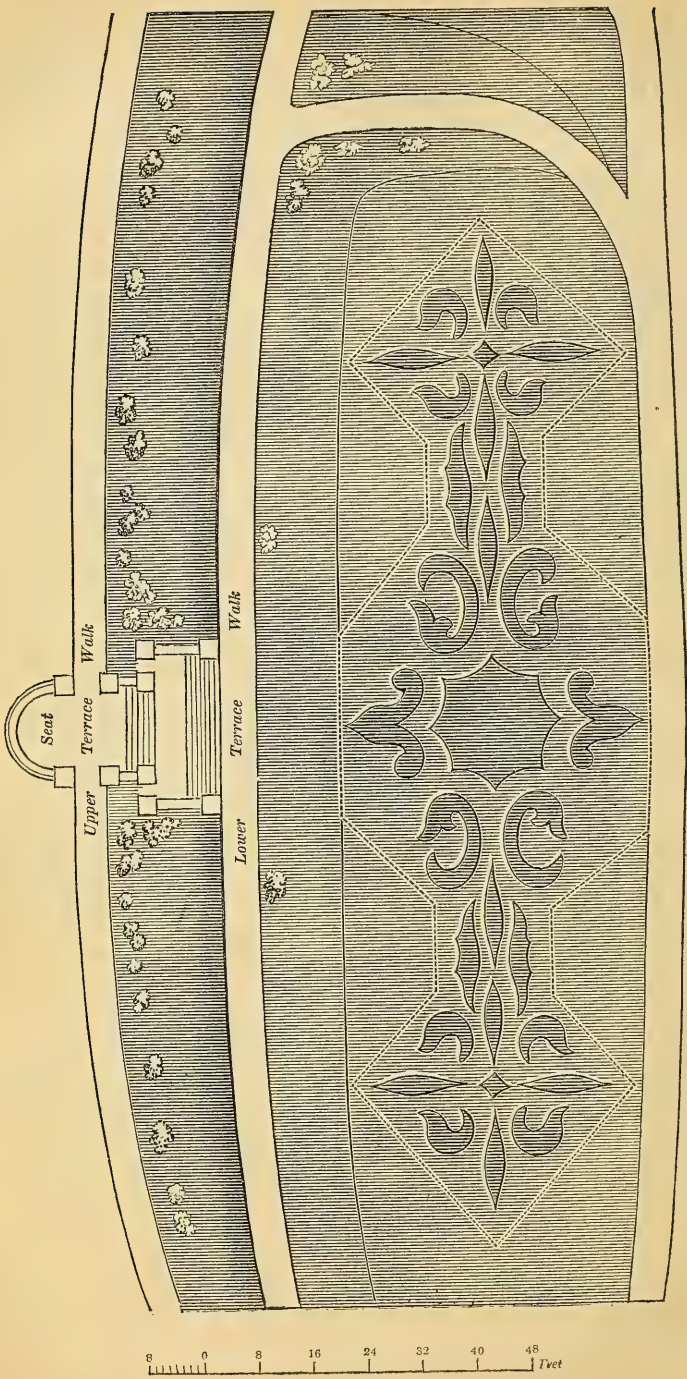
A design for a Gothic flower-garden, it appears to us, always looks best, when the margins, instead of being of box, turf, or other plants, are of brick or stone. This is beautifully shown in the designs for the ancient flower-garden of Heidelberg, *figs.* 91. and 92.; and also in *fig.* 89., which is a portion of the design of our correspondent, arranged with stone borders, and thrown into isometrical perspective. A glance at the plans for the gardens at Heidelberg (*figs.* 91. and 92.), which were laid

92



out in 1619, by the celebrated architect and engineer, Solomon Caus, will show how perfect they are as designs; it being impossible to remove any one bed, and substitute another for it, without totally deranging the symmetry of the figure. If we imagine the trees represented in *fig.* 92. to be standard roses, this design would form an excellent rosarium. — *Cond.*

93


Seat
Upper Terrace Walk
Lower Terrace Walk
8 0 8 16 24 32 40 48
Feet

ART. V. *Design for a Flower-Garden.* By E. B. LAMB, Esq., and the CONDUCTOR.

THE accompanying design (*fig.* 93.) was made for a particular situation on the side of a steep hill, forming part of one of the finest villas in Kent, in the autumn of 1835. It has been, we understand, since carried into execution; but whether with accuracy or not, we have not yet had an opportunity of judging. The situation is a level shelf of turf, about 162 ft long, and about 40 ft. wide: it occurs about midway up a very steep hill, which faces the south-east; it is on a level with the lawn on which the house stands; and is altogether a very desirable situation for a flower-garden. To give an idea of the steepness of the ground, it may be stated, that the walk marked "Lower Terrace Walk" is upwards of 6 ft. above the level of the platform of turf on which the beds are placed; so that the entire figure is seen at once from this walk. The upper terrace walk is above 10 ft. higher than the lower one; and from this, also, the flower-garden is seen as a symmetrical whole.

The dotted line which includes the flower-beds indicates a wire fence about 18 in. high, for excluding hares and rabbits.

We regret we did not take a sketch of the flower-beds which were on this platform at the time when we were consulted as to remodelling them; as they would have shown, in a striking manner, the difference, not between accident and design, because accident has no pretension and is sometimes fortunate in the production of the picturesque; but between a design exhibiting mind, and one exhibiting no mind.

ART. VI. *Facts relating to the annual Increase of the Trunks of Timber Trees.* Communicated by JOHN F. M. DOVASTON, Esq., A.M., Oxon., of Westfelton, near Shrewsbury.

IN the year 1831, at the suggestion of my congenial, and now lamented, friend, the late learned naturalist, John Clavering Wood, Esq., of Marsh Hall, the circumference of several trees here were taken on the 21st of December, and registered, with an intention of girting them on that day each successive year, and noting the annual increase. This was continued for the three following years; and then, through mere inattentive indolence, discontinued. Before, however, I exhibit, as you request, my schedule of those four years, and the present (August, 1836), it will be quite necessary that I be allowed a few observations explanatory, as also after such exhibition. Why these particular trees were chosen, I have no recollection, as they are neither the largest, healthiest, nor most beautiful: perhaps they were favourites, and the choice was capricious. I much lament we did not fix upon specimens of the great multiplicity of young and vigorous trees; especially the very numerous lusty oaks of some sixty years, whose joyous arms and thriving bark are delightsome to the eye and heart: but so it is, and so to my task, which is of some difficulty; for, by labouring at brevity, I may tumble into obscurity. They were all girted with a fine waxed thread, at 5 ft. from the ground (except where otherwise noted), and a horizontal notch cut on the east side (generally), where so girted. Now, it may seem very easy to take the circum-

ference of a tree at a given height, and note it in ruled columns: but let a tree be girted several times, and it each time will vary, some much, and some little. Either the string does not pass in a plane at right angles with the tree, as it should, but makes the imaginary section more or less elliptical; or else it passes over different corrugations of the bark; or meets with different tufts of lichen or moss, which should be scraped off. The heaving of the roots, too, raises the earth, and may cause the height of measuring apparently to vary. I have felt some difficulty, too, in describing the situation of the trees, where there are so many; and, mayhap, I may be indulged in now and then using the tree's fancy-name: for, be it known, it has long been the custom here to name trees after friends, living or dead, or to departed worth or genius: a soothing reminiscence to the spirits, peopling the memory with pleasing hamadryads. The necessity of some notes after the schedule arises from each tree demanding an explanation as to its circumstances, especially with regard to situation; for, however essential are all the skyey influences of air, which cannot be kept from a tree, light is the grand and indispensable agent of vegetation. A tree deprived of this will soon sicken, and so die. I have very repeatedly seen, when a tree has been cut down near the edge of a thick wood, having the boughs all on the light side, the annual rings, instead of being concentric, have gone off round the place of the pith in vast parabolic curves, like the orbit of a comet on a planetary diagram; the layers being exactly equally numerous on both sides, but vastly wider on the side of the light. Two trees of equal organisation, were it possible, and in equal soils, the one incommoded, and the other not, would, in a very few years, tell utterly distant on the scale of growth; though a tree may be too much exposed, and I have occasionally seen even a sycamore show a weather side to the storm. The age of these trees I can tell with tolerable accuracy; as my poor father (poor indeed, but laborious, intellectual, and benevolent) kept a register of the trees he raised and planted on his little estate, scarcely 100 acres, and now adorned with hedgerow timber worth many thousand pounds. He loved them as children, and to me for life they shall be as brothers.

		Dec.21. 1811.	Dec.21. 1812.	Dec.21. 1813.	Dec.21. 1814.	Aug.21 1836.
		ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
1.	*Cèdrus Libàni*, Largest cedar of Lebanon, near south entrance	6 6	6 10	6 11	7 1	8 6
2.	*Làrix europæ'a*, Wood's larch, near south entrance	5 7	5 9	5 10½	6 2	7 4½
3.	*Quércus pedunculàta*, Broad oak, middle of great orchard	4 9	5 4	5 6	5 9	7 8½
4.	*Pópulus álba*, Abele, Hermitage Walk	4 0	4 2	4 4	4 6½	6 1
5.	*Pópulus álba*, Abele, near pool, Mount Orchard	3 9	3 10	3 11	4 2	*
6.	*Pópulus álba*, corner abele, over Holyhead road	4 5	4 8	4 10	5 1	6 8½
7.	*Quércus pedunculàta*, Maiden oak, near old house, Felton Village	4 6	4 8	4 10	5 2½	6 5½
8.	*Jùglans nìgra*, Great hickory, near old house, Felton Village	6 5	6 5½	6 5½	6 6	6 11½
9.	*U'lmus montàna*, Wych elm, near ditto	5 6	5 10	6 1	6 3	8 5½
10.	*Jùglans nìgra*, Hickory, near ditto	2 5	2 6	2 6½	2 7	†
11.	*Fráxinus excélsior*, Ash, east of old house, Felton Village	4 5	4 8	4 9½	4 11	8 1
12.	*Táxus baccàta*, Weeping yew tree, near pump	3 8	3 10	3 11	4 1½	5 1
13.	*U'lmus montàna*, Wych elm, near Old Font	4 11	5 4½	5 6	5 8	7 1½
14.	*Fráxinus excélsior*, Great ash, Twyford Orchard	6 7	6 9	6 11	7 2	9 3½
15.	*Fráxinus excélsior*, Small tall ash, lower down ditto	4 6	4 7½	4 8	4 9	6 9
16.	*Jùglans règia*, Great walnut, ditto	6 0	6 6	6 8	6 9	6 10
17.	*Quércus pedunculàta*, Great oak, west side ditto	6 5	6 7	6 9½	7 0	8 6½
18.	*Quércus pedunculàta*, Young fairy oak, Fairyland	2 6	2 8	2 10½	3 1	4 5
19.	*Fàgus sylvática L., Fàgus Tityræ'a*, Virgil's Beech	4 7	4 9	5 0	5 2	7 1½
20.	*Pópulus monilifera*, Canada poplar, Mount Orchard	3 9	3 11	4 0½	4 2	6 8
21.	*Quércus pedunculàta*, Oak, near and north of Bewick's Oak	2 9	3 0	3 2	3 3	4 8½
22.	*Quércus pedunculàta*, next to ditto, westward	2 9	2 11	3 0	3 1	4 2½
23.	*Quércus pedunculàta*, next to ditto, west	2 8	2 9½	2 10½	3 1½	4 4
24.	*Pìnus sylvéstris*, Scotch pine, front of cider mill	4 1	4 2	4 3½	4 4	4 10½
25.	*Làrix europæ'a*, Larch, west of Pan's Mount	4 1	4 2	4 4	4 5½	5 9½
26.	*A'bies Pícea*, Silver fir, near Shenstone's Urn	3 9	3 10½	3 11	4 0½	4 11½
27.	*Fàgus sylvática purpùrea*, Purple beech, between the Aphornousli pines	2 6	2 7	2 8	2 9½	5 1
28.	*Quércus I'lex*, Ilex, front of the house	2 10	3 0	3 1	3 3	5 9½
29.	*Sàlix babylónica*, Weeping willow, north of sun-dial	6 4	6 4¼	6 4½	6 4½	‡
30.	*Quércus pedunculàta*, Roscoe's oak			2 2	2 4	4 7½
31.	*U'lmus campéstris*, Wood's elm	5 9	6 0	6 2	6 4	8 0

* Blown down. † Split, and cut down. ‡ Blown down.

1. Largest Cedar of Lebanon, near south entrance. Very noble, lofty, and towering; in full vigour, though somewhat incommoded by surrounding favourite trees; especially a majestic larch, an elegant American walnut, and a tulip tree: to the latter, however, it has resolved on speedy destruction. This cedar was sown in 1765.

2. Wood's Larch. A tree of majestic gracefulness, the curving arms hung with tresses to the very ground. Planted in 1770.

3. Broad Oak, middle of great orchard. Thick, short, and spreading all around to the diameter of about 60 ft. Planted 1750.

4. Abele, Hermitage Walk. In a word: 36½ ft. to the divarication of the first branches. Entire height upwards of 70 ft. Planted 1770.

5. Abele near pool, Mount Orchard. Blown down 6th Dec. 1822. Sold for 6*l.*, beside branches, offal, slabs, &c.

6. Corner Abele, over Holyhead Road. Overpeering and oppressing all other trees near it. Planted 1785.

7. Maiden Oak, near old house, Felton Village. This came up in the box edging of an old garden, which has been sacrificed to it. At about 12 ft. it forks into two noble arms; is most clear-barked, and thriving; quite open on south; but on north impeded by a heavy row of beech. Supposed to be about 50 years old.

8. Great Walnut, near old house, Felton Village. Stagnant. Supposed to be checked by constant heaps of muck, thrown from the cattle stalls near it. Planted 1767.

9. Wych Elm, near old house. In most luxuriant vigour; the fine clear stem running to a great height. Age unknown, but supposed about 60 years.

10. Hickory, near old house. Split by wind, and cut down; cleft into handles for tools, of surprising toughness.

11. Ash, nothing remarkable.

12. Weeping Yew, near pump. A description of this tree is given with the engraving.

13. Wych Elm, near Old Font. Much such a tree as No. 9. Planted 1770.

14. Great Ash, Twyford Orchard. An enormous tree, quite sound; divaricating, at about 15 ft., into several prodigious boles. Planted 1750.

15. Small tall Ash, Twyford Orchard, lower down. Self-sown close to an apple tree, which it killed. Very lofty and elegant. About 1782.

16. Great Walnut, Twyford Orchard. Very branchy, and in full health. Planted 1773.

17. Great Oak, west side of same orchard. There is a family of these trees dispersed about in various places. They were bought at a groat each from the plantation now standing at Woolston, in the year 1750.

18. Young Fairy Oak, Fairyland. An acorn in 1766, and planted in 1775, to appease the fanciful but amiable superstitions of "the youths and maidens of the villagery," on the site of the remnant of an old oak murdered by a coarse and wilful tenant. Nine single oaks were then planted on the open slope of this strangely shaped, but beautiful, ground; this, however, surpassed its brethren in height and stature, fostered, no doubt, by the fairies; which gaysome and airy people seem to have taken under their special protection another of these nine oaks, for it spreads and droops pensile and pendulous as the tresses of Titania.

19. *Fàgus Tityræ`a*, Virgil's Beech. Short in stem, but very copious in head, most pastorally patulous and shady; its horizontal arms extending 91 ft.: it is clear all round; but, on the north, will soon reach the oak plantation by which it is backed. Age unknown, but supposed to have been planted 1766.

20. Canada Poplar, Mount Orchard. The tallest of my trees, and seen from a distance as a landmark, overtopping them all: it had a twin-brother, broken down by the tempest, 6th Sept. 1813; a fate, I fear, sooner or later like to betide this. Planted 1785.

21, 22, and 23. Oaks in a thick plantation, or, rather, the remnants of a great seed-bed, sown 1766.

24. Scotch Fir, front of cider-mill, planted with all that grove, 1767. As, also, No. 25.

26. Silver Fir, near Shenstone's Urn. Very far from being the largest of many planted 1773.

27. Purple Beech, between the three Aphornousli pines. A most elegant tree; grafted very low, the stock out-growing the scion. It produces seeds freely, from which plants are raised of every grade of colour, from the brightest green, to red, scarlet, and the deepest purple. Planted 1792.

28. *I*lex, or evergreen Oak, front of the house. Inscribed to one of the earliest friends of my infancy, Thomas Spring, a Scotchman, and many years a gardener in England; a man of powerful intellect, facetious humour, and inflexible integrity. Perhaps this bright and amiable man first enkindled my cordial esteem and admiration of the Scotch; feelings that every year and interview with them, or their matchless country, has confirmed. This tree is girted at 4 ft. from the ground, as at 5 ft. it divaricates into seven arms; is full of vigour and beauty, enjoying light and room all around; though fast diminishing the light in my front rooms. Planted in 1780; but after removed to its present situation, at a great size, on a sledge, having its large ball of earth frozen about its roots (being cut round the previous year) by application of water, by the ingenuity of my father, who had never heard of Lord Hardinge.

29. Weeping Willow, north of sun-dial. Blown down 6th Dec. 1822. This was a very large and beautiful tree; and proved, among numberless instances I have noted, that the weeping willow does best in dry ground. The fancy of planting them to overhang water is highly pleasing: but they seldom do well there, and rarely ripen their young twigs.

30. Roscoe's Oak. A tall, noble, and stately tree, in the same oaken grove with 21, 22, and 23. Sown in 1766.

31. Wood's Elm. Of the Worcester kind. Driven as a stake into the ground, in 1770, to mark one corner of an intended building; but, growing, was suffered to stand; and a prodigious tree it became: but, losing a great arm by a hurricane, it showed signs of decay, which formed a pretext to cut it down, in 1829, for the sake of the weeping yew, which it terribly overtowered. It was sold for something more than 8*l.*; but played cruel havock with the tools of the vociferous sawyers, being full of nails, from having constantly had a large vine trained over its trunk and branches.

Having now disposed of my schedule, I proceed to your next request; hovering, however, between the desire of dilatation, and the resolution to compress. In 1776, a quillet of land, behind my present house and buildings, 143 yards long, and 9 yards wide, was thickly sown with acorns, most of which, the second year, were transplanted into the nursery, and many thousands subsequently sold. A moderate quantity were left in the seed-bed, 68 still growing there, of which Nos. 21, 22, 23, and 30. in the schedule are the finest. These have been twice thinned by the axe, and each thinning brought nearly 25*l.* In 1775 those transplanted were planted out in various fields, in rows, hedgerows, and single trees, many hundreds of which are now growing in a most vigorous and thriving state. Of a few of the largest I will give the circumference at 5 ft. from the ground. In Meadow, near Felton Old Village, 1st open row south, beginning at the west: tree III. 6 ft.: VIII. 6 ft. 4 in.: XII. 5 ft. 2 in. Second open row, beginning west: tree I. 6 ft. 1 in.: X. 5 ft. (broad leaf): XIII. 7 ft. 5½ in. (bifurcate). Third open row: tree III. 5 ft. 11 in. (this was an acorn from the great oak at Maesbrook, remarkable for always leafing three weeks earlier than usual with oaks: this, its offspring, does not inherit that property). Fourth row, in hedge, beginning at east end: tree XXXIII. 3 ft. 7½ in.: XLV. 4 ft. 4 in. East side of Twyford Orchard, not in, but near, the hedge, being my neighbour's fence. On these the notch is on the west side, on account of the ditch. Beginning at north end: tree III. 5 ft. 5½ in.: VI. 5 ft. 3 in.: VII. 5 ft. 7½ in.: XIII. 6 ft. 7 in.: XIX. 5 ft. 10 in.: XXI. 5 ft. 9 in. Round hawthorns, beginning west, at the great Holyhead road: oak IX. 5 ft. 6½ in.: XI. 5 ft. 9 in.: XIX. 5 ft. 10½ in.: XXX. 4 ft. 11 in.:

XXXIV. 5 ft. 6 in.: XXXVI. 5 ft. 7½ in.: XL. 5 ft. 9 in.: XLV. 5 ft. 2 in. Though we have plenty of sessile oaks in the neighbourhood, particularly near and on the sides of hills, these are all of the pedunculate species; and vary very extremely in all grades of growth, as planters well know all trees will, though, to all possible appearance, under precisely the same circumstances. Though there are but two (perhaps three) real species of British oak, each of these, especially the *Q.* pedunculàta, or *Q. Ròbur*, have as infinite varieties as apples, nuts, or any other tree whose varieties are more noted; and those with narrow and deeply-jagged leaves always make finer trees than the broad and loby-leaved: indeed, the physiognomical character of each may be discerned at a glance.

In the last-named ground (round hawthorns), indulge me to mention, that not far from Virgil's Beech is a grove of 6 oaks, one elm, one Spanish chestnut, and one lime, planted by me in 1804, representing at the angles the celebrated 47th proposition of Euclid, discovered by Pythagoras. And also a crab tree, brought and grafted by me in 1814, from the famous tree (now blown down, and turned into boxes and fancy toys) at "Drunken Bidford," near Stratford on Avon. And a mossy-cup oak, *Q. Cérris*, an acorn in 1808, girt 1 ft. 9 in.

I now pass to other trees promiscuously, hardly knowing which to select, or omit; and, as I have their age to accurate certainty, it may not be uninteresting. Great Cedar of Lebanon, middle of lawn, 8 ft. 3¼ in.; diameter of shade 54 ft.: planted 1773. This is free all round, and shall be so. Hemlock Spruce: south, 4 ft. 10½ in.; north, 6 ft. 4½ in.: planted 1789. Cedar of Goa, 2 ft. 10½ in. 1781. Red Virginian Cedar, pendulous over stone table, garden, at 4 ft., 4 ft. 4 in.: removed there 1790. Cypress, largest, at 4 ft., 2 ft. 8 in.: 1782. Aphornousli Pine (*P. Cémbra*) east, seedling, planted 1781, 4 ft. 2½ in. Another, north, inarched from the former on Scotch fir, 4 ft. 11½ in.: the scion has much overgrown the stock. Another, inarched on Weymouth, which has not so much overgrown the stock, 4 ft. 8¾ in. All these bear cones occasionally; but they are mostly eaten by the squirrels before quite ripe. What I have sown germinated freely; but I never could preserve them beyond the third year. And cones I gave to the intelligent gardener at Powis Castle, perished in like manner, with all his care. I have found the same disappointment with seeds of the stone pine, of which I had, about 20 years ago, three large trees died without any apparent cause: they bore cones of enormous magnitude. Spanish Chestnut, in south of front wood, middle of the three overhanging the wall, 7 ft. 4 in.: planted 1757. Silver Fir, near south entrance gate, 6 ft. 6 in.; planted 1773: a twin with 26 of the schedule, and growing only 20 yards from it, and under apparently exactly the same circumstances, yet exceeding it greatly.

Largest of the "hedgerow elms," Broad Meadow Fields, fourth from gate running north, 8 ft. 3¼ in.: planted 1750. Largest of the "hedgerow elms," running east, third from gate, 7 ft. 5 in.: planted 1765. Second wild cherry from North Twyford Orchard, 5 ft. 11 in.: planted 1767. Lucombe Oak, *Q. Cérris* var., 2 ft. 11 in.: planted 1808. There are two pinasters of very great height and magnitude; but it is not possible to girt either, on account of the enormous stems and masses of ivy (called the Irish) massing them to the very top; one of the ivies itself, as nearly as can be ascertained, girts 1 ft. 8 in. The ivies here are very remarkable for beauty and size: the walk leading to the west gate has the side trees matted with their shaggy stalks and grotesque beards very curiously, and the green wreaths dependent in long festoons and garlands: it has been fancifully compared to the "sculptured pillars foliage bound," and the highly decorated roof of Roslin's "proud chapelle." There are also fine specimens of beautiful shrubs, arbutus, bay, &c., of tree-like size. In the middle of the lawn is a weeping birch of fascinating elegance, whose tapering stem has shot to a graceful length; and, from the ring-doves sitting on its top, has been induced to turn downwards, dangling in long tresses, like what were formerly called, "love locks;" through which it shows, as it recreates in the summer air, its bark of white satin smooth and silvery. At bottom it is ex-

cessively corrugated. It measures 2 ft. 3¼ in. and was planted a slender twig in 1816, by a young lady of rare goodness and beauty — now no more.

I must not omit a prodigious wilding apple tree, never grafted; planted 1777; girting 6 ft. 8 in.; which, at 7 ft., divaricates into 12 great arms, and shoots bold and upright, like a forest tree. The produce of this tree, a coarse culinary middle-sized fruit, was one year sold to some Welsh fishermen for eight sovereigns; and a few strikes were gathered afterwards, which they left. It has long gone by the name of the Gamut, from a humourous friend having likened it to the cluster of notes on musical staves. These orchards, about 15 acres, but interspersed with forest and ornamental trees, produced, by a register kept for 25 years, about 800*l.* in that time; one year making 120*l.*, and some years scarcely 10*l.*

I now proceed to some trees of my own planting. From the earliest years, I had a propensity for gardening, encouraged by my father allotting me a portion of ground for raising trees, which I sold to him for pocket-money. In 1787, I sowed seeds of what we here call the black larch (*L.* microcárpa). Four of those in the row from the Holyhead road toward the now cider-mill girt, tree XIII. 5 ft. 3¾ in.: XV. 4 ft. 11 in.: XVII. 5 ft. 1¼ in.: XXVII. 5 ft. 3¼ in. There are few common larch mixed with these; but those girted are of the black. The largest of Scotch pines sown the same time, and growing 70 yards south from the middle of Lime Avenue, 6 ft. 3 in.

It is a very common saying, that no man who plants a walnut lives to see it bear: this I, not a very old man (53), am yearly confuting; having long ago gathered strikes of fruit from one tree, planted by me a nut in 1792, and growing at the upper end of Mount Orchard, near the Mount: it now girths 3 ft. 3 in. and is a very vigorous and noble tree. Another, to the N. E., planted same time, 1 ft. 11 in. Another, about middle of Great Orchard, 1 ft. 9½ in. There were eight of these; but the other five are much less. These are the large-fruited sort, here called bannets (probably ball-nuts). I think they make finer trees; but the kernel is very inferior in flavour, even when it does ripen well, to that of the small-fruited sort. Many may smile at my whimsies; but I wish to, and will, record, that in the last enumerated tree are embedded, a tooth of my father, of myself, and of my old friend the celebrated Bewick, who also has one in his own oak at the corner of my barn. Indeed, there are here many reliques, coins, plates, and glass-bottles with inscriptions, embedded in, and buried under, trees; so that if poets may be said, with as great truth as fancy, to "find tongues in trees;" future philosophers may be amused also to find teeth in trees.

Allow me also to record that, in 1825, I gathered acorns from Glendwr's Oak at Shelton, 36 of which were, in 1834, planted in a hedge between two fields (that on the north called the Daisies, and south the Dinmont), running west, toward an avenue of walnuts, planted the same year. On the 23d of April, 1808, a walnut was planted near my western entrance gate, by myself and convivial friends, being Shakspeare's birthday, which has here been since regularly celebrated. It was then one year old, and had an inscribed bottle, coins, and other reliques placed beneath. It now girts 10½ in. I would fain record a venerable and favourite mulberry, whose spreading arms began to break with their own weight. These I tried to support with iron cramps; but nothing would do. I then decapitated the whole: one side shot out vigorously; but the other looks at me (if I may be allowed a Latin pun) with a memento *mori*.

I feel, and fear, these records may savour somewhat of vanity; but they do not arise from any supposition that my trees are better, bigger, or more beautiful than others. Planting has, on this little property, been one of the fond and favourite toys, or hobby-horses, for two generations: one of rational and cordial pleasure, and of no inconsiderable profit; and the object of this statement is to show how much may be done, on so small a scale, and where so very little of the land is lost to pasture and tillage, and in so short a time: for the mother of my worthy housekeeper, Anne Dovaston, now living (85)

calls them all fine young trees, and says, that when a young woman in service, she well remembers this my place of residence, (to use her own expression,) without stick, or brick. It has also been the example very extensively taken up in the neighbourhood, and tended very widely to the improvement and ornature of the country. Such is cordially the private and patriotic reward of the man who delighteth in trees.

August 21. 1836.

ART. VII. *Remarks on Oak Foliage.* By the Rev. W. T. BREE.

THE beauty of oak foliage (and who can be insensible to its charms?) depends, as it appears to me, much less on the fine size and figure of the individual leaves of which it is composed, than at first sight might be imagined; and this is a circumstance not unworthy the attention of those who plant for ornament. When I speak of the "beauty of oak foliage," I would be understood to mean the superior beauty of the foliage of one individual tree as compared with that of another; for the oak is a tree which presents endless variations in its foliage, all of which are more or less beautiful, though some are, of course, much more so than others. *Fig.* 94. (reduced to a scale of 2 in. to 1 ft.) represents leaves of our common oak (*Quércus Róbur*), which are by no means conspicuous of their kind, either in point of size or conformation: on the contrary, they may be considered as rather small and shabby specimens. *Fig.* 95. (reduced to a scale of 2 in. to 1 ft.) represents leaves from a fine variety of *Quércus sessiliflòra*: they are beautifully and regularly laciniated, somewhat resembling those of the Spanish chestnut, and of a very large size, many of them too large to admit of being depicted of their full dimensions in an 8vo page. One specimen measures, with its footstalk, rather more than 10 in. in length, by 5 in. in breadth. Now, looking only at these two sets of individual or specimen leaves, any one might naturally expect that the tree which bore the latter of the two would afford the handsomest foliage. But the very reverse is the case; as may, perhaps, in part, at least, be exemplified by the sketches of a small sprig of each kind which accompanies the leaves in *figs.* 94, 95. The tree from which the sprig *fig.* 94.

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and the leaves below it were gathered has long ago attracted my attention, as presenting, on the whole, by far the handsomest foliage of any oak in its immediate neighbourhood. The leaves are of a dark deep green; and, though rather small (and small leaves combine better than large ones *), they are numerous, and grow close to the spray, clustered together in dense masses, forming those lovely tufts, or rosettes, which constitute one of the characteristic beauties of oak foliage. When the wind blows gently, it partially turns up and displays their glaucous under surfaces in harmonious contrast with the deeper tints of those above, and presents a study worthy of the pencil of Gainsborough. The leaves of *fig.* 95. being of a large size, are fewer in number, and less thickly set; consequently they do not mass so well. One of the specific distinctions of *Quércus sessiliflòra* is, that it bears its leaves on footstalks: these, in the present instance, are, perhaps, longer than ordinary; and this circumstance gives to the foliage a loose and straggling appearance, and a want of depth and solidity, which greatly detracts from its general effect. For the same reason it is that many of the fine American species of oak, beautiful as they are, must yield the palm, in point of foliage, to the monarch of our British forests.

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These remarks may appear trifling, and not worth the space they occupy; but, I repeat, the subject is not beneath the notice of those who study ornamental planting, or who look at oaks with a painter's eye.

Allesley Rectory, Dec. 2. 1835.

* Hence it is that the foliage of an old sycamore is so superior to that of a young one; and the rule holds good with most other deciduous trees. The

ART. VIII. *On the most suitable Description of Flowering Plants for planting in Beds and Groups on the Lawns of Public Gardens.* By S. S.

I OBSERVE, with great pleasure, that our public squares in this country, and more particularly in England, are beginning to be ornamented with flower-beds, in the same manner as they are on the Continent. I have lately returned from Vienna, by Munich, Frankfort, Strasburg, Paris, Brussels, Ghent, London, York, and Newcastle; and at most of these cities I found gardens on the ramparts, or other public promenades, more or less gay with the flowers of pelargoniums of different kinds, fuchsias, calceolarias, petunias, and similar plants. On my arrival here in my native city, I was rather disappointed to find the flowers in the beds to be chiefly of the commoner sorts of annuals; such as lupines, marigolds, prince's-feather, convolvuluses, and such plants; and these, too, not in masses by themselves, as they almost always are on the Continent and in England, but mixed together, in such a way as to give a general sameness to all the beds, not only of any one garden, but of all the gardens in a neighbourhood. I refer in a particular manner to the flowers in the Queen Street gardens; but I might also refer to the gardens at Dalkeith, and to a number of others within ten miles of this city.

On mentioning this circumstance to some intelligent gardeners, they informed me that they were not ignorant of the superior effects produced by masses of green-house plants, such as pelargoniums, fuchsias, &c., but that their employers were, in general, unwilling to go to the expense of green-houses, or flued pits, to protect the plants through the winter; preferring, if they were at any expense of this kind, to force fruits. If such be the case generally in the neighbourhood of Edinburgh, it surely argues a great want of taste in the inhabitants, or otherwise much ignorance of what constitutes the chief beauty of the scenery of public squares, and the lawns of suburban villas, in other places, more particularly in England. That the climate of Edinburgh is perfectly suitable to growing the plants mentioned in the open air, during summer, is placed beyond a doubt by the success which attends the culture of Cape heaths, and other Cape plants, in the open air in the Edinburgh Botanic Garden, in which I have just seen the fan palm growing like a whin [furze] bush in the open ground.

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young sycamore, with its broad and vigorous leaves, is, to my eye at least, not a handsome or interesting object; but when it has arrived at maturity, and the spray has begun to curl and crinkle, then the size of the leaves is much diminished, and it exhibits such magnificent masses of foliage, such light and shade, as are not to be rivalled, perhaps, by any of our native trees, except the oak.

My object, therefore, in sending this letter to your Magazine, is to point out to its readers the deficiencies of Scotch gardens generally in point of floricultural taste, and to show your readers that, though Scotch gardeners are in such high esteem, and make so conspicuous a figure in England, yet, owing to the want of taste, or probably owing to the want of means, or to some other cause, they are not permitted to display their skill to the best advantage in Scotland. As the first step towards the remedy of any evil is to make it known, if you publish these few lines they may be the means of improving the flower-gardening of Scotland, and more especially in the neighbourhood of Edinburgh.

Edinburgh, Aug. 29. 1836.

The following extract from our *Arb. et Frut. Brit.*, respecting flower-gardens of hardy heaths, may perhaps aid the purpose which our esteemed correspondent has in view:

"We always recommend gardeners, when they are forming a scheme for planting a flower garden, to try the effect which it will have, during the principal summer months, by drawing a plan for each of these months, and colouring the beds in each plan with the colours of the flowers of those plants which are intended to be simultaneously in flower in them. Such coloured plans being shown to the employer, (and more especially to the female part of the family, who have generally considerable taste in the arrangement of colours,) useful hints may be received, and the beds altered until perfect harmony is produced. Another mode, and one which would afford an excellent exercise for young gardeners, would be for the gardener to lay before his employers, once in every year, 12 copies of the plan of his flower garden, (for which purpose it might be lithographed,) and these 12 copies being coloured by the lady of the family agreeably to her taste or ideas of what constitutes harmony, the problem for the gardener to solve would be—'Required the kinds of plants, and the modes of treating them, necessary to produce the given colours in the given months.' Of course, the plans and this problem for every year would require to be given to the gardener a year before the time when it was intended to be carried into execution, in order that he might have time to propagate and prepare the proper kinds and requisite numbers of plants. These remarks, though apparently not immediately applicable to ericetums, or flower-gardens composed solely of hardy heaths, are yet decidedly so when Cape heaths are included; and they are also applicable to gardens of low American shrubs, including azaleas, rhododendrons, &c., such as will afterwards be treated on and described." (*Arb. Brit.*, art. *Ericeæ normales.*)

ART. IX. *A Mode of producing Two Crops of Grapes, in One House, in One Year.* By Y.

I HAND you the mode that I have adopted for producing two distinct crops of grapes, in one house, in one year; and in no instance have I lost a crop for the last five years. I can only regret that I have a limited quantity of glass for that purpose, and that, too, of the worst sort, being over pine pits. To detail what has occurred since the middle of May, 1835, to the middle of May this year, will show at once both the simplicity and the expediency of this mode, without going into further particulars. I have one house 30 ft. long, 16 ft. rafters, 30 in. front glass, with eleven vines planted outside; five of which are excited for the spring crop, and six for the autumn crop. The five vines were turned out of the house in the middle of May, 1835. When the six vines for the late crop were introduced, those turning out were laid upon a flat trellis in front of the house, the wood being ripe by the end of July, at which time they were pruned upon the spur system, as I consider that it shades the pines much less, and the buds break more evenly. Each vine is divided at the entrance into the house, and formed into two principals, which are the full length of each rafter. In a week or so after pruning, the vines are covered, to keep them both cool and dark, until Oct. 26., when they are introduced into the house, and the six others placed in their situation. These six had been introduced in the middle of May, 1835, and had matured their crops and ripened their wood. The other five had sprung their buds above an inch when put into the house, and were pruned upon Mr. Speechly's system, with two stems; one vine being divided at its entrance into the house, and made into two principals, so that the rafters were completely furnished. I consider this mode superior to any, when the buds can burst in a cool atmosphere. The crop was 180 lbs., and I sold them for 2*s.* 6*d.* per lb., independently of what I cut for my own table; and this year, at the present time, they have the appearance of a still larger crop. The five vines taken in on Oct. 26. were immediately wrapt with coarse sacking, and well moistened with cold spring water. The house was kept as low as the pines would admit, until every bud had sprung or swelled, when the sacking was released, and in a few days taken off. The buds all pushed vigorously, and were in full bloom by the Christmas morning, a thing that I am very particular in, as I always find every thing set better in the gloomy months by this caution than any other. The usual rules were followed afterwards; only keeping the house cool in the evenings. Instead of a high moist heat for this forcing, a cool dry atmosphere is necessary. In March the heat was cooling fast, and on

April 1. this year, I sold the fruit as it then was, to be cut as ordered, to go to London, for thirty-five guineas, along with ten pines, ripe and ripening. The grapes were gathered, and the vines turned out on the trellis about the middle of May 1836; and they are now in as fine and healthful a state as I could ever wish them to be. The principle of growing these two crops first occurred to me when I grew pines in the same pits. The vines were old; and, as one vine was placed under each rafter, the two principals from each vine covered the entire roof; so that for the sake of the pines I should have had either to destroy half the vines, or to have cut half the principals away. I therefore determined to make a fair trial, and the second year I succeeded to my satisfaction. In the new houses that I am about erecting for vines, I intend to have two distinct borders, that I may have more principals under the glass. This house has been heated by flues from one fire-place, and I am not certain whether I shall not use flues for my new ones. I have seen many on the new principles, but have not yet met with any that work with less fuel or attendance than my own, independently of the expense of erecting; and not being yet philosopher enough to make out how more heat is gained by a certain quantity of fuel heating hot water, than by heating flues, on the principle of my own, I shall not adopt it until I do. The fuel that I use is small coal made into bricks with clay. The ashes make a beautiful and lasting covering for walks, with the least sprinkling of cement, or they may be used for manure.

Lancashire, July, 1836.

ART. X. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Sir William Jackson Hooker, LL.D., &c.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

The Birmingham Botanic Garden, or Midland Floral Magazine; containing accurate Delineations, with Botanical and Popular Descriptions, of Plants cultivated in the Stove, the Green-house, or the

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This new botanical periodical is brought out in a superior style; the figures are very beautifully lithographed, and coloured with great care; and the letterpress is highly respectable. We are most happy to learn that its success has far exceeded the expectation of its projectors. Having given this notice of the work, with the title at length, we shall in future confine ourselves to abridging the title, in the same manner as we do those of the other periodicals, omitting to mention it at all when, in consequence of no new plants being figured in it, we do not make any use of the work. This has always been our practice in respect to the other periodicals; notwithstanding a complaint made by one of our correspondents, that we acted partially in this respect.

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No. XV. for September, completes the second volume of this work, in which, as expressed on the title page, the drawings are coloured in the most finished style. We have recommended the work as a very suitable prize in the case of florists' flower exhibitions.

Crucíferæ or Brassicàceæ.

1827*a*. STREPTA'NTHUS (*G. M.*, vol. x. p. 237.) [3516.
**hyacinthöides* Hook. Hyacinth-like-*flowered* ○ or 3 au Bsh.p Texas 1834 S. s.l Bot. mag.

A remarkable cruciferous plant, having the appearance, when in flower, of some kind of hyacinth. It is a hardy annual, a native of Texas, which was sent home by the late Mr. Dummond. It flowered in the Glasgow Botanic Garden, for the first time, in August, 1835. (*Bot. Mag.*, vol. x., new series; Sept.)

Another species, S. obtusifòlius *Hook.*, is described in the *Bot. Mag.*, t. 3317., and is noticed in Vol. X. p. 237.

Leguminàceæ § Papilionàceæ.

1985. *LUPI'NUS*
**latifòlius Lindl.* broad-leaved 2½ △ or 1½ jy B California ? 1834 S. l.p Bot. reg. t. 1891.

Apparently distinct from both *L.* rivulàris and *L.* littoràlis, to which, however, it approaches more nearly than to *L.* polyphýllus. In Dr. Agardh's *Synopsis Generis Lupini*, 76 certain species of the genus *L*upìnus are described, and 7 others mentioned as little known. Of the former, no fewer than 34 are in Mr. Douglas's collections. (*Bot. Reg.*, vol. xxii.; Sept.)

Rosàceæ § Pòmeæ.

1506. CRATÆ'GUS 12908. spathulàta *Michaux, Pursh;* Bot. reg. t. 1890.
Synonymes : C. virginica *Lodd.*, Loud. Arb. Brit. ; *C.* viridis *Hort.*

Spec. Char. Branchlets sparingly spiny. Leaves obovate, narrowed to the base, lobed with about 3 lobes; serrate with glanded teeth, as are their leafy stipules, each of which is half halberd-shaped; the leaves of a branchlet or spur, forming in some instances a group. Corymbs of few flowers. Flowers nearly sessile. Sepals cut. (*Lindley*, and the figure.) Branchlets sparingly spiny, having the leaves in fascicles, small, subspatulate and 3-cleft, with the portion that is narrowed to the base long. Corymbs few-flowered. Pedicels short. Calyxes tomentose. (*Michx.*) There can be no doubt that this is the real *C.* spathulàta of Michaux, about which so little is known that it is altogether omitted from the *Floras* of Torrey, Hooker, and Beck. It is introduced by name into Elliot's work on South Carolina, without that author's being acquainted with the plant; was missed by Willdenow, and was unknown to De Candolle. Pursh merely repeats Michaux's character; but he adds that it occurs in dry woods near rivers in Virginia and Carolina, flowering in May and June, and having very large crooked thorns, with small leaves.

This species has very much the appearance of *C.* parvifòlia, from which it is essentially distinguished by its leaves being edged with strong dark glands, and by its large leafy stipules. The fruit is always green, even when ripe; is a little downy, and contains 5—6 stones. (*Bot. Reg.*, vol. xxii. ; Sept.)

†1513. COTONEA'STER
†28773 laxiflòra *Jacq.* Bot. mag. t. 3519., Arb. brit. p. 870.

" A species nearly allied to this has been discovered by Ledebour in the Altai Mountains, and figured and described by that author under the name of C. multiflòra *Bunge :* but our specimens of this plant have much thicker, broader, and rounder leaves, with, generally, a deep notch at the extremity. The inflorescence is extremely similar in the two. (*Bot. Mag.*, vol. x., new series ; Sept.)

From observing this sort of Cotoneáster in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, we are convinced it is only a variety of C. vulgàris *Lindl.*

Onagràceæ.

1188. FU'CHSIA
10071 coccínea *var. Groomiàna F. W. Smith, Mr. Groom's fuchsia.

This is a variety with numerous large flowers, and a very vigorous habit of growth, which has been raised by Mr. Groom of Walworth.

" It appears to be a free grower, and much longer in all its parts than any we have seen; but it is a strict green-house variety." (*Smith's Flor. Mag.*, vol. ii. ; Sept.)

Rubiàceæ Dec., *or Cinchonàceæ Lindl.*

*388*a.* OLDENLA'ND*IA* L. (*H. B. Oldenland*, a Dane, who collected plants at the Cape of Good Hope in 1695.) ♿ ☿ sp 54. [bot. gard. 1.
Deppeàna Cham. et Schlecht. Deppe's ♾ ▭ cu 1 all sea. W Mexico 1835 C l.p Birm.
Synonyme: Gerontògea Deppeàna Link et Otto.

A plant growing about 1 ft. high, with small, opposite, ovate, and ovate-acuminate leaves; and small flowers, like those of a species of Aspérula. Though it may have but "little beauty in the florist's eye, its blossoms being small," yet "to the botanist, and to the general admirer of nature, it offers charms from its delicate structure, and its graceful panicles of numerous milk-white flowers," which are produced "in uninterrupted succession throughout the year." Received from M. Otto of Berlin, in 1835, and kept in the stove; though, in all probability, it may only require a green-house. (*Birmingham Bot. Gard*, vol i.; Sept.)

Myrsinàceæ.

571. ARDI'SIA [reg. 1892.
*odontophỳlla *Wall.* tooth-leaved ♿ ▭ or ? 6 jy Pa Salm. and R. Bengal 1834 C s.p Bot.

A handsome evergreen shrub, remarkable for the delicious fragrance of its flowers, which are of a pale salmon colour, slightly streaked with red. It was first introduced by T. C. Palmer, Esq., of Bromley; and it flowered in the stove of the Exotic Nursery in the year 1834. (*Bot. Reg.*, vol. xxii.; Sept.)

Polemoniàceæ.

499. GI'LI*A* [reg. 1888. Gard. mag. vol. ix. p. 705.
†tenuiflòra *Benth.* slender-*tubed*-corollaed ○ or 2 au Ro and V California 1833 S co Bot.

A hardy annual, not worth cultivating for the sake of the flower-garden; but very pretty in nosegays as an ornament to rooms. Its flowers change, in drying, from rose colour to blue. The corolla is of a rich, clear, uniform violet in the inside, and on the outside of a pale rose; but this colour is much affected by the presence of innumerable short, deep-red lines, which are as delicate as if they were drawn with the point of a needle. (*Bot. Reg.*, vol. xxii.; Sept.)

Scrophulariàceæ.

1774. *A*NTIRRHI'NUM [reg. 1893.
*glandulòsum *Lindl.* glandular-*haired* ○ or 2 au.s. Ro Pa Y California 1834? S co Bot.

"This, if not a very pretty plant, is something of a geographical curiosity; it being the first species of the genus *A*ntirrhìnum which has yet been found certainly wild in the New World. The specimens of *A. Oróntium* that have been met with in the United States are believed to have been introduced from Europe. Quite a hardy annual, which will grow in any soil. It was sent from California by Mr. Douglas; and flowered for the first time in ? 1835." (*Bot. Reg.*, vol. xxii.; Sept.)

Acanthàceæ.

*1727*a.* STROBILA'NTHES *Nees ab E.* (*strobilos*, interpreted in botany the cone of a pine; *anthos*, a flower; ? inflorescence in the bud state resembling the cone of a pine.) Sp. 1 14. 2.
*Sabinìana Nees ab Esen., Sabine's ♿ ▭ or 4 w B P Nepal 1826 C p.l Bot. mag. 3517.
Synonyme. Ruéllia Sabinìana Wall., Hort. Brit. No. 28414.

"A very beautiful stove plant, a native of Nepal; whence it was introduced into our gardens by Dr. Wallich, who named it Ruéll*ia* Sabini*àna*, in compliment to Joseph Sabine, Esq., to whom horticulture, no less than natural history in general, is most deeply indebted." A very showy plant, in the winter season, from its purple flowers, and interesting from the deep purple colour of the under sides of the leaves. It appears to be a very suitable winter plant for rooms. (*Bot. Mag.*, vol. x., new series; Sept.)

Orchidàceæ.

2541. CYRTOPO'DIUM *R. Br.* [1834 D p.l Birm. bot. gard. 4.
*Willmòrei Knowl. et West. Willmore's £ ⍁ el 4½ ?jn.jl G Y spotted with red Venezuela

"A very handsome plant, with a lofty, much-branched, flowering stem. Sepals and petals yellowish green, spotted with dull red, undulated; lateral petals less undulated, brighter in colour, and more sparingly marked than the sepals. Lateral lobes of the lip pale red; the disc, or space between them, beset with small tubercles, the intermediate pale yellow, the granulated margin of which is minutely spotted with red. At the base of each flower stalk is placed a bractea, in shape and markings exactly resembling the sepals. The gland is rather triangular than ovate." Named in honour of John Willmore, Esq., of Oldford, near Birmingham, to whom the plant was sent, in the autumn of 1834, by Mr. John Henchman, who found it in the valley of Cumanacoa, in the republic of Venezuela. It is a terrestrial species, growing among decayed vegetables; and some of its leaves were observed by Mr. Henchman to be more than 6 ft. long. It has now been in flower nearly six weeks, and has a flowering stem 4½ ft. high. It requires a strong moist heat when in a growing state; but, during its period of rest, should be placed in a more cool and dry atmosphere. (*Birmingham Bot. Gard.*, vol. i.; Sept.)

2558. BLE'TIA
*pátula *Hook.* spreading-*flowered* ⁂ ⍁ el 2 ... P Hayti 1830 O p.r.w Bot. mag. 3518.

A very handsome species, sent to the Edinburgh Botanic Garden by Dr. Fischer of St. Petersburg, where it flowers freely in the stove. It has produced a scape about 3 ft. high, which has borne more than 20 flowers at once. (*Bot. Mag.*, vol. x., new series; Sept.)

2524. CIRRHÆ'A [Bot. reg. 1889.
*tristis *Lindl.* dull-*coloured-flowered* £ ⍁ cu ¾ ju D P and G and R Mexico 1834 O p.r.w

A deliciously scented species, obtained from Mexico by Messrs. Loddiges, in whose stove it flowered in June, 1835. (*Bot. Reg.*, vol. xxii.; Sept.)

MYA'NTHUS barbàtus (*Bot. Reg.* t. 1778.; *Gard. Mag.* vol. xi. p. 477, 478.) [p.r.w Bot. mag. 3514.
*2 labéllo álbo *Hook.* white-lipped £ ⍁ cu 1½ my D G spotted with P Demerara 1835 D

Closely allied to Catasètum cristàtum *Lindl.* Imported from Demerara by Mr. Allcard, Stratford Green, Essex, in whose garden it flowered in May, 1836. The flowers, when the box

was opened which contained the plant, yielded an odour very similar to that of juniper berries. It is very curious in the segments of its perianth, which is yellowish green, spotted with bar-like spots of a dark purple; and in the fringed lip, which is white, and in contrast with the segments of the perianth. (*Bot. Mag.*, vol. x., new series; Sept.)

Asphodelàceæ.

1046. *A'LLIUM*
*sículum *Ucria*, Sicilian ? ☿ △ or 3½ ju G.P.W. Sicily 1832 O co Br. fl. gard. 2. s. 349.

The scape of this remarkable species of *A'llium* is 3 ft. 9 in. high. The flowers are pendulous, and the sepals green and shining, variegated with purple and white. The scent is more powerful and disagreeable than that of any other species of *A'llium*. It, and *A.* inodòrum, have many seeds in each cell of the capsule; but *A.* sículum agrees with the genus *A'llium*, in its flowers being in an umbel, in the perianth being persistent, in general appearance, and in odour. Raised from seed in the Chelsea Botanic Garden. (*Brit. Fl. Gard.*, second series; Sept.)

YU'CCA dracònis *Haw. Suppl.* p. 33.; Elliot, Fl. S. Car. 1., 401. Bot. Reg. t. 1894.

"What may be species and what varieties in this noble genus, it is in the present state of botanical information impossible to say; there is, however, but little doubt that *Yúcca* dracònis and *Yúcca* fláccida are really distinct." *Y.* dracònis, "one of the most stately species of the genus, grows along the sea shore of Carolina, frequently intermixed with *Y.* gloriòsa, and flowers from May to August; it sometimes grows as much as 9 ft. or 10 ft. high. The great peculiarity by which it appears to be distinguished is, the spreading flowers, the segments of which, instead of remaining closed in a globose manner, as in most others, expand till they diverge from the flower-stalk at nearly a right angle. The main stem, clear of the leaves, was 2 ft. long, and terminated in three clusters of leaves, from the centre of each of which rose a flower stem 3 ft. high. The foliage, notwithstanding its stiffness, does not offend the eye, as the leaves gradually turn back as they grow old," till at last they form a very graceful arrangement. Nothing can be better adapted than these plants for ornamenting either artificial or natural masses of rockwork, precipitous banks, or other situations, where their singular stems can be so much above the eye as to form a bold and prominent object standing out in strong relief against the sky. They are hardy, perennial, and easily procured in the nurseries. The Messrs. Backhouse find this, *Y.* rufocíncta, *Y.* recurvifòlia, *Y.* glaucéscens, *Y.* filamentòsa, and others, quite capable of bearing the winter, even so far north as York. In the garden of the London Horticultural Society, no weather seems to harm them. (*Bot. Reg.*, vol. xxii.; Sept.)

Yúcca fláccida *Haw. Supp.*, p. 35. Native country unknown.

"A pretty, and apparently distinct species, well marked by its

thread-edged, scabrous leaves, pallid flowers, and stemless habit." Its flowers are over by the middle of August. "These yuccas would surely be excellent plants for gardens on the sea cost; and yet one never sees them there." (*Bot. Reg.*, vol. xxii.; Sept.)

REVIEWS.

ART. I. *Flora Hibernica: comprising the Flowering Plants, Ferns, Characeæ, Musci, Hepaticæ, Lichens, and Algæ of Ireland; arranged according to the Natural System; with a Synopsis of the Genera according to the Linnæan System.* By James Townsend Mackay, M.R.I.A., Associate of the Linnæan Society, &c. &c. 8vo, pp. 279. 16*s*. Dublin, 1836.

THIS work, which has been long expected, has at length appeared; and, from the long attention paid to the botany of Ireland by the author, we are sure it will be received with a hearty welcome by the public. It is a gratifying proof of the progress of botanical science in Britain, that Mr. Mackay has considered it advisable to arrange the species he describes according to the Natural System; and of Mr. Mackay's own acquirements in this system, that he has acquitted himself so well in doing so. His work may be considered the only good Irish flora that exists, as will appear by the Introduction, which we conclude by quoting:—

"It has been matter of complaint, that the history of the natural productions of Ireland has hitherto been neglected; but, when all circumstances are considered, it will appear that the censure is one of too great severity. We have no means of ascertaining to what extent a knowledge of plants was possessed in ancient times by the Celtic inhabitants of the country; but, when we are told that the Irish language is rich in names of plants, and also that the names of the letters of the Irish alphabet are taken from vegetable productions, it will be admitted, that, even in periods of remote antiquity, the study of plants was not altogether neglected: nor is this at all surprising, since it is well known that the surface of Ireland formerly presented a very different aspect with regard to vegetation than its present features would lead us to suspect. Formerly Ireland might have been considered as one vast forest; a circumstance to which it was, perhaps, indebted for what, we are informed, was one of its most ancient names (*Innis Fiodh*, or Woody Island). The former existence of extensive forests is not a matter of vague tradition; it is attested by the remains of pines, oaks, yews, &c., which are found in all our bogs in prodigious quantity, and by the undoubted fact that many of these forests existed until a comparatively recent period; and some of them are described by Dr. Boates, who wrote in 1652, as then existing. These forests were destroyed, partly to facilitate military operations; and subsequently, in more tranquil times, a vast quantity of timber was consumed for the smelting of iron. The remembrance of the wooded state of Ireland will be indelibly preserved in the names of many towns and districts throughout the country, proving that an abundance of trees formed a very characteristic feature of its scenery; nor is a knowledge of this circumstance calculated merely to gratify the curiosity of the antiquarian, but it is interesting to the zoologist and botanist, inasmuch as it renders probable the disappearance of several species of indigenous plants

and animals which must have followed the destruction of the forests. Such birds as fed on the seeds of trees, and found protection amid their branches, must have disappeared, or have been greatly diminished in number, from a deficiency of food and shelter; and many species of insects may have been extirpated, or, at least, had their geographical range much circumscribed; and, doubtless, the same occurrences had a similar effect in limiting the range and number of such plants as flourish in the shade. It is well known that some seeds retain their vitality for many years when buried in the earth, and vegetate when called forth by favourable circumstances; we may therefore hope that, as plantations increase, not only will the country reassume its former beauty, but rare plants may become more frequent, or some that have been apparently lost may again appear.

"It is only in the incidental notices of historians that we obtain any knowledge of the extent of the Irish forests, or the trees they contained; and it was not till a recent period that any attempt was made to investigate the vegetable productions of the country. The first attempt towards a natural history of Ireland was by Dr. Boates, who published, in 1652, a work entitled 'Ireland's Natural History,' which contains interesting matter respecting the forests of Ireland, but no systematic catalogue of its indigenous plants. Dr. Boates is the only writer of any note until Threlkeld's work made its appearance, in 1727; but in the intermediate period the botany of Ireland was not altogether neglected. The Rev. Mr. Heaton, who resided in Dublin, communicated several rare plants to How and Merret. About this time, also, two eminent English botanists, Llhwyd and Sherrard, visited the country, and bestowed some attention on its natural history. To Dr. Sherrard we are indebted for the first notice of Subulària aquática in Ireland, which he found growing in Lough Neagh. Threlkeld's work, entitled 'Synopsis Stirpium Hibernicarum,' is extremely imperfect, as the characters of the plants are seldom given, and the arrangement is alphabetical; it is, however, a work written, as Dr. Pulteney observes, in a quaint and amusing style, containing many sound observations, and evincing a pretty extensive learning. In 1735 Dr. K'Eogh published a similar treatise, which is now rare, and of inferior value to that of Threlkeld.

"By far the most eminent Irish naturalist of this period was Dr. Molyneaux, the earliest describer of the fossil elk, and who first made known the occurrence of the remains of the fossil elephant in Ireland. He also contributed a catalogue of rare plants, which is published in an appendix to Threlkeld's work: and it is to be regretted that so excellent an observer has not enriched our literature with more extensive publications. These observers were succeeded by the writers of the statistical surveys of the different counties; works chiefly undertaken under the auspices of the Royal Dublin Society, and which contain valuable information on statistics and agriculture, and some of them useful botanical details. I may more particularly mention the histories of Cork and Kerry by Dr. Smith, which possess very considerable merit and accuracy with regard to the localities of plants, as I found during my botanical excursions through that part of the country. In 1772, Dr. Rutty published his natural history of the county of Dublin; a work conceived on a good plan, and containing much useful information. The next botanical works were those of Dr. Wade, who published his Flora Dubliniensis in 1794, and in 1804 his Plantæ Rariores, or habitats of the rarer plants found by him in Ireland. These publications are not without merit, and were considered by him as only preparatory to a more extensive work (a Flora Hibernica), which he stated his intention of publishing. This work, he says, was deferred until "as soon as genuine and valuable materials could be collected for the purpose, conceiving that no work of a similar nature ought to make its appearance, or be considered genuine and valuable, unless the author has it in his power to answer for the habitats, or places of growth, of the different objects noticed." In 1804, the Muscologiæ Hibernicæ Spicilegium of Dawson Turner, Esq., appeared, which has the merit of being the earliest publication devoted to the mosses of

Ireland: an elegantly written and accurate work, containing, figures of the rarer species. About this time I was appointed assistant botanist in Trinity College; and to the liberality of that learned body I am indebted for many facilities afforded me of investigating the botanical productions of Ireland. In 1806, I published a catalogue of the rarer plants of the country, which were principally observed by me during two very extensive excursions made through the southern and western counties. This catalogue appeared in the 5th volume of the Transactions of the Dublin Society.

"In 1810, Mr. James Drummond, then Curator of the Cork Botanic Garden, published a catalogue of the plants of the county of Cork; a catalogue highly creditable to that acute and zealous naturalist, who now fills the situation of Colonial Botanist at Swan River, and whose labours will, no doubt, illustrate the botany of that interesting region.

"In 1824, I gave to the Royal Irish Academy, for publication, a catalogue of all the phænogamous plants and ferns which I had then ascertained to be natives of Ireland. This catalogue was the result of twenty years' observation during numerous excursions made to almost every part of the country that was likely to afford interesting matter to the botanist. A few inaccuracies occur in this and the former catalogue, which subsequent experience has enabled me to rectify. Whilst thus employed, I always looked forward to the publication of an Irish Flora, as the final result of my investigations; an intention which I had announced in the preface of my catalogue, which appeared in 1825.

"I, however, then contented myself with recording accurately the habitats of such plants as I had observed, or which had been communicated to me by able botanists, being induced to postpone the publication of the work till a later period, with the view of making it as complete as possible: nor is this delay to be regretted, as I have since had an opportunity, by excursions made to Cunnamara and other parts of the country, of adding several interesting plants to our flora; and valuable contributions have continued to be made by my friends, down to the latest hour of going to press.

"In 1833, a small volume appeared, entitled the *Irish Flora*, containing short descriptions of most of the phænogamous plants and ferns of Ireland that were were known up to that time.

"The limits of a preface do not permit my entering into detail; but almost every page of the work bears evidence of the zealous assistance of my botanical friends, and the extent of my obligations. I cannot, however, omit mentioning the late Mr. Templeton of Malone, near Belfast, who greatly contributed to our knowledge of the plants and animals of the north of Ireland. To Dr. Drummond of Belfast I am indebted for several interesting species of Algæ, thus rendering that part of the work more complete than it otherwise would have been.

"Mr. David Moore, my late pupil, has supplied some of the more recent and interesting additions to our flora, among which I may mention Pýrola secúnda, *Ro*sa Sabìn*i*, and *C*arex Buxbaúm*ii*, as the most interesting. He has distinguished himself, during the last two years, by his researches in the county of Derry, where he has been employed as botanist to the Ordnance Survey; which, under the able superintendence of Colonel Colby and Captain Portlock, is likely to throw much light on every branch of natural history connected with Ireland.

"The first part of the work contains the phænogamous, or flowering, plants, ferns, and characeæ, arranged according to the natural method, on the plan adopted by Professor De Candolle in his Théorie E'lémentaire, 2d ed.; and Professor Lindley, in his Synopsis of the British Flora. I have been induced to adopt the natural system, not only because it is the method followed by Dr. Allman, the learned Professor of Botany in Trinity College, and which, although more difficult to beginners, is best calculated to give the student an accurate knowledge of the science; but, as the Linnæan method enables us to ascertain the genus of a plant with greater facility, a Synopsis of the Genera

according to that system has, therefore, been prefixed; thus, it is hoped, combining to a considerable extent the advantages of both methods.

"In describing the genera and species in the body of the work, I have adopted pretty much the characters of Sir W. J. Hooker, as given by him in his excellent British Flora, it being the book I principally consulted in the examination of my specimens, from which I have also taken the etymologies of the generic names.

"The second, and not least valuable, part of the work contains the Orders Musci, Hepaticæ, and Lichenes, by Dr. Taylor (the well-known coadjutor of Sir W. J. Hooker in the Muscologia Britannica), who, of all the botanists of Ireland, was best qualified for the task. It will be seen that he has added a new genus (Hydróphila) in the order Hepáticæ, and in the order *Li*chènes a good many hitherto undescribed species, six of which appear in the Addenda.

"W. H. Harvey, Esq., the well-known algologist (before his departure to the Cape of Good Hope), kindly undertook to describe the *Al*gæ. This he accomplished from the examination of a full collection in my possession, chiefly formed by the late amiable and accomplished Miss Hutchins; a lady who, for many years, was unremitting in her investigation of the botany of the south of Ireland. To these he has added his own numerous discoveries, and those of other botanists, whose names are mentioned; and since his departure I have been fortunate enough to add nine species new to Ireland, communicated by several botanical friends, as will appear in that portion of the work.

"*Dublin, May* 10. 1836."

MISCELLANEOUS INTELLIGENCE.

Art. I. *Foreign Notices.*

BELGIUM.

Brussels, Sept. 1835. — In the park at Läcken are many fine trees of *Catálpa*, which flower and seed abundantly. There is only one specimen of *C*èdrus Libàni in the whole park; and I did not observe another in the neighbourhood: it is, indeed, a scarce tree in Belgium. This tree is about 30 ft. in height, and about 18 in. in diameter 1 ft. from the ground; but it is evidently in the last stage of decay. I am informed that it was almost killed by the frost in 1814, which extended into the ground to the depth of 4½ ft. At that period Läcken may almost be said to have been without a master, the French having had something else to think about; and the usual precaution of mulching the ground over its roots had been that year neglected. It recovered partly; but, for want (so says my informer) of the same precaution being taken in some cold winters since, it has again become sickly.

The finest trees in the park are *P*ópulus álba, *P.* nìgra, *P.* dilatàta, and *P.* monilífera. The specimens of the two latter are the largest I ever saw. I am afraid of giving you wrong dimensions, as I write only from memory; but will endeavour to give you the correct sizes as soon as possible.

*S*àlix vitellìna and the weeping willow attain a large size here. I may here remark incidentally that in Scotland I never saw the latter prosper in any situation, although we are not accustomed to such cold winters there as they are in Belgium; but the summers are too cold to ripen the wood properly.

There are some pretty good specimens of larch in the park of the Duc d'Aremberg, at Enghien. The father of the present duke planted them first in Flanders, when he was advanced in years; and, from my observation, it would appear that it was long after before any one followed so good an example; for I remarked none anywhere nearly so large. Upon the whole, the larch is still scarce in Belgium; neither can the Belgians be persuaded to plant it, although they plant the Scotch pine pretty extensively, and with a

view to profit. I had 20,000 larches from Edinburgh two years ago, which were planted in grounds belonging to the government; and it may safely be said that that number is equal to all that had been planted formerly. The poor soils round Bruges and Ghent would produce excellent larch, which would afford an excellent material for securing the banks of their canals; as would also much of the barren hills of Limburg and Luxemburg. In the garden at Enghien is a fine specimen of purple beech, which produces seeds freely; and I am informed by the Duc d'Aremberg, one of the most spirited and best of noblemen, that the proportion of purple plants obtained from these seeds is about one in three. The duke is building very extensive additions to his palace in Brussels. The timber was all grown on his own estates, and is chiefly oak. He cuts in winter, and gives his reasons for so doing.

There are the remains of an excellent arboretum planted by a gentleman of the name of Price, but not an Englishman. The collection at present forms part of the park of Läcken. It is very rich in species; but unfortunately the trees are planted too closely together. The grounds are also laid out in the English style, and are beautiful. The collection of American shrubs is also rich, but the plants are not thriving. Less attention is paid to botanical species than to curious varieties and monstrosities. The very best collection in Belgium belongs to an old lady whose name I cannot think of, and who has a very pretty place between Louvain and Waver. I shall send you the catalogue and descriptive account of her place: it is really, upon the whole, as a park, a garden, and a residence, the finest in Belgium. — *C. M. I.*

NORWAY.

Kaa Fiord, Alten, 70° *N. lat., July* 25. 1836. — I only arrived here last night, and find a ship sailing for England this morning, so I embrace the opportunity to send you a line. I sowed your *Heraclèum* ásperum in an old churchyard at Fugleness, opposite Hammerfest, also Malcòmia marítima, Lupìnus nootkaténsis, Eschschóltzia cròcea, and E. califórnica. I will also sow some in different places about here. — *W. C.*

ITALY.

Genoa, June 11. 1836. — I have been in Italy many years, but I never recollect so ungenial a season as we now have. Since November last we have scarcely had two fine days together; nothing but a series of frost, snow, hail, rain, wind, &c.; indeed, up to this moment, we have had no spring, and fur clothing is still the order of the day. The orange trees are sadly injured; nevertheless they are not so completely killed to the ground as they were the winter after you were here (1819). The olive trees have been also a good deal injured; but still the injuries are more of a temporary, than of a fatal nature. Though the weather has been so bad, it has not been very cold, and it is expected that the worst of the injury will be the failure of the crops of the ensuing summer. The Chevalier De Nigro is in excellent health, and his garden is kept in as high order as ever. You will in a very short time receive some drawings, and a description of it, for your *Suburban Gardener*. The villa of Count Barbi has been sold, and the beautifully trimmed men and horses of myrtle and box to which you allude, have either been cut down or left to reassume their natural shapes. Forced flowers here are now extremely dear; a hyacinth and a moss rose are not to be got under a franc. — *H. M.*

Naples, June 20. 1835. — It is exactly fifteen years since I first settled in this country, and the changes that have taken place in it are very considerable. The greatest of these is a system of cross roads which has been carried into execution in every direction, and which has already stopped the progress of the banditti by employing them, and by giving access to all their haunts. This must ultimately lead to a degree of agricultural improvement, of which the present generation of Italians have no idea. — *G. S.*

Monza, Feb. 27. 1836. — An excellent agriculturist of Monza, Signor Paulo Mantagazza, Signor George Compton, and I, regularly peruse your works;

and I am very anxious that you should become acquainted with Signor Montagazza. You already correspond with Signor Compton. But my principal object in writing to you at present is to inform you, that I have at last (I believe) found in what province of Lombardy the *Pópulus fastigiàta* (*P.* dilatàta) is indigenous. On receiving your letter containing the queries relating to this tree, I immediately wrote to all the botanical friends I have in Italy; and an engineer at Brescia answered me, that in the province of Bresciana, the *Pópulus fastigiàta* grows spontaneously; and that to prove what he asserts, when the season is further advanced, he will send me the female flowers, and in due time the seed also. He mentions in the same letter a singular practice of the Brescian peasants with respect to this tree. When they want plants of it in any given place, they do not transplant seedlings from the nursery or seed-bed; but cut them off at the collar, and use them for cuttings or grafts. I am not aware of any theory of vegetable physiology which will show the utility of such a practice.

I have also been informed that in the garden of Count Origo at Milan there are female plants of *P.* dilatàta; and that great quantities of seedling self-sown plants are produced every year. Wishing to verify what I was told, I went to the spot to-day, and was convinced of the fact. I only wait for the season to be farther advanced, to make observations upon it, and I will send them to you as soon as they are ready.

Salisbùria adiantifòlia. — I have at last heard that there is a female plant of Salisbùria adiantifòlia in a garden at Milan, which flowers every year, but I could not learn whether it bears fruit; I will make a point of seeing it at the time of flowering.

In your new edition of the *Encyclopædia of Gardening*, I am sorry you have put so little information of the present state of gardening in Lombardy. I do not deny, certainly (for reasons which I stated in a former letter), that Italy is, in this art, far behind the northern nations; but Lombardy is the most advanced of all the Italian states. You take no notice of the gardens of the Villa Traversi al Desio, and of several others which deserve a notice in your work; such as Villa Litta al Lainata, and the gardens of Villa Melleri al Briança, &c. They are remarkable on account of the beauty of their situations, the neatness and cleanness in which they are kept, and for the richness of the vegetable productions which are cultivated in them.

In p. 6. of the present volume, there is a communication by a M. Klause, a Prussian. Fortunately he concludes his paper by saying that he has written it in a hurry; and probably his hurry was the cause of his making the mistakes he has done respecting the gardens of Monza. I, who am on the spot, never knew that the gardener's name was Casemetti, at the Villa Reale; and, as the area of these royal gardens measures about 65 acres English, they therefore could not with propriety be called only "*tolerably large.*" Besides this, they certainly never seemed to me to have the appearance of a "*nursery,*" but most certainly of a garden. This statement, I think, affords a strong proof that M. Klause really was in a hurry, and he probably never saw the royal gardens, but only that part of them in which we cultivate young trees, and which we call the nursery.

In the course of next summer I propose making a botanical and horticultural journey; and if you wish it, I will send you the result of my observations. — *G. Manetti.* [We shall be most happy to receive it.]

TURKEY IN EUROPE.

The great Tree of Buykdere. — "From the middle of this valley rises this great tree, which has been, in latter times, an object of much curiosity to travellers, and represented greater than the *Castagna di Cento Cavalli.* This is a platanus of tremendous size: it measures 47 yards in circumference at its base, and the branches afford shade to a circular area of 130! I assure you there is no exaggeration in this, for I measured it myself. This vast stem, however, divides into fourteen branches, some of which issue

from below the present surface of the soil, and some do not divide till they rise 7 ft. or 8 ft. above it. One of the largest is hollowed out by fire, and affords a cabin to shelter a husbandman. The tree, if it can be considered a single plant, is certainly the largest in the world. Among other travellers who notice it, is a Frenchman, who describes it, with some truth, as "un temple de verdure surmonté d'un dôme prêt à toucher les nues." When the Turks encamp in this valley, the hollow of this great tree affords a magnificent tent to the seraskier who commands them, with all his officers. But what renders the tree an object of more than usual interest is, that M. De Candolle conjectures that it must be more than 2000 years old! Though it has become such an object of admiration to recent travellers, Gillies takes no notice of it, nor even Tournefort, whose botanical pursuits would naturally lead him to do so." (Dr. Walsh's *Residence at Constaninople.*)

Art. II. *Domestic Notices.*

ENGLAND.

English Gardens visited by Foreigners. — Every year, we are happy to observe, increases the intercourse between British gardeners and those of the Continent; and, we believe, the same remark might apply to the followers of most other arts and trades on both sides of the water. There never was a time when German was so universally studied in England, and English in Germany; and this is always paving the way for what will arrive, sooner perhaps than most people imagine, the prevalence of one language (? the English) in all civilised countries. There are now two young gardeners from Vienna resident in the neighbourhood of London, for the purpose of studying their art: one of them is the son of a court gardener, and the other of a nurseryman. The gardener of Prince Metternich, M. Riegler, who has studied his business for several years both in France and Holland, has just left the country, after having been here upwards of two months, and having made a tour to Oxford, Blenheim, Nuneham Courtenay, Stowe, Birmingham, Chatsworth, Manchester, Liverpool, and Woburn, accompanied by an interpreter; and the whole solely at his master's expense. M. Riegler was much struck with Blenheim, Nuneham Courtnay, Chatsworth, and Woburn Abbey; but, of all the places in the neighbourhood of London which he saw, he was most gratified with a view of Syon, procured for him through his ambassador. The establishment of Messrs. Loddiges also excited his admiration; "the palm-house giving him an idea of the tropics, and the arboretum of an American forest." The culture of the different nurseries he also speaks of as excellent; and he purchased about 150*l.* worth of plants, a list of which we have seen. All of them are of the rarest and most expensive kinds, and one of them at a price of 30 guineas. M. Riegler kindly favoured us with a copy of the notes which he made on his tour, with a view to his German friends; from which we may probably, at a future time, give some extracts. — *Cond.*

Kensington Gardens. — We have often felt pain at the idea of any particular class of society being shut out from places of public recreation or amusement; and, from the locality of our habitation at Bayswater, the exclusion of livery servants from Kensington Gardens has often forced itself upon our attention. These servants, we know very well, are, as a body, lower in the moral scale than most others. They are idle, and pampered with food; and are consequently insolent to all but their employers, to whom they are abject slaves: or, if they are hard worked, it is in attending their masters or mistresses, by waiting for them during the night; a kind of service which has a tendency to demoralisation, by obliging the parties to have recourse to stimulants, both to pass the time, and to keep themselves awake. Nevertheless, the way to lessen the demoralisation of livery servants is not to stigmatise them as a class, by excluding them from any thing enjoyed by the rest of society, but rather by making no difference respecting them. The time, we think, is now arrived

in this country, when humane and kind treatment should be substituted for lordly tyranny; and men should be treated as fellow-creatures, and not as slaves, or as animals of another species. This treatment will soon become a matter of policy, as well as of justice and humanity; for, if livery servants are not admitted to places open to any one else, the time will very shortly arrive when no servant will wear livery; and, when once the art of cooperating and petitioning is as well understood by this class as it is by some others, liveries will soon disappear altogether. However, our object, at present, has reference to the case of another class that are excluded from Kensington Gardens, and that is "persons in homely attire."* A motion on this subject was brought before parliament on June 5., by Major Beauclerk, on which the *Morning Chronicle* of June 17. has the following remarks: — "In what other country but England, would the circumstance brought before the House the other night by Major Beauclerk have taken place? We mean the excluding from Kensington Gardens of people in homely attire. We venture to say that there is not a capital in Europe but London, in which it would ever occur to any one, that a poor man should not be as much at liberty as a rich man to walk in any place accessible to the public. † Fie on the invidious distinction! Major Beauclerk is entitled to the thanks of the country for drawing attention to that exclusive worship of wealth which is so excessive in this country. There are already sufficient advantages in being rich, and sufficient disadvantages in being poor; and, if we wish that existing rights should be respected, we ought not to add to the evils of the latter by invidious and unnecessary insult." (*Morn. Chron.*, June 17.) — *Cond.*

New and rare Plants lately introduced into the Liverpool Botanic Garden. — Cèreus senìlis, C. tunicàtus, C. cinerascens, *Opúntia* pulvinàta, *O.* tomentòsa, Mammillària cirrífera, M. élegans, M. fulvispìna, M. magnimámma, M. radìcans, M. longimámma, Echinocáctus crispàta, E. cornígera or latispìna; Poinsétt*ia* pulchérrima, and a variety with yellow bracteas; the true Lophospérmum scándens, Mentzèl*ia* stipitàta. A great many other plants have been received belonging to the genera Plumièr*ia*, Solándr*a*, *Yúcca*, *Euphórbia*, Pitcaírn*ia*, *Pancràtium*, &c. &c. — *H. S. Liverpool, Sept.* 5. 1836.

Jersey, Sept. 4. 1836. — The vegetation of Jersey scarcely exhibits that luxuriance and distinctness of character which Dr. M'Culloch's observations on it would lead one to expect; and, compared with that of the coast of Devonshire, the only difference striking the eye is the greater number of fig trees, (which are not generally larger than some seen in that county), and of pelargoniums and fuchsias in the open ground. From what Dr. M'Culloch says of Alóysi*a citriodòra*, I expected to see it generally cultivated, but I looked for it in vain in the numerous small gardens in front of the houses in the suburbs; and the first and last I saw was in the garden of a nurseryman, and not of an extraordinary size, though he said there are trees of it in this island, with stems as thick as his wrist, and proportionably high. That Jersey, however, must enjoy a decided advantage from its insular character and situation, 80 miles further to the south than any part of England, is evident, and is proved, amongst other facts, by the superiority of its chaumontelle pears, which are said never to have been equalled there, and sell even in the island for five guineas the hundred, for those of the larger size, weighing from sixteen to eighteen ounces each. But this high price, it must be remarked, is confined to the very finest pears. Those of smaller size may be bought for twopence each, or less,

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* One of the most original writers, and decidedly the first German scholar of the age, was once refused admittance into Kensington Gardens on account of his dress.

† This may be the case now; but, some years ago, no poorly dressed or labouring man was allowed to enter the garden of the Tuilleries at Paris; and we know an instance, which occurred about ten years ago, of a lady and little boy being prevented from passing through the garden, because the boy had a large cake, wrapped up in paper, in his hand.

and form by far the largest proportion of the crop; though it would not seem difficult, by thinning the quantity considerably, to increase the number of the larger-sized and more profitable pears. Some of the baking pears attain a vast size. Two which were exhibited at the Jersey Horticultural Meeting last year, and sent as a present to the king, weighed 96 oz. or 6 lb. each. Though the winter temperature is generally mild, it is occasionally severe. Last winter, Fahrenheit's thermometer fell one night to 13° below freezing, and many tender plants were killed. The Jersey gardeners say that they cannot raise the Guernsey lily to such perfection here as in Guernsey, but admit that this may possibly arise from their not giving such attention to its cultivation. The spring having been unfavourable, fruit is dearer than usual. Pine-apples (which, as well as the finer fruits, are from gentlemen's gardens), 1½lb., 10*s.* each; melons, 1*s.* to 2*s.* 6*d.*; grapes, 8*d.* to 2*s.* a lb.; peaches 3*s.* to 4*s.* a dozen; pears of good size, 2*s.* a dozen; figs, very fine, 6*d.* the dozen. One of the peculiar, and finest features of this lovely island, (surely, with Guernsey, two of the most favoured on the earth, having all that need be wished for, as to soil, climate, and position, forming part of Britain, and enjoying all her advantages, and her effective protection in war, while they pay no taxes, have no custom-house, import cheap foreign corn and cattle for their own consumption, and send their produce to sell dear in England, make all their own laws, and are, in fact, independent little republics,) is the frequent proximity of fine trees close to the sea, so as to give a varied and luxuriant foreground of wood to the sea views from many points, just as in Italy. Some elms, which I observed on the south coast, overhanging the rocks, and not many feet above high water mark, presented their fully developed and smiling faces to the sea, instead of turning their stunted backs to it, as we mostly see on the English coast; proving how much more they suffer from the violence of the wind (from which, in this instance, they were protected by a background of hills and rocks), than from the sea spray so often accused, to which they were quite exposed, without having received any injury from it. — *W. S.*

Petits Pois Anglais. — At Caen they give this name, by which they call them in the streets, to the pods of a small white squarish kidney bean; but why does not appear, as it is unlikely that they should have originally received them from England. — *W. S.*

Maclùra aurantiaca. — One of the seeds mentioned in Vol. XI. p. 313, 314., which were sent to the Manchester Botanic Garden, germinated, and is now a fine healthy plant. — *A. C. Manchester, Aug.* 31. 1836.

Seeds out of the same head of fruits that were sowed in Mr. Dennis's nursery, and in the London Horticultural Society's Garden, have germinated and produced plants: the point on which information of the result was asked in Vol. XI. p. 314. has since been finally elucidated by information which occurs in Vol. XII. p. 210.

Shrubby Calceolarias. — Between two and three dozen specimens of almost as many beautiful new varieties of shrubby calecolarias have been sent us by Mr. Atkins of the Northampton Nursery. The whole of them were raised by Mr. Atkins, who informs us that they are of a decidedly shrubby habit. The blossoms are of very great beauty, and include white, and every shade of yellow and brown, from the palest straw-colour to brown-black. Some of the sorts were raised, from Calceolària thyrsiflòra, impregnated with other varieties, and some from a new Chilian species of which Mr. Atkins has not the name. Those who collect this very beautiful family of what may now be considered florists' flowers, may greatly extend the number of their varieties from the Northampton Nursery; and these varieties, being shrubby, and of vigorous and compact habits of growth, are much more beautiful and valuable than the herbaceous kinds, whether for growing in pots or borders. — *Cond.*

A Yúcca *glorìosa*, above 8 ft. high, and containing above 1000 blossoms, is in flower in the garden of Mr. William Muskett of Attleborough. (*The Bury and Norwich Post*, Aug. 3, 1836.)

A fine Thistle. — There is now growing a gigantic thistle in Mr. Benjamin Sykes's garden, Bradley Mills, near Huddersfield, which measures 8 ft. in height, 26 ft. in circumference, and has 27 branches, and 578 heads. (*Leeds Mercury*, Aug. 13. 1836.)

A Tree of the White Currant, supposed to be the largest in England, is now growing in the garden of Mr. John Aplin of Thorncombe. It is 13½ ft. high, 13 ft. 4 in. wide, and 15 years old; it is now in full bearing. (*Morn. Chron.*, Aug. 10.)

A new Species of Aphis has attacked the cabbage and broccoli plants in the neighbourhood of London; the best mode of destroying which is by watering the plants with equal parts of tobacco-water and lime-water. As every part of the leaves must be repeatedly moistened with this liquor, of course the cabbage and the broccoli can no longer be of any use as food, and the only use of the remedy is to prevent the insects spreading to healthy plants. (*Report of Ent. Soc., in Morn. Chron.*, Sept. 7.)

SCOTLAND.

The old Vinery and Peach Houses at the Whim, the seat of Sir James Montgomery, near Edinburgh, are still standing, and are said to be the oldest in the county; they are estimated to have stood between 80 and 90 years, and they still continue to produce good crops of fruit yearly. — *W. H. Oxenford Castle, August*, 1836.

Spruce Firs at the Whim. — Nearly all the fine old specimens were cut down about 25 years ago. I was shown only two upright trees, one of which girts at 1½ ft. from the ground 9 ft. 7 in., and is between 65 ft. and 70 ft. high, with a straight, erect trunk. I was also shown one specimen, in which the points of the branches had taken root, and become young trees; but this was but a low tree. The centre stem is about 35 ft. high; and three of the principal branches from it have struck root at their extremities, and produced trees from 15 ft. to 25 ft. in height; the whole mass of trees forming a thicket of 84 ft. in circumference. In this mass is a *Pinus sylvéstris*, fruitlessly struggling to obtain a glimpse of sunshine. So congenial is the soil to the spruce fir, that it is not uncommon to see trees which have been blown down, having only a few of their roots attached to the soil, strike root from the base of their principal branches; which branches take an upright direction, and ultimately form fine pyramidal heads. Mr. Robert Young, my very intelligent guide, described one prostrate trunk in the distant woods, from which four handsome trees had arisen; the largest about 30 ft. high, and the smallest about 20 ft. There is here a very fine spruce fir tree hedge, which, at a little distance, resembles one of yew tree. It seems to bear the shears quite as well as one of yew. — *W. H. Whim Castle, Aug.*, 1836.

Nettles. — In Scotland I have eaten nettles, I have slept in nettle sheets, and I have dined off a nettle tablecloth. The young and tender nettle is an excellent potherb, and the stalks of the old nettle are as good as flax for making cloth. I have heard my mother say that she thought nettle cloth more durable than any other species of linen. (*T. Campbell, in New Month. Mag.*)

Peat Tiles. — We have seen a specimen of draining tiles in the shop of Messrs. Samson and Co., seedsmen, Kilmarnock, made of peat; they were sent there for the inspection of those interested in such matters, by Mr. Hugh Calderwood, Blackbyers, Fenwick, who has invented a spade which cuts them, one out of the other, in an expeditious manner. They are shaped something like a tile made of clay, and on moorlands will answer the purpose equally well. In such districts clay is not to be had, and the expense of carting clay tiles would be heavy. With Mr. Calderwood's spade, a farmer may cast 2000 or 3000 tiles a day, expose them to dry in the sun, and lay them in his drains, within a few yards of the place where they were cut. When properly dried, they are very porous, and will not be softened with wetness. Peats are often met with on moors which have been buried by accident, and they are found

not to be softened or decomposed; and an instance has lately happened (we believe, at Catrine), where a peat remained in the boiler of a steam engine for months, and came out as hard as when put in. We earnestly recommend a trial of this mode of draining to farmers who dwell in the moorland districts of our country. The adoption of such an improvement would soon make their moors assume a very different aspect, and contribute most materially to the healthiness of our climate. (*Kilmarnock Journal, ex Scotsman*, June 29. 1836.)

IRELAND.

Yúcca *gloriósa*, in the nursery of Mr. Robertson, at Kilkenny, is now in flower. The flower spike is 5 ft. high; the main stem girts 3 ft. 10 in., and the space covered by the leaves of the plant is 12 ft. in circumference. The number of flowers on the spike is 700. Total height of the plant from the ground, 8 ft. — *J. R. Kilkenny, July* 30. 1836.

O*lea excélsa*, in the same nursery, is 30 ft. high, having stood out, without any protection, for many years. — *Id.*

C*lèthra arbórea* is 7 ft. high, against a wall, having stood out for several years without any protection. — *Id.*

Upright, or Irish, Yews (T*áxus baccàta fastigiàta*). — Two upright yews, growing in the shrubbery of James Andrews, Esq., Comber, county of Down, Ireland, are about 50 years old: one, 20 ft. high, 40 ft. in circumference at the swell of the ground, and the stem 4 ft. 2 in. in circumference near the ground; the other, 19 ft. 6 in. high, circumference of the head 46 ft., and that of the trunk 4 ft. 1 in. near the ground. — *M. Andrews. Ardoyne, Belfast, May* 9. 1836.

Art. III. *Retrospective Criticism.*

Errata. (Vol. XI. p. 639.) — Besides correcting the mistakes already mentioned in a former letter respecting my qualifications, I beg of you to put *Dàis cotinifòlia*, instead of *Dàis urticifòlia*; Marquis Cusani for Marquis Casoni. Instead of at Deris, put at Desio; instead of Villaresi, put Villoresi; instead of Villa Eravesi *at* Derio, it is Villa Traversi al Desio. It is not the *Bumèlia lyciòides* that is grafted on the *Fráxinus* excélsior, but the Chionánthus virgínica. You say, in the sequel of the article, that the public garden was planted in 1820, by the late Villoresi, with *T*ília americàna and *T.* argéntea; on the contrary, it was planted in 1808, by Villoresi, but with the *T*ília microphýlla and *T.* platyphýlla. — *G. Manetti. Monza, near Milan, May* 3. 1836.

Arrangement and Management of Fruit Trees in Kitchen-Gardens. — Your able and intelligent correspondent, Mr. Robert Errington, will be glad to hear that we of the "profession," in the north, are not only fully disposed to peruse his "observations and suggestions (p. 126.) with candour and caution," but that we have also the pleasure of informing him that the utility of those "suggestions" has been proved in practice. We could name several places in this county where the table or Dutch trellis has been in use for some years, producing fine figs, pears, and the more choice sorts of table apples, especially at North Berwick House, formerly under the superintendence of a very scientific horticulturist, Mr. Archibald Wilson. The death of Mr. Wilson's employer, however, was the cause of breaking up the whole establishment; and, consequently, of putting a stop to the farther prosecution of all his truly interesting plans, which we in this country have cause to regret, as his example and success might have led to many useful results. He had commenced a plan of securing to us all the benefits of attaining early crops without interfering with the fruit tree borders (a practice now universally condemned), by having dwarf walls, with small movable lights glazed with the mere refuse of the glazier's cutting-room. Mr. Wilson now holds a situation as forester, at Worksop Manor, to His Grace the Duke of Norfolk, and he has a brother who is head gardener there. I mention this in the hope that

you will be able to induce him to send you an account of his management of fruit trees. He recommends tiles for the surface of the border, instead of the stones alluded to by Mr. Errington. I had ocular demonstration the other day of the good effects of preventing fruit trees from getting their roots into a bad subsoil. At Riccarton, the seat of Sir James Gibson Craig, Bart., all the wall borders, except (I think) the east and west aspects, are paved with rough-dressed stones, raised very near the surface at the wall, and sloping to the depth of 2 ft. at the walk. The trees on the borders thus treated are vigorous, and without a decayed leaf; while those planted in the common way are more or less mildewed. This struck me the more forcibly, as all our trees in this neighbourhood on cold and retentive subsoils are, this season, through want of sun and excess of moisture, covered with mildew, insects, and disease; while the trees at Riccarton are in high health and beauty. Every thing connected with the garden bespeaks a spirited proprietor, and a skilful gardener in Mr. John Young. — *William Henderson. Oxenford Castle, near Edinburgh, Aug.* 1836.

Soot and Ashes as Manures to Lawns. (Vol. II. p. 470.) — I have never been able to apply soot so as to give quite satisfactory results; but have applied coal ashes very successfully: if on rather stiff soils, without any admixture; but if on more sterile or gravelly soils, with the addition of one half of fine garden or vegetable mould. The coal ashes must not be those from hot-house furnaces, but house ashes finely sifted. The first mowing will be a little troublesome; but the grass roots seem to delight in the small porous particles of half-burnt cinders of which this mixture is composed; nor will worms work much where this is applied. I need hardly add that thorough raking or bush-harrowing is necessary, and I always add a little of the following seeds: *Festùca duriúscula* and *ovìna*, *Agróstis stolonífera*, and *Trifòlium mìnus*. — *William Henderson. Oxenford Castle, near Edinburgh, Aug.* 1836.

Objections to Pruning. — Mr. Ward (p. 407.) objects to pruning, and yet says, "by cutting out in the process of thinning all those branches which are of a contrary description, you may obtain a due selection of the wood-producing stems." This surely is to recommend pruning. The fact is, by taking out every year not less than three, or more than five, of the largest and strongest branches of every tree, beginning always at the top, and cutting them quite close to the stem, you greatly enhance the growth of the leader. In short, any fool can plant a tree; but it requires a man of some science to raise timber. Suppose only four branches are removed annually, in 20 years 80 large branches are taken away, which would add to the bole both in length and girt; letting in sun and air to the plantations; and preventing the extending branches of hedgerow timber from injuring the corn and grass, and excluding the light and wind from the roads. — *Anon. Cambridge, Aug.* 1836.

Art. IV. *Queries and Answers.*

Au'cuba *japónica* refuses to grow, or to live, when planted near the stone sinks of a drain in the garden of a friend of mine: what is the probable cause of this circumstance? — *R. B. S.* 94. *Great Russell Street, Sept.* 1. 1836.

Frogs will eat Wasps. — Is this generally known? — *Id.*

Two Crops of Grapes in one Year. — Perhaps your correspondent, Mr. J. Waldron (p. 356.), will oblige us with a more particular detail of his mode of producing two crops of grapes in one year; and also, if there are any particular sorts which he can recommend, his method of cutting, and the like? — *J. Watt. Colchester, August,* 1836.

Coal Siftings are used for laying on garden walks in many parts of England, near collieries. Is there any thing that will make them bind? Rolling has no effect. At present it is impossible for a lady wearing light-coloured shoes to walk upon them, without getting her shoes soiled. — *J. P. Dudley.*

Art. V. *The London Horticultural Society and Garden.*

Sept. 6. 1836. — *Presented.* Distribution Géographique des Plantes Alimentaires; by the author, M. Alphonse De Candolle. Rapport sur les Travaux de la Société Royale et Centrale d'Agriculture, depuis la Séance publique de 1835; from M. Soulange-Bodin.

Exhibited. Plants. Prenánthes *S*erpentària, from Messrs. Chandler nd^{s}, Son. 3 vars. of Lobè*lia*, Echinocáctus Eyriès*ii*, Tropæ*'*olum Shillíng*i*, dahlia Trichócladus crinìtus, *C*lématis Sieból*dti*, &c., from Mr. James Young. *Mucùna* prùriens, from F. Perkins, Esq. Tritònia mèdia, *Hi*bíscus *R*òsa-sinénsis (single), *Técoma* grandiflòra, and Passiflòra insígnis, from Mrs. Marryatt. Miscellaneous, from the Hon. W. F. H. Strangways. — *Fruits.* Russet nonpareil apple of 1835, from the Rev. William Corbold of Selborne, Hants. Muscat of Alexandria grapes, and a queen pine-apple, from Mr. J. Davis, gardener to Lady Clarke. Brown figs [a remarkably large and prolific variety], from Messrs. Colley and Hill. A Paris rock melon, from F. Hodgson, Esq. — *Articles.* Specimens of wire for garden purposes, from Mr. W. A. Rowland, of Prince's Street, Chester.

From the Garden of the Society. Plants. Catasètum tridentàtum, *Técoma* capénsis, *G*ladiolus blándus, *G*. psittacìnus, Lobè*lia Tùpa*, *L*upìnus Cruikshánks*ii*, Scabiòsa atropurpùrea grandiflòra, Escallòn*ia* montevidénsis, *C*eanòthus azùreus, *P*hlóx acuminàta and seedling vars., China asters, dahlias, &c. — *Fruits.* Pears: Summer bergamot, franc-réal d'été, deux-têtes, Heppel, English Caillot rosat. Beechwood melon, grown by way of experiment upon the influence of water upon the quality of that fruit.

Medals awarded. A silver Knightian medal to Mr. Davis, for the grapes and pine-apple; and to Messrs. Colley and Hill, for the brown figs: and a silver Banksian medal to the Rev. William Corbold, for the russet nonpareil.

Sept. 20. 1836. — *Exhibited. Plants.* Guzmán*nia* trícolor, Ixò*ra* coccínea, *E*uphórbi*a* punícea, from Mrs. Marryatt. A collection of cut flowers and *C*onvólvulus itálicus, from the Hon. W. F. H. Strangways. Magnòl*ia* grandiflòra, from Mr. Kirke. Four stands of dahlias, from Mr. Chandler. One stand of dahlias; ditto, seedlings; from Mr. Hogg of Paddington. A new epiphyte, from Messrs. Low and Co. — *Fruits.* Apples: Beauty of Kent, yellow Ingestrie, Grange, Princess Victoria (a new seedling), Hawthornden, Monk's codling, Keswick ditto, nonesuch, and Kerry pippin. Peaches: Rosanna (from an an old tree), French violet hâtive. Nectarines: Smooth-leaved Royal George, brugnon, Vermash, from J. Kirke. Plums: 24 Dove Bank plums, from Sir Oswald Mosley.

From the Garden of the Society. Plants. Zygopétalum Mackai*ànum*, Catasètum lùridum, Cycnòches Loddigès*ii*, Stanhòpe*a* grandiflòra, *I*'xia maculàta, *Técoma* capénsis, Escallòn*ia* montevidénsis, Scabiòsa atropurpùrea grandiflòra, Phacèlia tripinnatífida, Linària dalmática, China and other roses, China asters, dahlias. — *Fruits.* Peaches: Bellegarde and Barrington (these are excellent for forcing, and are not apt to mildew), belle de Vitry, Royal Charlotte (Madeleine rouge tardive of the French), and the Royal George (Madeleine à petites fleurs), which are nearly allied, and are both subject to the mildew, like all other deeply serrated-leaved peaches. Nectarines: Elruge, violette hâtive, Pitmaston orange. Pears: Fingal's, a handsome large fruit, with tender sugary flesh, and will doubtless be esteemed far preferable to Williams's bon Chrétien: it was received from Mr. Dickson of Inverness, and is quite hardy. Waterloo, éclat.

THE

GARDENER'S MAGAZINE,

NOVEMBER, 1836.

ORIGINAL COMMUNICATIONS.

Art. I. *Notices of Gardens in Yorkshire.* By J. B. W.

Studley Royal. — Studley Royal, near Ripon (in the West Riding), is the residence of Miss Lawrence. The pleasure-grounds are celebrated for their beauty and extent, and by many are considered the finest in the north of England. They are said to have been formed about the beginning of the last century, by a Mr. Aislaby, the proprietor of the estate at that period. A particular account of all that is worthy of remark in these grounds would fill a magazine; I shall, therefore, only cursorily notice the principal features.

The situation must have been highly picturesque before art was called in to assist in its adornment: it is a narrow valley, or, rather, dell, with high, irregular, wood-covered sides, and traversed by a stream. Art has certainly done much towards the improvement of particular scenes; yet the impression left upon the mind by the whole is, I think, considerably lowered by that art being made too apparent. The road leading through the park to the pleasure-ground passes by the side of a large pond, into which the water from the grounds empties itself by a fall of some five or six feet; and on each side of this waterfall is an ornamental refreshment-room for the accommodation of visitors, to whom the grounds are open every day except Sunday. Several guides are also appointed by Miss Lawrence, to point out and explain to strangers the principal objects of interest in the grounds: this liberality, however, is only a small trait in the excellent character of this most estimable lady, who is said to distribute in acts of benevolence the greater part of an immense income. The entrance from the park is by an iron gate, with some low mean-looking lodges on each side of it. As we proceed along the principal walk, there is, on the left, a tall screen of yew and other trees, intended to hide the view of the other side of the grounds and the water in the bottom of the valley.

These trees are clipped like a hedge on the side next the walk; and, at intervals, there are openings cut through the mass, to show some striking feature; such as a statue on an island of the lake, or a temple on the opposite hill. An obvious improvement might be made by removing this formal vegetable wall, with its embrasure-like openings, and substituting a more natural screen of laurels, and other free-growing evergreens. A singular and pleasing effect is produced by a steep bank, thickly planted with common laurels, the branches of which are pegged down so as to hide the whole of the ground; and which are not permitted to grow higher than about 2 ft.; the young shoots being cut off once or twice during summer: the bank is thus made to present a regular unbroken surface of glossy green. The stream which passes along the valley is here expanded into a lake; and in one part, where there is a greater breadth of level ground, are several ponds, of different shapes, with statues of Neptune, Hercules, and other fabulous creations of ancient superstition, placed on the banks, or on small grassy islands. A handsome building, called the Temple of Piety, stands near these ponds; and several other ornamental structures, such as a banqueting-house, bathing-house, &c., are judiciously situated in different parts of the grounds: one, an octagon tower on the summit of a hill, commands varied and pleasing views of the surrounding scenery. The walk from the temple leads through the wood along the brow of the hill; and here and there a glimpse of the lake, far below, is caught in passing. But the crowning object of all is the magnificent ruin of Fountains Abbey, which is first seen from this walk. A bend in the walk brings the spectator directly in front of the ruin: it, however, is not visible, until a door is opened in the back of a seat-house, which is built quite across the opening cut through the wood that borders the path. The prospect which then suddenly, and without previous warning, bursts upon the beholder, is strikingly lovely; surpassing, beyond comparison, any thing I ever looked upon of a similar character. The abbey, beautiful even in its desolation, stands before you, at the distance of about a quarter of a mile. A green meadow, bounded on one side by a wood-covered hill and limestone rocks, and on the other by a loftier wooded hill and a brook, slopes gently from the ruin to a lake which seems to wash the base of the promontory upon which the spectator stands. But no description can convey an adequate idea of the beauty of this landscape: it must be seen to be appreciated. Perhaps the best time to view the ruin would be at sunset, on a clear, calm, autumnal evening, when the trees had put on their "livery of sober brown;" when the declining day and fading vegetation would be most in harmony with its fallen grandeur.

The *History of Knaresborough* informs us that "The fabric

was begun about the year 1204;" and that, when complete, it "took up 12 acres of ground." There is a tradition that the monks resided, while the monastery was building, beneath the shelter of seven yew trees which grew on a neighbouring hill. According to the above-mentioned book, six of these trees were standing in 1809; when the circumference of the trunk of one of them was 26 ft. 6 in., about 3 ft. from the ground. Several of them are still standing.

The park at Studley is just what, in my opinion, a park ought to be: extensive, varied in surface, and ornamented with noble trees; most of which, however, are planted either singly, or in straight lines. Some of the oaks are magnificent, girting nearly 30 ft. From the arched entrance-gate the approach-road passes, for a considerable distance, along a fine, but now somewhat broken, avenue, nearly a mile in length, at the upper end of which a lofty obelisk has a very good effect. The view from this obelisk strongly reminds one of that from the equestrian statue at the end of the avenue in Windsor Park. In both an ancient building (at Windsor, the Castle; at Studley, Ripon Minster) appears to terminate the avenue; for, although the minster is about two miles from the entrance to the park, in effect it is brought quite close to the end of the avenue. There is this difference, however: at Studley a fine view of the open country is obtained over the towers of the church, which stands on low ground; while at Windsor the Castle is on a hill, and terminates the prospect. A toy-like building, called the "Belvidere," much like a child's doll-house in effect, is conspicuously placed upon an eminence in the park. It is nearly all windows, and seems to be intended for a resting-place from which to enjoy the beauties of the surrounding landscape: in one direction, the view from this place extends over a space of fully 30 miles.

The mansion is situated almost at the outskirts of the park, only a few yards from a public road. In style and character, it is entirely at variance with the surrounding scenery, resembling an overgrown whitewashed tradesman's villa, rather than the residence of the proprietor of a princely domain. Another mansion was begun, some years since, by a gentleman to whom the estate then belonged; but, in consequence of his death, the building was not completed; and it has since been transformed into a chapel, sleeping-rooms, and (I believe) stables.

A neat little flower-garden, containing some remarkably large laurels, beds of roses, &c.; an oldfashioned green-house, with upright front sashes, and an opaque roof; and an elegant tea-room, with flower-beds of various shapes in front of it, adjoin the south front of the house.

The kitchen-garden is at some distance from the mansion, but partly visible from it, and separated from the park by a low wall,

Like many old gardens, it has been made at different periods, by successive additions of portions of ground, as the more varied requirements or greater consumption of the family needed: for our homely ancestors seem to have been satisfied with a very limited variety of garden productions. The principal garden is a parallelogram, divided into quarters by walks, which are mostly bordered by fruit trees of different kinds. I observed here (what I never saw elsewhere in the north) a standard Kentish cherry tree, loaded with fruit. The peach-wall, on the north side of this garden, is covered by fine young trees; which, however, as is the case in most places this year, have very little fruit upon them. A large green-house was built, a few years since, about the middle of this wall: the front of the house is on a line with the wall; and the ends, being behind it, are not of glass; and this, in conjunction with vines trained to the rafters, causes the house to be ill adapted to the growth of plants. An original, but expensive, method of forming espalier rails has been adopted: iron rods, of perhaps half an inch in circumference, are stretched horizontally one above another, about a foot apart, and supported at intervals by iron uprights: to keep the rods straight, a framework of iron, sunk into a large stone, is fixed at each end. At one end of this garden there is a double row of pine-pits, heated by hot water and by dung linings: the latter are sunk into the ground, and covered with a framing of boards. A somewhat similar pit, but without linings, and heated by smoke-flues, is used for the growth of grapes. The vines are planted outside, and introduced through the front wall. The entrance is at the back, descending by stone steps to the paved floor of the house, which is several feet below the level of the ground. The vines cover the whole of the roof, and are pruned according to the system described by Mr. Mearns (*Hort. Trans.*, vol. iv. p. 246.), only Mr. Cuthbertson (the gardener) allows them three years to reach the top of the house, instead of two: the principle, however, is the same; and in practice it succeeds admirably, for the house contained an immense crop of very large fruit: in fact, the vines were overloaded, and, in consequence, the Hamburghs were not colouring well. The Tottenham Park muscat (generally considered identical with the white muscat of Alexandria) was in fruit in this house, as was also the Cannon Hall and the white muscat. From a comparison of the fruit (full grown, and beginning to change colour,) of the three vines in question, I am inclined to think that the Tottenham Park muscat is a distinct variety, but less strongly marked than the Cannon Hall; and Mr. Cuthbertson, who has had the opportunity of comparing the plants and fruit in every stage of their growth for several years, has no doubt whatever of its distinctness. There is a sort of stiffness in the appearance of the bunches, resembling in that particular the Cannon Hall rather

than the white muscat, and the berries are longer and more pointed: it is possible, however, that these differences may not be permanent.

Sea-kale is planted in raised beds, the sides of which are kept up by flag-stones set on edge: the plants did not grow well before this plan was adopted, probably owing to the shallowness of the soil; but now they are very vigorous. A large and commodious gardener's house stands very conveniently at the west end of this garden; and a broad and straight gravel-walk, with flower-borders on each side, leads from the house to a door which is the principal entrance to the garden from the park. This slip of flower-ground separates the garden above described from two other walled compartments, one of which contains a fig-house and two pine-stoves, all having vines on the rafters. The fig-trees are planted in a border in the house, and trained as dwarf bushes; and there are likewise trees growing in narrow stone cases, about a foot wide, and two feet deep, which are fixed against the back wall. All the trees are young, but they seem to bear well. Nearly all the area of the south division is occupied by a pond, stocked with various kinds of waterfowl, and having a small island in the middle, inhabited by tame rabbits and guinea-pigs. This division contains a very narrow vinery, used for early forcing, which, with the pit before mentioned, was formerly heated by hot water; but Mr. Cuthbertson found that, when bad weather made it necessary to keep the house closed for several days, its atmosphere became so heavily charged with moisture, that water constantly stood in drops upon the leaves of the vines: he therefore substituted smoke-flues. This defect, however, must have arisen from some other cause; for water cannot, under any circumstances, penetrate through iron; neither can there be any difference in the nature or desiccative properties of the heat given out by hot water and by smoke, if the channels through which they are conveyed be properly constructed.

Besides the houses I have enumerated, there are two fruiting pine-stoves: in these the bark bed fills the whole of the house, and a door in the back wall serves for admission, when watering, or any other operation, is necessary. An experiment is now in the course of trial by Mr. Cuthbertson, to ascertain whether bottom heat might not be advantageously supplied to pine-plants by means of hot-water pipes.

An orchard, containing a great variety of the most approved hardy fruits, was planted, a few years since, by the present gardener, whose judicious improvements in most of the departments of the garden under his charge are highly creditable to his judgment. The kitchen-garden, at the time I saw it, was in excellent order, and exceedingly well cropped: the pine-apples,

likewise, were very good; and some of the grapes, especially the Black Prince and black Frontignan, were very superior.

August 18. 1836.

ART. II. *Notices of Gardens, remarkable Trees, &c., in the Environs of Lichfield, Staffordshire.* By Mr. J. GRIGOR, Lichfield.

ELFORD Park, the Seat of Colonel Howard.—This garden is situated close to the village of Elford; and its good effects in stimulating the villagers to adorn their cottages with various beautiful creepers is very striking, and illustrative of the improvement that might be effected by having free gardens established throughout the country. The proprietor and his lady both delight in gardening; and to this circumstance may be attributed the high state of cultivation and refinement which the pleasure-grounds and garden exhibit. The range of greenhouses, hot-houses, &c., is very extensive, and contains many novelties. Mr. Buck, the gardener, has discovered a plan of fruiting the vine which he thinks will be approved of, and which he has promised to make known. Among the remarkable trees in this place is an oak, the trunk of which is 8 ft. 9 in. in diameter; and a common hawthorn, diameter of the trunk, 3 ft. 2 in., and that of the space covered by the branches 45 ft. In the shrubbery there is a Pàv*ia* flàva of considerable size, being the only specimen of this tree I have seen in this quarter. In the garden of the Rev. Mr. Paget, adjoining this place, there is a remarkable hazel, apparently very old, the trunk of which is 3 ft. 10 in. in diameter.

About a mile from Elford Park are the remains of *Fisherwick*, the seat of the late Marquess of Donegal, now the property of Colonel Howard. By all that is now told of this place, it would appear that, in former times, it was kept up on a scale of extraordinary magnificence, resembling rather the pomp and profusion of an ancient eastern princedom, than any display of grandeur that is to be witnessed in the present day. The lodge still remains; but His Lordship's mansion, with some other buildings, containing stalls for a hundred horses, were removed by the present proprietor of the estate about twenty years ago; and this place, which was once the scene of so much gaiety and splendour, is now occupied by a farmer. The garden has "long run wild," and the shrubbery has become almost impenetrable. It contains two very large and handsome plants of the *R*hododéndron pónticum: one is 13 ft. high, and the space covered by its branches is 27 yards in circumference; the other is 14 ft. high, and covers a space of 33 yards in circumference. There is a fine specimen of the *P*ìnus sylvéstris here, with a smooth

trunk, 40 ft. in length, and varying from 3½ ft. to 3 ft. in diameter.

Packington, the Seat of the Rev. Thomas Levett.—This estate is remarkable for its avenues of old trees and extensive lawn It abounds with fine specimens, especially of oaks and elms. In the flower-garden there is a thriving plant of the Magnòl*ia* conspícua, which flowers abundantly every year, and requires very little protection during winter. In front of the house there are two very handsome trees of the *A*cer Pseùdo-*P*látanus variegàta, about 50 ft. high, and both of the trunks measuring about 3 ft. in diameter. There is likewise an extraordinary spreading tree of the *T*áxus baccàta, covering a space of 68 yards in circumference. But, of all the fine trees that are here, the most magnificent is a *L*àrix europæ`a, which stands almost close to the proprietor's house: it is about 70 ft. high, and the trunk measures 15 ft. 8 in. in circumference. To all the lovers of trees in this quarter, a sight of this larch will afford no ordinary delight.

Elmhurst Hall, the Seat of J. Smith, Esq.—The spirit of gardening, and especially in the department of floriculture, is in vigorous exercise here. A cast-iron conservatory is now being built, by Jones of Birmingham; and it is proposed to add a range of forcing-houses. A new flower-garden, with rockwork, &c., is to be formed adjacent to the mansion; and, from the many excellent improvements that are suggested, this place will very likely become one of the finest in the neighbourhood of Lichfield. It already contains a choice collection of prize tulips, pinks, pansies, &c., and some good American plants; various species of Magnòl*ia* are also about to be tried in the open air. It is pleasing to think that most of these improvements have been originated, and are superintended by a member of the family, who is particularly devoted to botanical pursuits; and who will, no doubt, use his influence, along with others, in the establishment of a public pleasure-garden in this city. The unremitting exertions of Mr. Towers, the gardener, under such favourable circumstances, cannot fail of rendering this place conspicuous both for herbaceous flowers and shrubs.

The Garden of W. Mott, Esq., Close.—This is one of the most pleasant residences in the city, situated on the side of the Minster Pool, and close to the Lichfield Cathedral. The pleasure-ground is particularly well kept, and contains some handsome specimens of shrubs. At the edge of the Pool there is a Carolina poplar (*P*ópulus angulàta), 70 ft. high; diameter of the trunk, at 1 ft. from the ground, 4 ft. 2 in. It is a noble-looking tree; and, being in such a favourable situation, it will, no doubt, attain a still greater size. There is likewise a very old mulberry tree here, the trunk of which is 3½ ft. in diameter;

the branches covering a space of 45 ft. in diameter. This is a favourite tree, and it is carefully clasped with iron hoops to keep it together. Various little improvements are about to be effected in this garden; and it is in contemplation to build an additional range of forcing-houses, which will render the place complete.

In the garden belonging to the Bishop's Palace, now occupied by Lady Oakley, there is a remarkable specimen of the *Cérasus Pàdus*; the trunk of which is 3 ft. 2 in. in diameter, and that of the space covered by the branches 60 ft. It is a handsome regular-spreading tree, flowering profusely every year, and is considered to be the largest of the kind in this quarter.

I have visited the spot where the celebrated poet and botanist, Dr. Darwin, had his botanic garden: it lies about a mile westward of this city, and contains some good specimens of trees. There was a cork tree of considerable size here; but it has disappeared: whether through carelessness or decay, I have not been able to ascertain.

Lichfield, July, 1836.

ART. III. *A Series of Designs for laying out Suburban Gardens and Grounds, from One Perch to several Acres in Extent.* By Mr. T. RUTGER. Designs 13. and 14. *For laying out Two Places, each about One Acre in Extent.*

THE design *fig.* 97., No. 13. of the series, contains about an acre. The left wing of the building is intended for a conservatory, and the right wing for a part of the offices. The stable and stable-yard are on the right; contiguous to which is the melon-ground, which contains also a forcing-house, with a place at the end for the stock-hole, and small seed-room, or gardener's room. The carriage-road to the stables enters from the outside. In the flower-garden is a pond, and opposite to it a small rotunda, or reading-room: at each extreme corner of the flower-garden is an alcove. The kitchen-garden may either be enclosed by a wall all round, or, to save expense, a paling may be fixed next to the shrubbery.

The design *fig.* 96., No. 14. of the series, comprises also about an acre; and I have given this as deviating (partially at least) from what may be considered as in a strictly geometrical style (as is he case with No. 13.), and which, perhaps, by some, may be preferred. The stable and yard are on the left of the house, and are entered by a road inside the premises: contiguous to the stables, are a forcing-house and melon-ground, and a place for the stock-hole and gardener's room. The open yard, on the right of the melon-ground, may be appropriated for a laundry drying-

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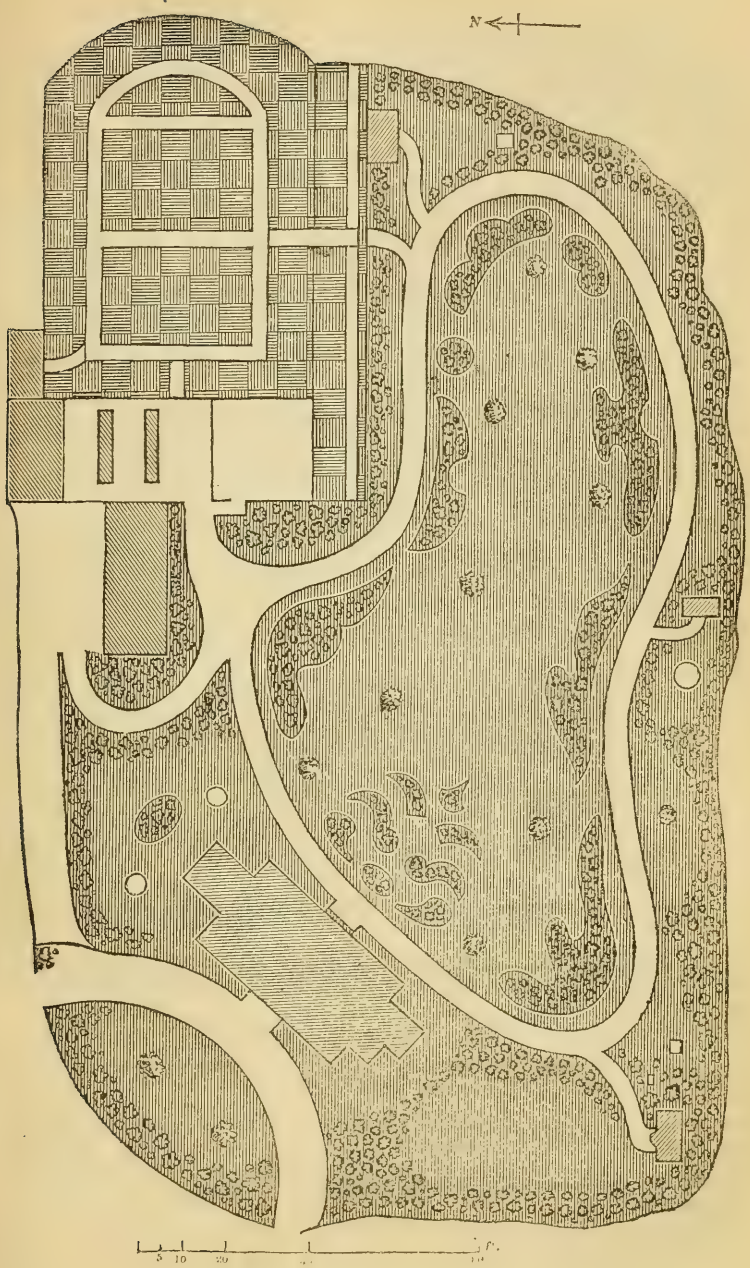

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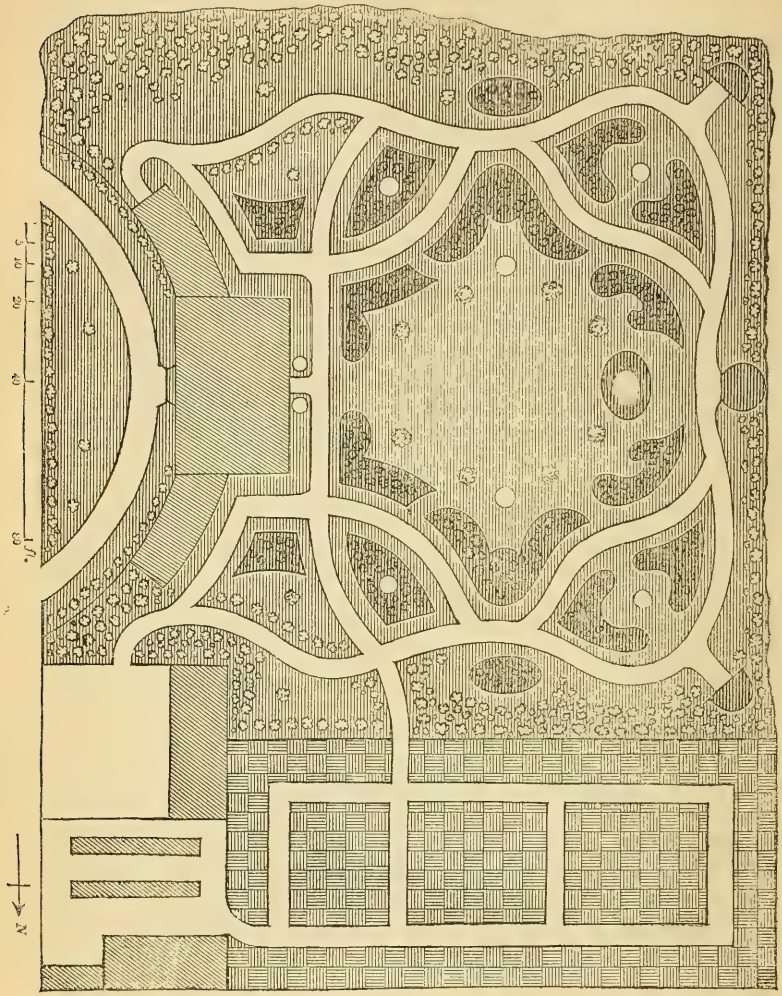


ground, or for any other necessary purpose. At the farther extremity, against the kitchen-garden, is a small reading-room; and near the centre, on the south, is another erection for a similar purpose, if wanted. The open space at the right of the house, and in front of another room, is intended for a small bowling-green; or it may be appropriated for a children's garden or play-ground.

Portland Place, 1835.

ART. IV. *On the proper Season for transplanting Evergreens.* By Mr. T. RUTGER.

I AM induced to send you a few remarks upon the transplanting of evergreens, principally to elicit from others what may be advanced more decidedly upon philosophical principles than any thing which has yet come under my notice, as to the season of the year at which the operation may be attended with the greatest degree of success. Mr. Pratt (Vol. II. p.135.) recommends July and August; and Mr. M'Nab, in his *Hints on the Planting and general Treatment of hardy Evergreens in the Climate of Scotland*, says, "experience has taught him that evergreens of all kinds may be planted at all seasons of the year with nearly equal success, except from the middle of June to the middle of August." (*Gard. Mag.*, vol. vii. p. 78.) Now, although there is a total disagreement between the latter clause of Mr. M'Nab's statement, and the experience of Mr. Pratt, yet I have no doubt but that both of them may be justified in what they have written upon the subject; and which is, no doubt, in accordance with their experience, grounded upon the success, or otherwise, which each of them has had in the matter now at issue. Giving each his meed of credit, it follows that evergreens may be transplanted at any season of the year, whenever it may be convenient: and this I believe to be the real fact; that is, under peculiar treatment, according to the season when the operation is to be performed, and particularly where the plants are to be removed only to a short distance, and are taken up with balls of earth, and redeposited carefully. I think, however, that it still remains to be proved whether there is, or is not, some particular season of the year in which they may be removed with greater safety than at any other period; and more especially when brought from the nurseries to perhaps a considerable distance, without balls, and where less care has been bestowed in taking them up than would be given by a gardener, were they only to be transferred from one part of the shrubbery to another.

Proceeding in this enquiry, it may be necessary to consider the great difference there is between a deciduous tree or shrub and an evergreen. From the former, I conceive that comparatively little evaporation takes place during the time it is disrobed of its foliage; whereas the latter, by retaining its foliage during the winter, and consequently its superficies, has evaporation going on during the whole year to a considerable extent; which must, I think, according to the generally received theory, be supplied by moisture from the spongioles of the roots. Now, when any tree or shrub is transplanted without a ball, it will, I imagine, be universally allowed, that the roots are always more or less paralysed; and that it is not until they begin to throw out fresh

spongioles, that the plant can derive much nutriment from the soil. I think it will also be generally allowed, that the roots of a tree or shrub, transplanted in December, will remain comparatively dormant much longer than if it were removed in March or April; and, if this be true, it will appear evident, that a longer time must elapse before the roots of the evergreens planted in December can give the necessary supplies to counteract the injury sustained by evaporation, than in the case of the evergreens planted in March or April: hence, the evaporation is going on longer in the former case than in the latter, without obtaining fresh supplies to counteract its baneful effects. As far as my experience goes, I have found that evergreens planted without balls, in December, have, in numerous instances, lost their leaves by the month of March or April; and in very many instances the plants have died: whereas, by planting in the month of April, I have seldom had to regret the loss of any; which, I conceive, is in a great measure to be attributed to the short time that evaporation is going on, without a fresh supply of moisture being obtained by the roots.

I am aware that what I have now advanced militates somewhat against the system which I partially recommended in regard to the pinaster (Vol. X. p. 497.): however, those observations were intended to be confined to planting near the coast, where there is much more humidity in the atmosphere during the winter than in situations far distant from the sea; and I am also inclined to believe that, owing to the texture of the leaves of the pine and fir tribe, a less degree of evaporation takes place with them than in the broad, and in some instances tender, leaved evergreens.

It may not be amiss just to hint at the difference that exists in evergreens, as regards the degrees of succulency possessed by the leaves of each; and I think it will be conceded, that the more succulent they are, so in proportion are they the more tenacious of life; and, consequently, may be transplanted with a greater certainty of success. Take, for instance, the *Aúcuba* japónica, and some other evergreens, the wood of which is of a hard texture, and it will be found that the aucuba, under a less careful treatment, will suffer the least. I conceive it is upon the same principle that a willow pole of 12 ft. high, when stuck in the ground, will strike root and send out leaves, while the oak or beech pole, were the experiment to be made, would die. But to return to evergreens: when removed with good balls, I have never found any difficulty to insure success at any season of the year, when accompanied with a little care as regards watering during the hot summer months; and, in one instance, I was very successful in the month of May, when the evergreens transplanted were in the act of making their shoots, and before the length of these was perfected. These evergreens were drawn from the

nursery in the usual way, with scarcely any balls; but a great deal of care was taken in watering them, and in shading them by day: I also took care to sprinkle them over their leaves with water, *five or six times every day* successively, during the first fortnight after planting; and eventually I withdrew the shading by degrees, according to the weather.

I have now only to repeat what I stated at first; viz. that the object of this paper is to elicit from others, upon philosophical principles, their opinions as to which is the best season of the year for transplanting evergreens with success, particularly when drawn from the nursery, either with or without balls, as it may happen.

63. *Portland Place*, 1835.

ART. V. *Notice respecting the Lombardy Poplar* (*Pópulus fastigiàta* Desf.) *in Italy.* By Signor GIUSEPPE MANETTI, Botanical Gardener and Comptroller of the Administration of the Vice-regal Gardens at Monza.

THE Lombardy, or, as we call it, the cypress poplar, is not now so frequently seen in the Milanese territory as formerly; and the few that still remain there appear to have been planted on the banks of rivers and brooks, or near houses, for ornament. I have not been able to convince myself that it grows any where spontaneously, except in the garden of Conte Orrigo, as I mentioned in a former letter; and when I wrote to my brother Luigi, to ascertain if it grew spontaneously in the province of Venice, he informed me that, although very fine trees of it are to be seen about villas between Venice and Verona, and also near the river Brenta, he never saw it grow spontaneously; and that it is there always propagated by cuttings.

I think that this poplar is a native of the banks of the Po; because, though it is cultivated to a considerable extent in Modena, Bologna, and Ferrara, it is found in the greatest abundance on the banks of that river, particularly on the Bolognese side. A friend of mine, who has property on the low ground near Mantua, has also observed, that, when the soil is dug up there, or when the river overflows its banks, and carries off part of the soil, so as to expose the virgin earth, a great quantity of black poplars always spring up, and among them many of the cypress or Lombardy poplars. These seeds were no doubt produced by the forests which once covered the banks of the Po, the remains of which are still to be found in some places. In my letter of the 24th of last January, I told you that I agreed with Professor Moretti in thinking that the cypress poplar was a hybrid; but, since I have studied it more closely, I must say that I con-

sider it a distinct species; because all the plants raised from seed preserve the characteristics of the parent.

I do not know why those who make plantations of poplars prefer raising them from cuttings rather than from seeds; and, as I told you in my last letter, the agriculturists in Brescia cut down the plants grown from seed to the collar, in order to make the whole into cuttings. I cannot think this desirable; and, on the contrary, maintain that, if you wish a plant to have a strong root, you should give the preference to one that has been raised from seed rather than from cuttings.

I wrote also to my valuable friend at Florence, Signor Palli Falbroni, secretary to the Academy of Geography, to ascertain if the Lombardy poplar was indigenous there. He informed me that they had only the male plant in Tuscany; and added, to my great surprise, that it was not introduced till 1805, by the Marquis Strozzi.

The most beautiful of these poplars which I have ever seen are at Signor Milgi's, at Belgioso, about four miles from Pavia, the oldest of which are about 80 years of age; the largest, at 2 ft. from the ground, are 8 ft. in circumference, and the height from 65 ft. to 70 ft. This poplar was formerly much cultivated in Lombardy; and it grew so rapidly, that it was generally cut down at the age of 20 years; but our agriculturists, finding its wood of very little use for fuel or vine-props, from the fewness and slightness of its branches, have now nearly abandoned its culture, in favour of that of *P.* nìgra, which produces large branches abundantly. I grant that its wood is not so good as that of the black poplar, but it will do very well for packing-cases, &c., and might thus save more important timber, of which a deficiency now begins to be felt. Its utility as an ornamental tree ought, however, to be sufficient to induce its cultivation; and, as some of your correspondents have already observed (see Vol. I. p. 17. and p. 117.), no tree is more useful in breaking the monotony produced by thick clumps of round-headed trees. It has always the advantage of not requiring very rich soil; and, where it has access to water, of growing with great rapidity. I can easily believe (as you say in your last letter) that this tree is found on the Himalayan Mountains. Bosc (*Nouv. Cours. d'Agri.*) says that it is a native of Georgia and the Crimea, whence it was brought to Italy; from which country it has spread over Europe. We know that *Erígeron* canadénsis is a native of Canada; but it is now become so common here, that it may truly be called "the pest of our fields."

Monza, near Milan, March, 1836.

ART. VI. *Further Notices respecting British Oaks, and some Remarks on the Turkey Oak and Scarlet Oak;* extracted from various Communications received from the Rev. W. T. BREE: *with a Note on the Study of Oaks, and of Trees generally,* by the CONDUCTOR.

I NOW send you a formidable phalanx of the long-promised specimens of *Quércus sessiliflòra*; almost all of them from my own wood here, and all from this parish, or the adjoining one of Corley. When you examine them, I am apprehensive you will feel inclined to come to the conclusion, that our two so called species of oak are mere varieties; but I pray you not to be too hasty in coming to this opinion; for, though there are sessile oaks bearing fruit on peduncles, and roburs bearing almost sessile fruit, there is yet a certain undescribable something about them, by means of which I can always distinguish each, without minutely examining either the acorns or leafstalks. This you may, perhaps, think a very silly remark for a botanist; but that I cannot help. Your theory (as stated in a note of Oct. 21.), that *Q.* sessiliflòra always assumes a conical shape, and *R*òbur a globose one, will not hold at all, at least not with our Warwickshire trees. I can see no difference in this respect; one is as globose as the other: indeed, the general outline of the two trees appears to me precisely the same. One circumstance I have observed this season (and it is very stupid in me not to have observed it before); viz. that the young seedlings of *Q.* sessiliflòra bear their leaves close to the stem, not on footstalks; so that in this stage they are hardly to be distinguished from *Q. R*òbur. At what period they begin to assume footstalks to the leaves, I cannot say; but I perceive that trees of 2 ft. or 3 ft. high, of my own sowing, have assumed that character. *Q.* sessiliflòra generally bears small acorns (as you have remarked); but you will find, by the specimens now sent, that it sometimes produces very fine large ones. There is a peculiarity, too, in the colour of the acorns when ripe: they have very generally a red or pinkish tinge; so that, in nine cases out of ten, I think I could distinguish one sort from the other by looking at the fallen acorns only.

Dec. 5. 1835.

A neighbour of mine, a professional gentleman, who is, or, at least, used to be, much employed in purchasing timber for the Grand Junction Company, informs me that oak timber from this neighbourhood weighs three pounds in the cubic foot heavier than oak from Buckinghamshire. This is a curious fact, if fact it is. It just occurs to me, that you will find some remarks of mine on *Q.* sessiliflòra in the *Magazine of Natural History*, iii. 165. [These remarks are as follows; and we recommend the reader to contrast them with those of Mr. Atkinson, given in this Magazine, in vol. xi. p. 83.]

"This species has no claim to be considered rare in this, or perhaps in any other, part of the country; but, except by the eye of a botanist, it is seldom distinguished from the Quércus *Ròbur*. A writer in the *Quarterly Review* (No. lxxvii. p. 22.) states that Quércus sessiliflòra "is supposed to have been introduced, some two or three ages ago, from the Continent;" an opinion which, I cannot help thinking, is ill-founded. That the acorns may have been imported from the Continent, as the reviewer states, and the plants raised from them extensively cultivated, is extremely probable. The species itself, however, I cannot but believe to be an original native of our island, for the following reasons: — In some districts (e. g. in some parts of North Wales, and in the neighbourhood of the lakes in the north of England) it is the most prevailing kind, constituting, as it were, the staple growth of the country, almost to the exclusion of the other species, *Q. Ròbur*. In these situations we should hardly suspect that the trees had been planted by the hand of man, nor have they that appearance; but, on the contrary, seem to be the spontaneous produce of the soil in which they grow. I have also observed, in various places, trees of the sessile-flowered oak, which, I should conclude, must be of some hundred years' growth. In this county, which formed a part of the woody and extensive district anciently called the Forest of Arden, the oak in question is chiefly to be met with in woods, some of which almost entirely consist of this species, and exhibit evident marks of great antiquity, as well in other respects, as in the large hollow stools of oak which frequently occur in them. It is by no means an improbable supposition, that our Warwickshire woods may, at least in some instances, be portions of the original unreclaimed land, existing now in nearly the same state as before the country was cleared to its present extent for agricultural purposes. The reviewer above referred to very justly reprobates the practice of cultivating *Quércus sessiliflòra* as a tree, on account of the comparative worthlessness of its timber. Where woods, however, are periodically cut, and chiefly employed as copse, and the oak poles (with the exception of such samplers as are left for timber) felled at about twenty years' growth for the use of the coal-pits, the sessile-flowered oak, as being of quicker and cleaner growth, answers the purpose well, and is perhaps preferable to the other. So at least our woodmen would argue, who have a common saying among them, that 'a quick ninepence is better than a slow shilling.' I will only add, that this spurious species will attain to a very large size, and is extremely handsome in its foliage. As a timber tree, however, its culture cannot be recommended; and more especially ought the 'impostor' to be extirpated from the royal forests and other woods which are to supply our navy."

The specimens which accompanied Mr. Bree's communication of December 5. are as follows. Our own remarks are in editorial parentheses.

Quércus sessiliflòra, Allesley, September, 1834. Acorns fine, and growing in large clusters. [A magnificent specimen, nearly 18 in. in length; the leaves from 5 in. to $5\frac{3}{4}$ in. in length, with footstalks from $\frac{3}{4}$ in. to 1 in. in length, and the acorns in clusters of threes, fours, and fives, quite sessile, and ovate in form.]

Q. sessiliflòra, Allesley, September, 1834. Acorns fine. [The leaves not quite so long as in the preceding specimen, but closer together on the branches; the acorns in ones, twos, and threes, quite sessile.]

Q. sessiliflòra, Allesley, October, 1835. [Very large leaves, and very small long acorns; one of the latter sessile, and the other with a footstalk of about $\frac{3}{8}$ in. in length.]

Q. sessiliflòra, Allesley, October, 1835. Acorns large and fine. [The acorns of three times the diameter of those of the last specimen, and about twice their length.]

Q. sessiliflòra, Allesley, Oct., 1835. Acorns with a short peduncle. [Two specimens from the same tree. In one specimen the peduncles are 1 in. in length; in the other scarcely $\frac{1}{2}$ in. The form of the leaves, their yellowish-green and long footstalks, and the large buds in the axils of the leaves, leave no doubt whatever of the specimens being those of *Q.* sessiliflòra.]

Q. sessiliflòra, Allesley, October, 1835. Acorns on a short peduncle. [The acorns in ones, twos, threes, fours, and fives, on peduncles varying from $\frac{1}{2}$ in. to 1 in. in length. One of the peduncles has an abortive sessile acorn at its base; two acorns, about $\frac{1}{2}$ in. from each other, on the peduncle; and the extremity of the peduncle terminates in a large well-formed leaf bud. The acorns are long, and very much resemble those of *Q.* pedunculàta.]

Q. sessiliflòra, Allesley, October, 1835. Acorns small and round. [The acorns small in some cases, but with short footstalks in others; the leaves of a darker green, approaching nearer to those of *Q. R.* pedunculàta than in the case of any of the preceding specimens; but, from their appearance, long footstalks, and large buds, a doubt does not for a moment exist of their belonging to *Q.* sessiliflòra.]

98

Q. sessiliflòra, Allesley, October, 1835. Leaves but little laciniated, and resembling those of *Q. R*òbur. [Leaves broad, with long footstalks, pale green. Some of them with those round, flat, spangle-like excrescences on the under surface, which are understood to be made by the punctures of insects, probably some species of the Linnæan genus Cynips, the gall fly (*fig.* 98.).]

Q. sessiliflòra, Allesley, September, 1834. Acorns on a very short peduncle; leaves with an unusually long petiole. [Leaves of a darker green, much narrower in proportion to their length than in any of the preceding varieties. (See *fig.* 99.)]

Q. sessiliflòra, Allesley, September, 1834. Leaves regularly and deeply laciniated. [Acorns sessile; leaves deeply and regularly

notched, almost serrated. A totally different specimen from any of the preceding ones. (See *fig.* 100.)

99

Q. sessiliflòra, Allesley, September, 1834. [The peduncles 1 in. in length, in some cases clothed with acorns on the sides, and with a terminal one; some, also, solitary and quite sessile. A very handsome and remarkable specimen. The acorns long, like those of *Q. R.* pedunculàta.]

Q. sessiliflòra, Allesley, Oct., 1835. Acorns on a short peduncle. [The peduncle is $\frac{3}{4}$ in. in length: the acorn long; and the foliage and buds decidedly those of *Q.* sessiliflòra.]

Q. sessiliflòra, Allesley, September, 1834. Acorns very long and pointed. Sessile. [Leaves numerous, of a darker green than usual. A very remarkable variety. (See *fig.* 101.)]

100

Q. sessiliflòra, Allesley, September, 1834. Acorns round, and on a short peduncle. [Leaves broad, and yellowish green.]

*Q*uércus *R*òbur, Allesley, October, 1834. With acorns on a very short peduncle, and petioles longer than usual; thus approaching to *Q.* sessiliflòra, yet a true *Q. R*òbur. [There is something in the leaves, and their rather long petioles and large buds in the axils, which reminds us of *Q.* sessiliflòra; but still, taking the slenderness of the wood, the colour of the leaves, their form, their number, the small buds, and the great length of the acorn, the specimen appears to belong to *Q. R*òbur pedunculàta. We have little doubt it is a hybrid between them. (See *fig.* 102.) Mr. Bree, to whom we have sent a proof of this article, says, "This specimen is from a genuine *Q. R*òbur, although in some of its characters it apparently approaches *Q.* sessiliflòra."]


101

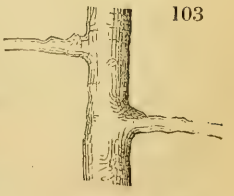
My Turkey oaks (*Quércus Cérris*) grow prodigiously: their bark cracks and turns back almost like a broiled gizzard.

Did you ever observe one character in the Turkey oak? I mean the large swelling, or protuberance, at the base of the arms, where they strike off from the trunk (*fig.* 103.). The branches of all trees, of course, have a swelling in this part, more or less; but the Turkey oak in a far greater degree than any other I know. [Mr. Bree adds the following remark:—"This figure, having been taken from a very hasty and rude sketch, does not represent the swelling, or protuberance, alluded to by any means so large and prominent as it should have done."]

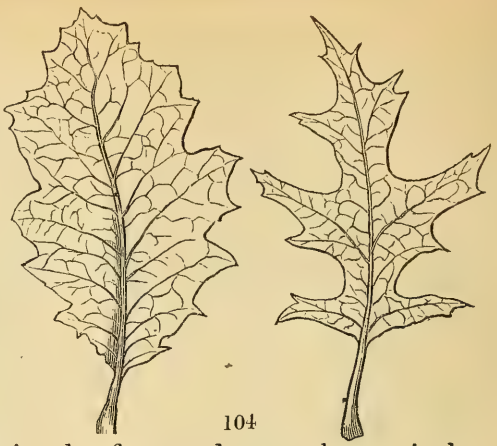

102

What I have called the *scarlet oak* is the kind so called in the nurseries, and to be had in almost any; whether it is *Q.* coccínea, I cannot say. I send you a few dead leaves of it. (*fig.*105.) It comes out in the spring, of a lovely sulphur colour, and turns of a fine deep red in autumn, before the leaves fall. The bark is very smooth, even in large trees. [We think the leaves are those of *Quércus* rùbra; those of *Q.* coccínea being larger, and not nearly so deeply cut. The latter die off of a scarlet, and the former of a deep red. *Fig.*104. *a* is a leaf from a large tree of *Q.* rùbra, in the Fulham Nursery; and *b*, a leaf from *Q.* coccínea, at Purser's Cross.]

December 19. 1835.

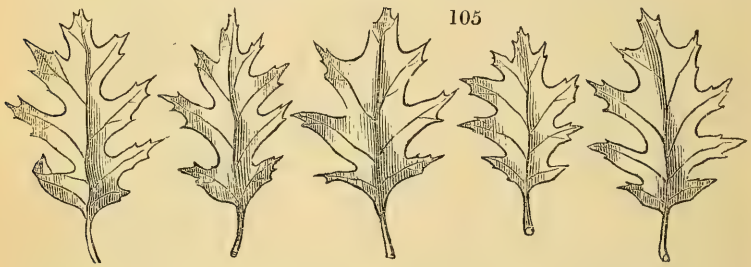

103

The foregoing observations on British oaks show what a fund of rational entertainment may be afforded by a single species of tree. An ordinary observer is apt to think that one oak tree is, in foliage and acorns, just the same as another; but a careful and minute observer will never find two trees exactly alike in these



104

respects. Let any person riding or walking along a road bordered by oak trees, or one where there are oak trees in the hedges, only observe one tree after another, as he moves along, and note the remarkable differences in the foliage, not to speak of the more evident differences in the form and general magnitude of the trees; and he will be convinced of the truth of what we assert. If he is a Londoner, let him walk from Hampstead to Mill Hill. He will see on the road side a great many varieties of *Q. Ròbur* pedunculàta, and one or two specimens of *Q. Ròbur* sessiliflòra; and, at the commencement of Mill Hill, he will find a tree with nearly the same kind of leaves as Fennessey's oak,



105

figured p. 497. If he afterwards should have access to the gardens of the villas at Mill Hill, he will find in them several specimens of oaks, remarkable both for their magnitude, their foliage, and their acorns.

The stately and magnificent edifice used for a Protestant dissenters' school, built in the grounds of what was formerly the villa of Peter Collinson, and the garden belonging to which still contains many fine specimens of the rare trees planted by that good and truly patriotic man, are well worth seeing, and the stranger visiting them can hardly fail of being well received by the excellent and intelligent master of the school, the Rev. W. Clayton. Near a pond in these grounds will be found two specimens of *Q. R.* sessiliflòra; and there are several American oaks in different parts of the lawn and paddock.

The greatest treat, however, in the neighbourhood of London,

with respect to British oaks, is, to procure admission to the Earl of Mansfield's grounds at Kenwood. There, there are a grea number of trees of the *Q. R.* sessiliflòra, differing most remarkably in their foliage and in their acorns; as we expect to show in some future number. There are a still greater number of *Q. R*òbur pedunculàta, and various trees obviously intermediate between this sort and *Q. R.* sessiliflòra. We mention these things to show the inexhaustible source of gratification which a little knowledge of any subject is calculated to afford to those who will take the trouble of obtaining it; and the above remarks, though applied to the oak, are not less applicable to the common hawthorn, and to many other trees. Knowledge, in short, is an inexhaustible source, not only of power, but of pleasure. In these notes we use the terms *Q. R.* pedunculàta, and *Q. R.* sessiliflòra, merely to show that we think them varieties of the same form; but, in practice, we think it quite enough to use the names *Q.* pedunculàta and *Q.* sessiliflòra.

The study of trees has advantages over several other out of door studies (such as those of herbaceous plants, and insects), inasmuch as it may be carried on while we are walking, on horseback, or in an open carriage, along the public roads. What a fund of enjoyment, for example, is to be found in walking or riding in the suburbs of London, and noting the trees and shrubs which are planted in front of the suburban houses! It is curious to observe the rare species that are sometimes to be found in these gardens, and to reflect on the causes which placed them there. Most of the houses in the neighbourhood of London are built several at a time, and their gardens planted in like manner, by speculative builders. In order to plant the gardens at the cheapest rate, advantage is taken of nursery sales, of which there have been a great many every autumn, during the last twenty years, partly from nursery grounds being wanted to build on, and partly from nurserymen becoming bankrupts. At these sales, the rare and valuable articles are mixed with the common ones, in order that the former may sell the latter; and in this way, many choice plants have found their way into suburban gardens. Hence there is, perhaps, no part of the world, with the exception of North America (and we doubt even if America ought to be excepted), where so many sorts of trees and shrubs may be seen on the borders of the public streets and roads as in the neighbourhood of London. The ligneous flora of the street in which we live exhibits a greater number of rare trees, than all the suburban gardens in the neighbourhood of Edinburgh put together (with the exception of the nurseries and the Botanic Garden) did in the year 1806. This ought to be a great encouragement to a Londoner, whether he have a town or a suburban residence, to study trees. We scarcely know any other study, unless it be

that of street or suburban architecture (which ought to go hand in hand with it), which may be entered on so easily by persons in the decline of life, and which even an invalid may partake of while reclining in his open carriage. For our own part, so great is the enjoyment that we derive from this study, that we think we can never sufficiently recommend it. Though we have been looking at trees all our life, and have known the names of all the kinds in general cultivation as long as we can remember; having also taken a deep interest in viewing them, and sketching them, not only in plantations in Britain, but in the native forests and gardens of the Continent, from Stockholm to Naples; yet, since we began to study them more minutely for the purposes of the *Arboretum Britannicum*, we can truly say, that our enjoyment has been doubled. We only wish we could get others to participate in it with us. — *Cond.*

The above article was put in type at the same time as that of Mr. Bree's (p. 533.), but was kept back for want of room. We have since (on Sept. 25. and 26.) had an opportunity of examining the British oaks in the park at Woburn Abbey, of which there are a great many, both of *Q. R.* pedunculàta, and *Q. R.* sessiliflòra. These trees are of considerable age, of dimensions varying from 60 ft. to 90 ft. in height, and with heads from 60 ft. to 90 ft. in diameter. The highest specimen of each sort will be found noticed in the succeeding article. Most of these trees stand detached in the park or pleasure-ground, and are remarkable for their fine developement on every side; the magnificence of their general forms, and the characteristic variety of their general outlines, masses, and tufting. Some of them, from age and accident, are only fragments of trees; but even in these the young shoots are of vigorous growth, and the foliage healthy. These trees confirm in a striking manner the truth of Mr. Bree's doctrine as to the superiority of *Q. R.* pedunculàta in point of picturesque beauty; more particularly where the trees stand quite detached, and where the entire outline can be viewed against the sky. On the other hand, there is something very rich and noble in the large individual leaves of *Q. R.* sessiliflòra, which are invariably flatter, and of a paler green than those of *Q. R.* pedunculàta; and the beauty of the former kind is doubtless greatly enhanced in the eyes of the botanist by its comparative rarity. In order to show the full force of the truth of Mr. Bree's doctrine, we have, with the Duke of Bedford's permission, engaged an eminent artist to go to Woburn, and take portraits of a tree of each sort, which we shall have engraved, and published in the *Arboretum Britannicum*. We found at Woburn, as among the specimens described above, and sent to us by Mr. Bree, a great variety in the length of the footstalks, both of the acorns, and of the leaves; but we scarcely met with a case in which we could

not tell to which of the kinds, be they species or varieties, the tree belonged. This may be much more readily and certainly known by the colour, form, and footstalks of the leaves, than by the fruit, which is far from being always sessile, or of the same form. It is singular that no one had ever noticed the circumstance of there being two kinds of oak in the park at Woburn Abbey, till last spring. A great number of the trees of both sorts are now marked, in order to observe what difference there may be in the timber when any tree is cut down. It is generally considered that the wood of *Q. R.* sessiliflòra, is of a paler colour, and more straight, or even-grained, than that of the other sort. (See Vol. VII. p. 83.) — *Cond.*

ART. VII. *Dimensions of Trees of the British Oaks* (*QuércusRòbur pedunculàta and* Q. R. *sessiliflòra*), *and of the Cedar of Lebanon* (*Cèdrus Libàni*), *now growing in different Parts of Britain and Ireland; selected from the Return Papers filled up for the Arboretum et Fruticetum Britannicum.* Published with a View to procure further Dimensions, particularly from the Counties from which none have yet been received.

THESE selections show the largest trees in every county of which notices have been sent to us; and they are here published in the hope of eliciting farther notices and dimensions. There are several of the counties which we know to contain much larger oaks and cedars than those mentioned below; but, as no specific dimensions or localities have been sent to us, we could not record them. Our object in publishing this list is to direct the attention of our readers to the dimensions given of what is supposed to be the largest oaks and cedars in the county in which they reside, or in that with which they are best acquainted; and if they know of any larger, we beg of them to send us an account of their heights, the diameter of their trunks, and the diameter of their heads, or of the space covered by their branches. In giving the dimensions of oaks, it will be very desirable to have it stated whether the species is *Q. R.* sessiliflòra, or *Q. R.* pedunculàta. This can be as readily done from the leaves as from the flowers or fruit; the leaves of *Q. R.* sessiliflòra having invariably long footstalks, and being flatter, and of a paler green, than those of *Q. R.* pedunculàta. (See the engravings of the leaves of both species, in p. 534.) It is a singular fact, that it is not at this moment known whether the largest oak trees of Europe belong to *Q. R.* pedunculàta, or to *Q. R.* sessiliflòra. To make quite certain as to the species, a leaf or two may be sent us in the letters containing the dimensions, provided these letters are franked.

To be in time, such accounts as may be kindly forwarded to us by the well-wishers of the *Arboretum Britannicum* should be received by us in the course of the month of November. The letters may be sent open, in an envelope to the member of the county in which the party writing resides, stating that we had suggested this mode of proceeding, and expressing a hope that, the object of the letter being of national interest, the national representative, or M.P., would be so obliging as to frank it to its destination.

In taking the circumference or diameter of the trunks, every forester knows that it would give a much fairer estimate of the timber each tree is likely to contain, to measure it at 3 ft. or 4 ft. from the ground, instead of at 1 ft.; but, the latter mode of measuring being adapted for young trees under 10 or 12 years growth, and our printed return papers having been made out chiefly with a view to them, we have considered it best to avoid any distinction in the mode of taking dimensions, lest it should create confusion.

ENGLAND.

Bedfordshire. — *Quércus Róbur* pedunculàta, at Woburn Abbey: height 75 ft.; diam. of head 62 ft., of trunk, at 1 ft. from the ground, 5 ft.

Q. R. sessiliflòra, at Woburn Abbey: height 90 ft.; diam. of head 63 ft., of trunk, at 1 ft. from the ground, 7 ft.

Cedar, at Ampthill: 55 ft. high; diam. of the trunk 4½ ft., and of the head 80 ft.; age 85 years.

Berks. — *Quércus?*

Cedar, at Ditton Park: 80 ft. high; diam. of trunk 5 ft.; age 90 years.

Bucks. — *Quércus?*

Cedar, at Temple House: 45 ft. high; diam. of the trunk 2½ ft., and of the head 33 ft.; age 40 years.

Cambridgeshire.—Oak, at Wimpole: height 60 ft.; diam. of trunk 4 ft.

Cedar, at Maddingley: 60 ft. high; diam. of trunk 3 ft. 9 in.; age 112 years.

Cheshire.—Oak, at Kinmel Park: height 30 ft.; diam. of trunk 1 ft., and of head 20 ft.

Cedar, at Kinmel Park: height 30 ft.; age 30 years.

Cornwall. — *Quércus?*

Cèdrus?

Cumberland. — *Quércus?*

Cèdrus?

Derbyshire. — Oak, at Foston Hall: height 60 ft.; diam. of head 66 ft., of trunk, at 1 ft. from the ground, 11 ft.; age 1000 years.

Cedar, at Hassop: 24 ft. high; diam. of trunk 1⅓ ft., and of the head 50 ft.

Devonshire. — Oak, at Bystock Park: height 35 ft.

Cedar, at Luscombe: 47 ft. high; diam. of trunk 2⅔ ft., and of head 40 ft.; age 30 years.

Dorsetshire. — Oak, at Melbury Park: height 60 ft.; diam. of trunk 11 ft., and of head 68 ft.; age 300 years.

Cedar, at Melbury Park: 28 ft. high.

Durham. — *Quércus?*

Cedar, at Southend: 30 ft. high; diam. of trunk 1 ft. 4 in., and of the head 22 ft.

Essex. — Oak, at Audley End: height 57 ft.; diam. of trunk 7⅓ ft., and of head 56 ft.; age 68 years.

Cedar, at Faulkbourne Hall: 80 ft. high; diam. of trunk 6⅓ ft. and of head 100 ft.

Gloucestershire. — Oak, at Doddington: height 80 ft.; diam. of trunk 6 ft., and of head 252 ft.

Cedar, at Doddington: 30 ft. high; diam. of trunk 1½ ft., and of head 60 ft.

Hampshire.—Oak, at Strathfieldsaye: 90 ft. high; diam. of trunk 6 ft., and of head 69 ft.

Cedar, at Strathfieldsaye, 108 ft. high; diam. of trunk 3 ft., and of head 74 ft.

Herefordshire. — The Nun-Upton Oak, at Brimfield: diam. of trunk 11 ft; Oak, at Croft Castle: height 72 ft.; diam. of trunk 10 ft., and of head 104 ft.

Cedar, at Eastnor Castle: 30 ft. high.

Hertfordshire. — Oak, at Pansanger: containing upwards of 18 loads of timber.

Cedar: 45 ft. high; diam. of trunk 2 ft., and of head 42 ft.

Huntingdonshire. — *Quércus?*

Cèdrus?

Kent. — *Quércus?*

Cedar, at Charlton: 55 ft. high; diam. of trunk 4 ft., and of head 34 ft.

Lancashire. — *Quércus?*

Cedar, at Latham House: 23 ft. high; diam. of trunk 11 in., and of head 29 ft.

Leicestershire. — Oak, at Donnington Park: 68 ft. high; diam. of trunk 4 ft., and of head 81 ft.

Cedar, at Elvaston Castle: 73 ft. high; diam. of trunk 4 ft. 8 in., and of head 76 ft.

Lincolnshire. — *Quércus?*

Cèdrus?

Middlesex. — Oak, at Whitton Place: 75 ft. high; diam. of trunk 5 ft.

Quércus sessiliflòra, at Kenwood: 60 ft. high; diam. of trunk 2⅔ ft., and of head 60 ft.

Cedar, at Syon: 72 ft. high; diam. of trunk 8 ft, and of head 117 ft.

Monmouthshire. — *Quércus?*

Cèdrus?

Norfolk. — *Quércus?*

Cèdrus?

Northamptonshire. — Oak, at Shipley House: diam. of trunk 3 ft., and of head 171 ft. The Gog and Magog Oaks, at the Marquess of Northampton's, contain, one 1668 cubic feet, the other 900 cubic feet.

Cedar, at Castle Ashley: 80 years old; has a trunk 4 ft. in diam.

Northumberland. — Oak, at Hartburn: 74 ft. high; diam. of trunk 3⅓ ft., and of head 60 ft.

Cèdrus?

Nottinghamshire. — Oak, at Clumber Park: 90 ft. high; diam. of trunk 4⅓ ft., and of head 72 ft.

Cedar, at Clumber Park: 80 ft. high; diam. of trunk 3 ft. 11 in., and of head 44 ft.

Oxfordshire. — Oak, at Blenheim: trunk 10 ft. in diam.

Cedar, at Oxford, in the Botanic Garden: it is 30 ft. high; diam. of the trunk 1 ft. 3 in., and of head 27 ft.

Rutlandshire. — *Quércus?*
Cedar, at Belvoir Castle: 30 ft. high; age 28 years.

Salop. — Oak, at Kinlet: 101 ft. high; diam. of trunk 7 ft., and of head 113 ft.
Cedar, at Kinlet: 27 ft. high; diam. of trunk 2 ft., and of head 26 ft.

Somersetshire. — Oak, at Brockley Hall: 80 ft. high; diam. of trunk 12 ft. At Nettlecombe: 100 ft. high; diam. of trunk 6½ ft., and of head 50 ft.
Cedars, at Crowcombe Court: 50 ft. to 70 ft. high; diam. of trunk 6 ft., and of head 80 ft.

Staffordshire. — The Cliff Oak: 75 ft. high; diam. of trunk 6 ft.; trunk clear to the height of 40 ft., and containing 482 cubic feet.
Cedar, at Trentham: 60 ft. high; diam. of trunk 4 ft., and of head 50 ft.

Suffolk. — Oak, at Finborough Hall: 75 ft. high; diam. of trunk 6 ft., and of head 62 ft.
Cedar, at Hardwicke: 50 ft. high; diam. of trunk 5 ft., and of head 43 ft.

Surrey. — Oak, at Claremont: 76 ft. high; diam. of trunk 4½ ft., and of head 80 ft.
Cedars, at Claremont: 100 ft. high; diam. of trunk 16 ft. Another, with a stem clear to the height of 100 ft.

Sussex. — Oak, at Cowdrey: 60 ft. high; diam. of trunk 5½ ft., and of head 103 ft.
Cedar, at West Dean: 64 ft. high; diam. of trunk 4 ft., and of head 80 ft.

Warwickshire. — Oak, at Combe Abbey: 70 ft. high; diam. of trunk 7 ft., and of head 101 ft.; age 600 years.
Quércus sessilifòra, at Allesley: 60 ft. high; diam. of trunk 2 ft., and of head 50 ft.
Cedar, at Combe Abbey: 47 ft. high; diam. of trunk 4 ft., and of head 80 ft.

Westmoreland. — *Quércus?*
Cèdrus?

Wilts. — Oak, at Wardour Castle: 50 ft. high; diam. of trunk 8 ft., and of head 45 ft.
Cedar, at Bowood: 60 ft. high; diam. of trunk 3½ ft., and of head 62 ft.

Worcestershire. — Oak, at Hagley: diam. of trunk 7½ ft., and of head 35 ft.
Cedar, at Croome: 100 ft. high; diam. of trunk 5 ft., and of head 85 ft.

Yorkshire. — Oak, at Castle Howard: 90 ft. high; diam. of trunk 6 ft., and of head 90 ft.
Cedar, at Grimston: 12 ft. high.

NORTH WALES.

Isle of Anglesey. — *Quércus?*
Cèdrus?

Caernarvonshire. — *Quércus?*
Cèdrus?

Denbighshire. — Cedar, at Llanbede Hall: 18 ft. high.

Flintshire. — *Quércus?*
Cèdrus?

Merionethshire. — *Quércus?*
Cèdrus?

Montgomeryshire. — *Quércus?*
Cèdrus?

SOUTH WALES.

Brecknockshire. — *Quércus?*
Cèdrus?

Cardiganshire. — *Quércus?*
Cèdrus?

Caermarthenshire. — *Quércus?*
Cèdrus?

Glamorganshire. — *Quércus?*
Cèdrus?

Pembrokeshire. — *Quércus?*
Cedar, at Stackpole Court: 38 ft. high; diam. of trunk 1½ ft., and of head 33 ft.

Radnorshire. — Oak, at Maeslough Castle: 56 ft. high; diam. of trunk 7 ft.
Cedar, at Maeslough Castle: 51 ft. high; diam. of trunk 2 ft. 8 in., and of head 50 ft.

SCOTLAND.

Aberdeenshire. — Oak, at Gordon Castle: 66 ft. high; diam. of trunk 3 ft., and of head 66 ft.
Cedar, at Thainston: 9 ft. high.

Argyllshire. — *Quércus?*
Cedar, at Roseneath Castle: 45 ft. high; diam. of trunk 2½ ft.

Ayrshire. — Oak, at Kilkerran: 50 ft. high; diam. of trunk 4 ft., and of head 4 ft.
Cedar, at Loudon Castle: 30 ft. high; diam. of trunk 4 ft.

Banffshire. — *Quércus?*
Cedar, at Gordon Castle: 33 ft. high; diam. of trunk 1 ft.

Berwickshire. — *Quércus?*
Cedar, at the Hirsil: 23 ft. high.

Isle of Bute. — *Quércus?*
Cedar, at Mount Stewart, 13 ft. high.

Caithness. — *Quércus?*
Cèdrus?

Clackmannanshire. — *Quércus?*
Cèdrus?

Dumbartonshire. — *Quércus?*
Cèdrus?

Dumfriesshire. — *Quércus?*
Cèdrus?

Edinburghshire. — Oak, at Hopetoun House: 75 ft. high; diam. of trunk 3½ ft., and of head 60 ft.
Cedar, at Hopetoun House: 68 ft. high; diam. of trunk 4½ ft., and of head 81 ft.

Elginshire. — *Quércus?*
Cèdrus?

Fifeshire. — *Quércus?*
Cedar, at Danibristle Park: 12 ft. high.

Forfarshire. — Oak, at Monboddo: 55 ft. high; diam. of trunk 15 in. At Kinnaird Castle: 50 ft. high; diam. of trunk 4 ft., and of head 50 ft.
Cedar, at Gray House: 60 ft. high; diam. of trunk 5½ ft. and of head 65 ft.

Haddingtonshire. — Oak, at Yester: 89 ft. high; diam. of trunk 4 ft., and of head 70 ft.
Cedar, at Tynningham: 27 ft. high; diam. of trunk 1 ft., and of head 27 ft.

Inverness-shire. — *Quércus?*
Cèdrus?

Kincardineshire. — *Quércus?*
Cèdrus?

Kinross-shire. — *Quércus?*
Cèdrus?

Stewartry of Kirkcudbright. — Oak, at St. Mary's Isle: 62 ft. high; diam. of trunk 3½ ft., and of head 59 ft.
Cedar, at Cassincarrie: 50 ft. high; diam. of trunk 3 ft.

Lanarkshire. — *Quércus?*
Cèdrus?

Linlithgowshire. — *Quércus?*
Cèdrus?

Nairnshire. — *Quércus?*
Cèdrus?

Orkney and Shetland Isles — *Quércus*
Cèdrus?

Peeblesshire. — *Quércus?*
Cèdrus?

Perthshire. — *Quércus*, at Castle Menzies: 89 ft. high; diam. of trunk 5 ft.
Cedar, at Taymouth: 36 ft. high; diam. of trunk 1½ ft., and of head 20 ft.

Renfrewshire. — Oak, at Bothwell Castle: 59 ft. high; diam. of trunk 5 ft., and of head 58 ft.
Cèdrus?

Ross and Cromarty. — *Quércus?*
Cedar, at Brahan Castle: 50 ft. high; diam. of trunk 2 ft., and of head 36 ft.

Roxburghshire. — Oak, at Minto: 70 ft. high diam. of trunk 4 ft., and of head 73 ft.
Cèdrus?

Selkirkshire. — *Quércus?*
Cèdrus?

Stirlingshire. — Oak, at Sauchie: 107 ft. high; diam. of trunk 3½ ft., and of head 63 ft.
Cedar, at Blair Drummond: 45 ft. high; diam. of trunk 1½ ft., and of head 25 ft.

Sutherlandshire. — Oak, at Dunrobin Castle: 55 ft. high; diam. of trunk 3 ft. 11 in., and of head 63 ft.
Cèdrus?

Wigtownshire. — *Quércus?*
Cèdrus?

IRELAND. — LEINSTER.

Dublin. — Oak, at Cypress Grove: 50 ft. high; diam. of trunk 2½ ft., and of head 58 ft.
Cedar, at Castletown: 28 ft. high; diam. of trunk 2½ ft., and of head 50 ft.
Louth. — Oak, at Dundalk: 90 ft. high; diam. of trunk 3½ ft.
Cedar, at Oriel Temple: 33 ft. high; diam. of trunk 1½ ft., and of head 28 ft.
Meath. — Quércus?
Cèdrus?
Wicklow. — Quércus?
Cèdrus?
Wexford. — Quércus?
Cèdrus?
Longford. — Quércus?
Cèdrus?
Westmeath. — Quércus?
Cèdrus?
King's County. — Quércus?
Cèdrus?
Queen's County. — Quércus?
Cèdrus?
Kildare. — Quércus?
Cèdrus?
Kilkenny. — Quércus?
Cèdrus?
Carlow. — Quércus?
Cèdrus?

ULSTER.

Down. — Oak, at Moira: 70 ft. high; diam. of trunk 2 ft., and of head 68 ft.
Cèdrus?
Antrim. — Quércus?
Cedar, at Antrim Castle: 17 ft. high.
Londonderry. — Quércus?
Cèdrus?
Donegal. — Quércus?
Cèdrus?
Fermanagh. — Oak, at Florence Court: 80 ft. high; diam. of trunk 3 ft.
Cedar, at Florence Court: 36 ft. high; diam. of trunk 2 ft., and of head 30 ft.
Cavan. — Quércus?
Cèdrus?
Monaghan. — Quércus?
Cèdrus?
Armagh. — Quércus?
Cèdrus?
Tyrone. — Oak, at Baron's Court: 50 ft. high; diam. of trunk 2½ ft., and of head 60 ft.
Cèdrus?

MUNSTER.

Clare. — Quércus?
Cèdrus?
Kerry. — Quércus?
Cèdrus?
Cork. — Oak, at Castle Freke: 42 ft. high; diam. of trunk 3 ft., and of head 36 ft.
Cèdrus?
Waterford. — Quércus?
Cèdrus?
Tipperary. — Quércus?
Cèdrus?
Limerick. — Quércus?
Cèdrus?

CONNAUGHT.

Leitrim. — Quércus?
Cèdrus?
Sligo. — Quércus?
Cèdrus?
Mayo. — Quércus?
Cèdrus?
Galway. — Quércus?
Cèdrus?
Roscommon. — Quércus?
Cèdrus?

ART. VIII. *List of the most celebrated old Oaks, Cedars, Larches, Chestnuts, Beeches, Elms, Ashes, Sycamores, &c., in Great Britain.* Published with a View of acquiring Information respecting their present State.

THE chief object for which we present the following list is, to enable us to determine with accuracy whether the oldest oak trees of Britain belong to the species or variety Quércus *Róbur* pedunculàta, or *Q. R.* sessiliflòra.

Those who have studied Art. VI. p. 571., and the article on oak foliage, by Mr. Bree, in p. 533., will readily be able, on inspecting any of the old trees enumerated below, to determine to which sort they belong; and, if any one should feel the slightest difficulty, he has only to send us a couple of leaves, attached to about an inch of the shoot, in a frank.

We wrote, some time ago, to the proprietors of most of these oaks respecting their present state, kind, &c.; and from most, or all of them, we have received answers of a general nature; but the object of this communication is to direct the attention of gardeners and botanists to the subject, so as to acquire some information of a definite and specific nature; and, above all, to enable us to determine the species to which the old oak trees belong.

With respect to the old cedars, chestnuts, beeches, &c., our wish is chiefly to ascertain their present state, and, as is the object of the preceding article, to get notices of any older or larger specimens.

ENGLAND.

Bedfordshire. — The Oak at Ampthill is 40 ft. in circumference at the base; and supposed to be more than 1000 years old. (*Time's Telescope*, 1822, p. 158.) *Queries.* Its present dimensions, particularly its height and the diameter of the trunk at 4 ft. from the ground; its present state in regard to health and vigour of growth; and whether it is Quércus *Róbur* pedunculàta, or *Q. R.* sessili-

flòra. To enable us to determine this for ourselves, specimens of the leaves may be sent us, in a franked letter. The Abbot's Oak at Woburn Abbey, seen by us September 26. 1836; when we found it to be *Quércus Róbur* pedunculàta, in a vigorous state, and ripening acorns. Height 30 ft. or 40 ft.; diameter of the trunk 6 ft. or 7 ft.; and supposed age upwards of 500 years. The Great Ash at Woburn Abbey, Duke of Bedford, is 90 ft. high, the girt of the trunk 23 ft. 6 in., and the diameter of the head 113 ft. Cubic contents 872 ft.

Buckinghamshire. — The Burnham Beeches, Lord Grenville. This beautiful tract of woodland is four miles from Stoke Pogis, and is celebrated as the scene of Gray's poetic musings. (*Time's Telescope*, p. 76.) *Queries* as above, as to one or more of the principal trees.

Denbighshire. — A yew tree in Gresford churchyard, near Wrexham, is 29 ft. in girt, at 5 ft. from the ground; height 52 ft.; diameter of the head 36 ft. — *J. E. Bowman. July* 1. 1836.

Essex. — The large Oak at Hemstead, is 99 ft. high; the circumference of the trunk, at 4 ft. from the ground, 51 ft.; and the diameter of the head 100 ft. (*Gent. Mag.*, March, 1802, p. 213.) *Queries* as above.

Gloucestershire. — The Tortworth Chestnut, Lord Ducie, is supposed to be above 1000 years old; and it measures 52 ft. in circumference at 5 ft. from the ground. The solid contents are 1965 feet. (*Strutt*, p. 85.) *Queries* as above.

The Boddington Oak grows in a piece of rich grass land, called the Old Orchard Ground, belonging to Boddington Manor Farm, lying near the turnpike-road between Cheltenham and Tewkesbury. "The stem is remarkably collected and close at the root, the sides of its trunk being more upright than those of large trees in general; nevertheless, its circumference at the ground, as near to it as one can walk, is 20 paces: measuring with a 2-foot rule, it is somewhat more than 18 yards. At 3-ft. high, it measures 42 ft.; and at its smallest dimensions, namely, from 5 ft. to 6 ft. high, it is 36 ft. At about 6 ft. it begins to swell out larger, forming an enormous head, which heretofore has been furnished with huge, and in all probability extensive, arms. But age and ruffian winds have robbed it of a principal part of its grandeur; and the greatest extent of arm at present (1783) is 8 yards from the stem. From the ground to the top of the crown of the trunk is about 12 ft.; and the greatest height of the branches, by estimation, 45 ft. The stem is quite hollow; being, near the ground, a perfect shell; forming a capacious, well-sized room; which at the floor measures, one way, more than 16 ft. in diameter. The hollowness, however, contracts upwards, and forms itself into a natural dome, so that no light is admitted except at the door, and at an aperture or window in the side. It is still perfectly alive and fruitful, having this year a fine crop of acorns on it. It is observable in this (as we believe it is in most old trees), that its leaves are remarkably small; not larger, in general, than the leaves of the hawthorn." (*Planting and Rural Ornament*, vol. ii. p. 299.) *Queries* as above.

An oak at Standish, near Stroud, comes into leaf every year in February, and may be worth your enquiring about. (*W. T. B. Allesley Rectory, Sept.* 21. 1836.) *Queries* as above.

Piffe's Elm, according to Marshal, is the largest fine-leaved elm in the Vale of Gloucester. It stands in the road between Cheltenham and Tewkesbury, within a few hundred yards of the Boddington Oak. The turnpike-gate, the fence belonging to which is "fastened at one end to this tree, takes its name from it, being called 'Piffe's Elm Pike.' The smallest girt of this tree, which is at about 5 ft. high, is, at present (1783), exactly 16 ft. At 10 ft. high, it throws out large arms, which have formerly been lopped, but which now are furnished with tree-like shoots, rising, by estimation, to 70 ft. or 80 ft. high, with an extent proportionable; exhibiting altogether the grandest tree we have seen; not so much from its present size, as from that fullness of vigour which it now wears." We mention Piffe's Elm "the

rather, as it may be a tree in ages to come; and, standing as it does in a well-soiled country, may swell out to twice its present size." (*Planting and Rural Ornament*, vol. ii. p. 430.) *Queries* as above.

Hampshire. — Burley Lodge, Lord Bolton; a group of 12 oaks, here, is known by the name of the "Twelve Apostles." The largest of them is 7½ yards in circumference. (*Strutt*, p. 54.) *Queries* as above.

The Maple in Boldre churchyard is 45 ft. high, and 12 ft. in circumference at the ground. This is considered the largest maple in England. (*Id.*, p. 126.) *Queries* as before.

A yew tree in Warblington churchyard, near Portsmouth, is 26 ft. in circumference; another, at Loose, 29 ft. in circumference. (*Mirror*, vol. xxv. p. 120.) *Queries* as above.

Herefordshire. — The Moccas Park Oak, on the banks of the Wye, Sir George Amyand Cornewall, Bart., is 36 ft. in girt, at 3 ft. from the ground. (*Strutt*, p. 26.) *Queries* as above.

Hertfordshire. — The great Oak at Panshanger, Earl Cowper, is 19 ft. in circumference at 3 ft. from the ground; and contained, in 1830, 1000 ft. of timber, and was still in a thriving state. (*Id.* p. 7.) *Queries* as above.

The lime tree in Moor Park, the Marquess of Westminster, has 19 large branches striking out horizontally, at 9 ft. from the ground, to the length of from 67 ft. to 71 ft.; its circumference on the ground is 23 ft., and the diameter of the head 122 ft.; height 100 ft.; contents 875 cubic feet. (*Id.*, p. 94.) This tree, the Marquess of Westminster informs us, is still in a most vigorous state.

A spruce fir of remarkable form has been kindly pointed out to us by the marquess, and we have sent an artist to make a sketch of it.

Kent. — The oaks in Fredville Park, J. Plumtree, Esq. "Majesty," the largest, is 28 ft. in circumference at 8 ft. from the ground, and contains above 1400 ft. of timber. "Stately," the next in point of size, is a noble specimen of the tall oak, the stem going up straight and clean to the height of 70 ft.; girt, 18 ft.; contents above 500 feet. "Beauty," 16 ft. in circumference; solid contents nearly the same. (*Id.*, p. 52.) *Queries* as above.

Sir Phillip Sidney's Oak, at Penshurst, was "planted at the birth of Sir Philip Sidney; a name dear alike to valour and the Muses, consecrated by every virtue that could adorn private life, and graced with talents that rendered their possessor the admiration of Europe." (*Id.*, p. 49.) *Queries* as above.

An ash, on a wall which forms part of the ruins of Saltwood Castle, near Hythe, presents the singular appearance of the root running horizontally along the wall to the extent of about 4 ft.; it then strikes down perpendicularly, outside the wall, for about 9 ft., which is the height of the wall, and it enters the ground at its base. Another large root proceeds from the base of the trunk, and enters the wall there, where it divides into numerous ramifications, which, penetrating into the crevices of the stonework, would probably have demolished it, but for the ivy which holds it together. (*Gent. Mag.*, vol. lxxxv. part i., for 1815, p. 577.) We should be glad to have the dimensions, and an account of the present state of this tree, if it still exists; and also a sketch of it drawn to a scale.

The Chipstead Elm, Chipstead Place, George Polhill, Esq., is 60 ft. high; 20 ft. in circumference at the base; and contains 268 cubic feet of timber. (*Strutt*, p. 60.) Mr. Polhill informs us that this tree, which is now the property of Frederick Parkins, Esq., died in the spring of 1836, and in September was standing "a monument of what it was, but leafless."

At Cobham Hall, is an ancient chestnut, called the "Four Sisters," from its four branching stems closely combined in one massive trunk. It is 35 ft. in circumference at the ground, and 40 ft. at the point where the trunk divides. (*Id.*, p. 88.) Not far from the Four Sisters, is the Fallen Chestnut. (*Id.*, p. 90.) *Queries* as above.

The yew tree in Leeds churchyard is 31 ft. 2 in. in girt; height 32 ft.; and the diameter of the head 50 ft. In 1833, some gipsies were residing in it. (*Mirror*, vol. xxv. p. 120.) *Queries* as above.

The plane tree (*Plátanus*) at Lee Court, near Blackheath, is 65 ft. high; the circumference of the trunk, at 6 ft. from the ground, 14 ft.; and the cubic contents 300 ft. (*Strutt*, p. 112.) *Queries* as above.

Evelyn, speaking of a visit to his "good neighbour" Mr. Bohun, at his elegant villa and garden at Lee, Sept. 16. 1683, says, "He showed me the zinnar tree, or platanus; and told me that, since they had planted this kind of tree about the city of Ispahan, in Persia, the plague, which formerly much infested the place, had exceedingly abated of its mortal effects, and rendered it very healthy." (Evelyn's *Memoirs*, vol. i. p. 525.) "Lee Court remains at present much in the state in which it was during Evelyn's time; and the idea of this plane tree having been examined by him with curiosity and interest, as one of the first introduced into this country, is sufficient to give it value in the eyes of all who are acquainted with his admirable genius and virtues, independent of the attraction which it may boast in its own beauty." (Strutt's *Syl. Brit.*, p. 113.)

Lincolnshire. — The horsechestnut, at Burleigh, the Marquess of Exeter, is in height 60 ft.; the circumference of the trunk, at 4 ft. from the ground, is 10 ft., and the diameter of head 61 ft. (*Id.*, p. 88.) *Queries* as above.

Middlesex. — The Chandos Oak, at Michendon House, at Southgate, the Duke of Buckingham, is 18 ft. in circumference at 1 ft. from the ground; and at 3 ft., 15 ft. 9 in.: the height of the stem to the branches is 8 ft. It is 60 ft. high, and the diameter of the head is 118 ft. (*Id.*, p. 12.) *Queries* as above.

The Harlington Yew. — In the *Gentleman's Magazine* for May, 1808, p. 385., there is a print of Harlington Church, Middlesex; on the left hand side of which is represented a part of the old yew tree, somewhat altered in shape since the print of 1729, of which we gave a fig. in p. 246. The tops of some other trees, probably yews also, are seen to rise above the roof of the church. These, if we may judge from one which is seen at the north-west corner of the building, were kept cut somewhat after the same fashion as the large one, their tops only being left to take their natural growth.—*W. Baxter. Oxford Botanic Garden, Oct.* 3. 1836.

The Great Cedar, at Hammersmith, is 59 ft. high; the diameter of the trunk 5½ ft., and of the head 80 ft. (*Strutt*, p. 187.) We saw this cedar on Aug. 11., soon after the house to which it belonged was pulled down, and the ground sold in lots for building on. The tree either is, or doubtless will be, felled; but we have preserved a figure of it in the *Arboretum Britannicum*.

The two cedars in the Chelsea Botanic Garden are from 50 ft. to 60 ft. high, with trunks 12 ft. in circumference, and the diameter of the head 40 ft.

The Enfield Cedar, Manor House, Enfield, Dr. May, is said to have been raised from a seed brought from Mount Libanus, by a pupil of Dr. Uvedale, who was the founder of the school, and who died at Enfield in 1722. In 1821, it was 64 ft. high; the circumference of the trunk, at 1 ft. from the ground, was 17 ft.; and it contained 548 cubic feet of timber, exclusive of the branches. (*Strutt*, p. 105.) We sent, in Nov., 1835, to get the dimensions of this tree, which at that time was 64 ft. high, and the trunk measured 16 ft. in circumference at 3 ft. from the ground. The tree was beginning to decay, and had lost a large branch. (See *Arb. Brit.*, p. 48.)

The yew tree at Ankerwyke, J. Blagrove, Esq., is 27 ft. in girt at 3 ft. from the ground. At 8 ft. high, five large branches shoot out horizontally, which average 5½ ft. in girt. (*Strutt*, p. 118.) *Queries* as above.

The Great Beech in Windsor Forest, in the neighbourhood of Sunninghill, presents the remains of surpassing grandeur, and is evidently of great antiquity. (*Id.*, p. 74.) *Queries* as above.

Norfolk. The Winfarthing Old Oak. — In 1820, this tree measured, at the extremity of the roots, 70 ft. in circumference; in the middle of the trunk, about 6 ft. from the ground, 40 ft. in circumference. Mr. Samuel Taylor, who sent us a beautiful portrait of this oak, from which *fig.* 106., to the scale of 1 in. to 12 ft., has been engraved, accompanied the drawing by the

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following observations: — " Of the age of this remarkable tree I regret to be unable to give any correct data. I remember, when a boy, hearing that it was called the Old Oak at the time of the Conquest; but on what authority I never could learn. Nevertheless, the thing is not impossible, if the speculations of certain writers on the ages of trees be at all correct. Thomas South, Esq., in a letter to the Bath Society (published in their *Papers*, vol. x.) says, that 'a tree which, at 300 years old, was sound, and 5 ft. in diameter, would, if left to perish gradually, in its thousandth year, become a shell of 10 ft. in diameter.' 'Upon this calculation, 47 ft. in circumference cannot be less than 1500 years old.' 'It is equally probable,' says Mr. Strutt, in his *Sylva Britannica* (p. 20.), 'that it should be more. Mr. Marsham calculated the Bentley Oak to be 1500 years old when it was 34 ft. in circumference.' An inscription on a brass plate affixed to the Winfarthing Oak gives us the following as its dimensions: —'This oak is in circumference, at the extremity of the roots, 70 ft.; in the middle 40 ft. 1820.' Now, I see no reason, if the size of the rind is to be any criterion of age, why the Winfarthing Oak should not at least equal the Bentley Oak; and, if so, it would be upwards of 700 years old at the time of the Conquest; an age which might very well justify its then title of the 'Old Oak.' It is now a mere shell — a mighty ruin, 'bleached to a snowy white;' but it is magnificent in its decay; and I do wonder much that Mr. Strutt should have omitted it in his otherwise satisfactory list of Tree-worthies. The only mark of vitality it exhibits is on the south side, where a narrow strip of bark sends forth the few branches shown in the drawing, which even now occasionally produce acorns. It is said to be very much altered of late; but I own I did not think so when I saw it about a month ago (May, 1836), and my acquaintance with the veteran is of more than 40 years' standing; an important portion of *my* life, but a mere span of *its own!*" — *S. Taylor. Whittington, near Stokeferry, Norfolk, June* 24. 1836. This is the *Q. R.* pedunculàta.

Northamptonshire. — The Gog and Magog Oaks, in Yardley Forest, Marquess of Northampton. The largest of them, Gog, measures 38 ft. at the

roots, is 58 ft. high, and contains 1668 ft. of solid timber. Magog is more imposing in dimensions, measuring 54 ft. 4 in. in girt at the ground, and 31 ft. 3 in. at 3 ft. from the ground; height 49 ft.: its solid contents are 912 ft. 10 in. (*Strutt*, p. 50.) Our correspondent Mr. Monro, late of the Brechin Nursery, but now the Marquess's forester, informs us that the trees are in good health, and that they are of the kind Quércus *Róbur* pedunculàta.

The Salcey Forest Oak, Earl of Euston. Circumference at the bottom 46 ft. 10 in.; at one yard, 39 ft. 10 in. Circumference within the trunk, near the ground, 29 ft., and at one yard, 24 ft. 7 in.; height within the hollow 14 ft. 8 in.; height of the tree itself 39 ft. Calculated to be 1500 years old. (*Id.*, p. 18.) *Queries* as above.

Nottinghamshire. — The Greendale Oak, in the Park of Welbeck, His Grace the Duke of Portland, is 35 ft. in circumference; height to the top branch 54 ft. (*Id.*, p. 39.) *Queries* as above.

Oxfordshire. — The Wootton Oak, at Wootton under Bern Wood, the Duke of Buckingham. Height 90 ft.; diameter of the head 150 ft.; of the trunk, at 1 ft. from the ground, 8½ ft., and at 12 ft., 5 ft. (*Id.*, p. 10.) *Queries* as above.

Elms, at Mongewell, Bishop of Durham. The principal tree among them is 79 ft. in height; 14 ft. in girt, at 3 ft. from the ground; and the diameter of the trunk is 65 ft. (*Id.*, p. 65.) *Queries* as above. We saw these trees in 1833, and they were then in good health; but we have known elms about London, apparently as vigorous as those about Mongewell, which have died during the last winter.

Joe Pullen's Elm, or, as it is commonly called, Joe Pullen's Tree, stands on the top of Headington Hill, about half a mile from Oxford. It was the favourite tree of Josiah Pullen, Vice-President of Magdalen Hall, who died in 1814. (*Memorials of Oxford*, No. xxxiii. p. 13.) Mr. Baxter, the curator of the Oxford Botanic Garden, has kindly informed us that this tree, in Sept. 1836, is about 80 ft. high; the diameter of the trunk 6 ft., and of the head 55 ft.; and that it is in a state of vigorous growth.

The yew in Iffley Churchyard is 22 ft. high; the girt of the trunk, at 2 ft. from the ground, 20 ft.; and the diameter of the head 25 ft. The trunk is now little more than a shell, with an opening 4 ft. square on the east side. — *W. Baxter. Oxford, Oct.* 3. 1836.

Shropshire. — The Shelton Oak, known by the appellation of "Owen Glendower's Observatory," stands on the road side, about one mile and a half from Shrewsbury. The cavity of the trunk is capable of holding at least half a score of persons. (*Strutt*, p. 42.) *Queries* as above. Mr. Dovaston has promised us a drawing and description of this tree.

Staffordshire. — The Squitch Bank Oak, in Bagot's Park, Lord Bagot, is 43 ft. in circumference at the roots; and at 5 ft. from the ground, 21 ft. 9 in. The butt contains 660 cubic feet of timber. Height 61 ft. (*Id.*, p. 14.) *Queries* as above.

The Beggar's Oak, in Bagot's Park, is 20 ft. in circumference at 5 ft. from the ground: the diameter of the head is 148 ft. It contains 877 cubic feet of timber, which, together with the bark, would, in 1812, have produced 202*l.* 14*s.* 9*d.* (*Id.*, p. 16.) *Queries* as above.

The Swilcar Lawn Oak, in Needwood Forest, the property of Government, is above 600 years old, and 21 ft. in girt, at 6 ft. from the ground. (*Id.*, p. 24.) *Queries* as above. We have a sketch of this tree, which we took in Aug. 1806; which, as compared with Mr. Strutt's engraving, shows considerable decay in the branches which compose the head. We were not, at the time that we saw it, aware of the difference between *Q. R.* pedunculàta and *Q. R.* sessiliflòra.

The Tutbury Wych Elm is 50 ft. high; the circumference of the trunk, at 5 ft., is 16 ft. 9 in., and the diameter of the head is 90 ft. (*Id.*, p. 67.) *Queries* as above.

The wych elm, at Bagot's Mill, Lord Bagot, is more distinguished by its beauty than its size. (*Id.*, p. 68.) *Queries* as above.

Suffolk. — Queen Elizabeth's Oak, at Huntingfield, Lord Huntingfield, is 33 ft. in circumference at 7 ft. from the ground. It is supposed to be 500 or 600 years old. (*Id.*, p. 45.) *Queries* as above.

The Abbot's Willow, near Bury St. Edmund's, in the grounds of J. Benjafield, Esq., is 75 ft. high; the diameter of the trunk is 6 ft., and of the head 70 ft. (*Id.*, p. 101.) *Queries* as above. In 1834, Mr. Turner, of the Bury St. Edmund's Botanic Garden, sent us some account of this tree; which was then in a thriving state. If any change has since taken place, we shall be much obliged to Mr. Turner to let us know.

The black poplar at Bury St. Edmund's is 90 ft. high; the circumference of the trunk, at 3 ft. from the ground, is 15 ft., and clear to the height of 45 ft. Its solid contents are 551 ft. (*Id.*, p. 97.) *Queries* as above.

Surrey. — In Hone's *Year Book* is an engraving of a Yew tree, in Windlesham Churchyard, near Bagshot, said to have been planted in the time of William the Conqueror, and 12 ft. in girt. (Hone's *Year Book*, as quoted in the *Mirror*, vol. xxv. p. 147.) *Queries* as above.

In Crowhurst churchyard was a yew tree, mentioned by Evelyn, 30 ft. in circumference. (*Mirror*, vol. xxv. p. 120.)

Sussex. — The Crawley Elm, on the high road from London to Brighton, is 70 ft. high; the trunk, which is perforated to the very top, is 61 ft. in circumference at the ground, and 35 ft. round the inside at 2 ft. from the base. (*Strutt*, p. 62.) *Queries* as above.

Warwickshire. — The Bull Oak, in Wedgenock Park, Earl of Warwick, at 1 yd. from the ground, is 34 ft. in girt. It is supposed to be nearly 1000 years old. The body is nothing but a shell, covered with bulky protuberances. Twenty people, old and young, have crowded into it at a time. (*Id.*, p. 22.) *Queries* as above.

The Gospel Oak, near Stoneleigh, stands in a little retired coppice, the solitude of which is equally favourable to thought and to devotion. (*Id.*, p. 32.) *Queries* as above.

Wiltshire. — The King Oak, in Savernake Forest, Marquess of Aylesbury, 24 ft. in circumference, and the diameter of the head 180 ft. (*Id.*, p. 28.) *Queries* as above.

The Creeping Oak, in Savernake Forest, Marquess of Aylesbury, "is so called from the circumstance of one of its main limbs having crept so closely to the earth in its youth, that in its old age it actually reclines the weight of its increasing years upon the ground." (*Id.*, p. 30.) *Queries* as before.

The oak known by the name of the Duke's Vaunt stood near the road from Marlborough to Bedwin. The circumference of the trunk 30 ft., and 20 ft. round the hollow. Calculated to be above 100 years old. (*Gent. Mag.*, 1802, p. 497.) *Queries* as above.

Yorkshire. — The Cowthorpe Oak, near Wetherby, Lord Stourton: height 85 ft.; circumference of the trunk, at 3 ft. from the ground, 48 ft.; and close to the ground, 78 ft. "It is, undoubtedly, the largest tree at present known in the kingdom." (*Strutt*, p. 37.) *Queries* as above.

The yew tree at Fountains Abbey, near Ripon, is 26½ ft. in circumference at 3 ft. from the ground. (*Id.*, p. 120.) *Queries* as before.

SCOTLAND.

Argyllshire. — The silver fir at Roseneath Castle, Duke of Argyll, is 90 ft. high, and 22 ft. in girt; and contains 620 cubic feet of timber. (*Id.*, p. 144.) We are informed by His Grace, that this tree still exists in as vigorous a state as when the drawing was made by Mr. Strutt.

Dumbartonshire. — The yew tree at Rosedoe is upwards of 12 ft. in circumference; and that in the parish of Arroquhar is 28 ft. in circumference. In the Island of Inchlonaig are said to be several thousands of yews, all of considerable size. (*Report of the County of Dumbarton.*) *Queries* as above.

Perthshire. — The Fortingal Yew was, in 1770, 52 ft. in circumference; it

is now, however, decayed to the ground, and completely divided into two distinct stems. (*Strutt*, p. 149.) *Queries* as above.

The larches at Dunkeld, on the Duke of Athol's estate. The largest is 97 ft. high, and 13 ft. in circumference. (*Id.*, p. 146.) *Queries* as before.

Renfrewshire. — The Wallace Oak, at Elderslie, Archibald Spiers, Esq., M.P., is 21 ft. in circumference at the ground; the diameter of the head, 80 ft.; height 67 ft. (*Id.*, p. 135.) Mr. Spiers informs us that this tree is still in a vigorous state.

The wych elms at Pollock, Sir J. Maxwell, Bart., stand on the banks of the river Cart. The largest of the group is 88 ft. high, and 18 ft. in circumference at the surface of the ground. (*Id.*, p. 140.) Sir J. Maxwell informs us that these trees are still in a vigorous state.

Queen Mary's Yew, at Cruichstone Castle. The yew was a favourite tree of Mary Queen of Scots; and tradition says, that "the tree still exists at Cruichstone Castle, whither Darnley repaired with his fair queen, and where their mutual vows reached the heavens. To perpetuate this event, Mary had the figure of the yew tree enstamped on her coins." (Reid's *Histor. and Lit. Botany*, p. 70.) Does this tree still exist; and, if so, what are its dimensions and its present state? There is a tree propagated from it in the Glasgow Botanic Garden. What are its age, dimensions, and present state?

The sycamore at Bishopton, Sir J. Maxwell, Bart., is 60 ft. high, and 20 ft. in girt; containing 720 ft. of timber. (*Strutt*, p. 138.) This tree, the proprietor informs us, is still in a vigorous state.

Stirlingshire. — The ash at Carnock, Sir M. S. Stewart, is 90 ft. high, and 31 ft. in circumference at the ground. The solid contents of the tree are 679 cubic feet. (*Id.*, p. 150.) Sir M. S. Stewart informs us that this tree is still in a vigorous state.

The fir in Dunmore Wood, the Earl of Dunmore, is perhaps the largest in the Lowlands of Scotland, being 67 ft. high, 11 ft. in girt at the ground, and containing 261 cubic feet of timber. (*Id.*, p. 142.) Lady Dunmore informs us (August, 1836) that the tree is still in full vigour, and apparently exactly in the same state as when drawn by Mr. Strutt. It now girts 10 ft. 7 in. about 10 ft. from the ground.

Art. IX. *On a particular Method of managing the Brugmánsia suavèolens in the open Air.* By Mr. J. Spence.

The Brugmán*sia* suavèolens which I exhibited at Chiswick last May, with 101 flowers upon it, was so much damaged with the carriage, that it lost every flower and every leaf that was then upon it. About the 1st of June, I turned it out of the pot, and planted it in the open border, with its ball entire; giving plenty of water at the time, and occasionally repeating it at the root, and likewise over the top. This, I think, it is best to do in the morning, as the plant is then not so liable to flag throughout the day. About a month after this, the roots having extended a considerable distance from the stem, I allowed the plant to flag a little, by withholding water; and then with a spade I cut all round it close to the old ball; but first had a quantity of rotten dung ready to be worked down with the spade to the bottom of the roots. After working in the dung, I gave the ground a good watering, in order to moisten the ground down

to where the moisture was most wanted, instead of letting it remain to be dried up on the surface. In a week after this, the plant had made thousands of young roots, which found plenty of food close at home. This treatment I repeated twice in the season, the last time cutting the roots 1 in. farther from the ball than the first time. This does not injure the plant; on the contrary, it is surprising to see how it will grow immediately after the operation: and another advantage of cutting off the roots is, that the plant is easily repotted in the autumn; provided the diameter of the space included within the last cutting be a little less than the pot for which it is intended. By the above treatment, this plant (without including the flowers that were on it in May) has, from the middle of August to the end of September, expanded 1050 flowers, each of which measures 50 square inches; so that it has produced, in six weeks, 52,500 square inches of flowers. The height of this plant is 6 ft., its diameter 10½ ft., and its age four years. We have two more, nearly as good; and two others, one year old, which have opened 100 flowers each. In the morning and evening, the fragrance of these flowers scented the air to the distance of 60 yards.

Putney Hill, Oct. 8. 1836.

The above we consider to be a very interesting communication, and one that by generalising might be turned to excellent account by the cultivator. In Lancashire, the gooseberry bush is treated in the same manner, when the fruit is wanted of an extraordinary size, as Mr. Saul has explained to us in a preceding volume. The pricking out, and frequent transplantation into very rich soil, of celery, cabbage, lettuce, &c., is intended to operate on the same principle; viz. that of increasing the number of mouths, and placing the food in close contact with them. The effect of this mode of treating plants is somewhat analogous to that produced on animals, by giving them rich food when young; and, as short legs, small bones, and abundant muscle are produced in the one case, so short and weak branches, and few and short ramose roots, and numerous leaves and fibrils, are produced in the other. It is easy to conceive to what important consequences this mode of treating many kinds of plants would lead; while at the same time it is hardly applicable at all to other kinds; such, for example, as the *Ericàceæ*. We should like much to see it tried on the grape and the melon, and even the pine-apple. By way of experiment, the grape might be planted in a tub, pierced with innumerable holes on the sides and bottom, and suspended in a larger tub, among semi-liquid manure of the richest kind. The pruning ought to be performed on Clement Hoare's principle; and the fibres might be cut off close by the inner tub periodically; say one

fourth part of the whole at a time. If the melon or the pine-apple were so treated, the liquid manure for the melon need not be rich; and concentrated manure, reduced to mould, would probably answer best for the pine-apple. — *Cond.*

ART. X. *On the Cultivation of* Viola tricolor. In a Letter to Mr. Gorrie by Dr. MILLER of Perth.

My dear Sir,

I ENCLOSE a letter to you from an old acquaintance of yours, to which I hope you will specially attend. In my opinion, poor Viola has much to complain of, even at your hands; for, after having fairly launched her into the giddy tide of popularity, you ought to have remembered that, unless she was furnished with certain rules for her guidance, she would naturally suffer at the hands of the ignorant or designing characters with whom she would come in contact.

I consider the outline of the pansy Tenebrosa very near to that of a perfect flower. You will observe that it is as broad as it is long. If you divide the surface of the flower into thirteen parts, the upper petals will exhibit six, the two side petals four, and the under petal three, of these parts. The great fault of the most of our pansies is, that the lower petal is out of proportion to the others. The two upper petals, in a good flower, should occupy about the half, and the lower petal should always be less than the visible portion of the two side ones conjoined. Add to this, that the colours should be clear, distinct, and not blending; and if there is a regular lacing round the three lower, or the whole five, petals, so much the better. The upper petals should fall, or rather join gracefully with the side ones, and they again with the under one: none of them should occupy a prominent place, but the one must support and combine with the other, so as to form a harmonious whole. No flower, in my opinion, should be classed with good ones, where the colour is muddy, confused, or changing to a dull hue after it is fully expanded.

I have made figures of several other good flowers; but, on analysing them, I find they are pleasing or not, exactly as they approach to, or differ from, the above proportions. I am therefore inclined to adopt them as the standard. I remain,

My dear Sir, yours truly,

King Street, Perth, Aug. 2. 1836. JAMES MILLER.

MR. GORRIE'S ANSWER.

My dear Sir, *Annat Garden, Sept.* 15. 1836.

SUCH is my opinion of the justness of your remarks regarding the criterion of a fine violet heartsease, that, in place of publish-

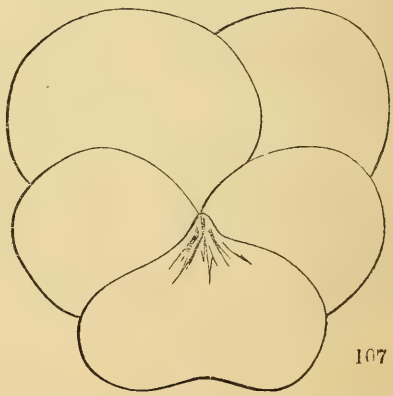
ing them in the ephemeral columns of a newspaper, I shall transmit them to Mr. Loudon for insertion in his valuable *Gardener's Magazine*, along with the serious complaint and petition from Viola, and the outlines of Tenebrosa, in the hope that he will judge them worthy of a place. Should florists adopt your criteria as a standard, first-rate flowers will be like "angels' visits," &c. I am, my dear Sir, yours truly,

Dr. Miller, King Street, Perth. ARCHIBALD GORRIE.

Complaint and Petition from Viola tricolor *to Mr. A. Gorrie.*

Honoured Sir,

As an early patron of myself and family, I beg leave to lay before you my complaint. Ever since you honoured us with your notice, some fifteen years ago (see Vol. VIII. p. 573.), we have risen daily in public estimation; but I am sorry to say our numerous admirers do not always evince that nice discrimination, and good taste in estimating our merits, which ere while we experienced under your fostering care. In a family so numerous and sportive as ours, it necessarily follows that we are not of equal merit; and I am often not a little irritated, when I see one of my favourite offspring, whose symmetry and complexion I consider faultless, passed over for another, whose ungainly form makes me ashamed of our connexion. The public, however, are often pleased with bulk, not quality; and my unfortunate progeny are in a fair way of having their merits judged by the *square inch*, without regard to their graceful forms or blooming countenances. I have the honour to send you an outline of the countenance of one of my favoured daughters, Tenebros a(*fig.*107.), of the size of life. I consider her, for *form* and *size* (though not for colour), worthy of being the model or standard by which to estimate her kindred. The colours which distinguish my children ought to be distinct and true; for, as the use of false colours has been the ruin of many, I disown as mine any who deck themselves in colours which will not endure the light without running into one another, or changing to another hue. My offspring are a merry and rotund generation; and those who exhibit a *long face* are not



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my progeny, but are only cousins-german, with whom I have no wish to be associated. Trusting, honoured Sir, that you will relax a little from your other numerous and more important pursuits, and again take me and mine under the wing of your patronage; and that you will duly instruct the public how to estimate our good qualities, so that we may not again suffer wrong by having our *long-faced cousins* classed with us, or, what is worse, preferred to us for their length of visage; I remain your very much obliged servant, VIOLA.

Perth, Aug. 2. 1836.

ART. XI. *On the Culture of the Pine-apple.* By Mr. ALEXANDER FORSYTH.

FOR Soil, I recommend turf of loam, cut as if it were to be used for turfing a plot in a lawn or flower-garden. This turf should be stacked in narrow tiers for a year or two, without any process whatever, neither cutting nor turning, both being injurious. When wanted for use, it may be chopped, or torn to pieces by the hand (but by no means bruised, pounded, or reduced to a powder, as is too often done); and enriched, by adding a portion, say one fourth, of the following ingredients, mixed; or any of them that can most conveniently be got: — blood, ground bones, animal remains from a slaughter-house, sediment collected in tanks of drainings from dunghills, night-soil, or droppings of animals collected from the pasture, park, or paddock, without litter or urine. This mixture should be properly fermented, aerated, and pulverised, so as to be reduced to a friable state: a small portion of lime may be mixed with it, which will greatly accelerate its decomposition. This is the most simple, and at the same time the most safe and powerful, compost for pines that I am acquainted with.

Several commercial suburban growers use maiden loam from Norwood, in Surrey, without any manure or mixture whatever, and fruit the common broad-leaved queen pine in sixteen, and even twenty four, sized pots, in from sixteen to twenty months. Worms are ruinous in pine-pots; but Norwood loam, in a pure state, they will not meddle with; therefore it is used, both for growing and fruiting in, by many, but especially commercial growers, who, in consequence of their frequently using fermented dung only, without fire, for their fruiting and growing departments, find their plants apt to get saturated at the roots, by the condensed vapour from the dung; and in such pits worms are extremely troublesome. Dung being cheap in the metropolis, it is the practice of the London commercial gardeners to load their vegetable waggons with it, as a back-carriage from market; and,

after it has gone through the first stage of decay in the forcing-ground, as lining, &c., it is then in excellent condition to manure their vegetable ground. This is one reason why commercial growers surpass many private growers in cropping. But, though Norwood loam, in a pure state, suits the purpose of commercial growers, who have plenty of dung, and aim at growing the greatest number of middle-sized fruit (such being most profitable), in the shortest time, and at the least expense, the amateur and family grower, whose means and aims are different, would be disappointed by following this practice. To the gardener and amateur, dung is the costliest, the worst-looking, and the most laborious agent that can be employed: their aims, likewise, are different. Gentlemen's gardeners and amateurs prefer a few pines at all seasons, rather than a great many at one season; and they generally wish to have those few of the finest flavour, the richest colour, and the largest size. It is the circumstance of commercial growers attending so little to the flavour of their fruits, provided they look well, that has induced connoisseurs in this fruit to rear their supply themselves; and the methods adopted by the most successful of their growers I shall here detail, for the sake of those who are not professed pine-growers, as minutely as my limits will allow: — First, then, it is an error to say that "the pine produces fruit, and dies." In the bosom of every leaf is an eye, and, under proper treatment after fruiting, every eye may be forwarded, and made to form a fruiting plant; and this is the secret of propagating all sorts of pines. By keeping the stools in a strong moist heat, plunged in a good bottom heat, I have seen hundreds of suckers got from stools, a year or two after the fruit had been cut from them; while, from not being aware of this simple fact, I have known persons throw away stools of the New Providence, and other shy breeding black sorts, and have to purchase suckers, of the same kinds, at half a guinea each.

As soon as the suckers are taken from the stools (and that should not be done till they are well nursed), let their root ends be smoothened, by cutting about $\frac{1}{4}$ in. or $\frac{1}{2}$ in. off, and pick off about five or six of the abortive scales, like leaves at the bottom, to permit the roots to issue from their bosoms into the soil. They may then be potted outright, without drying, as I have never known that process do them either good or harm: drying to excess certainly injures a free-growing sucker. The pots should be proportioned to the sucker; and, as a guide to the uninitiated, I may observe that, from 1 in. to $1\frac{1}{2}$ in. should be left between the brim of the pot and the stem of the sucker. The pots should be of the same depth as diameter, and the bottom of the sucker be put about half way into the pot.

Pure light turf of loam is superior to any compost that I am acquainted with for a young pine plant to root into. One set of suckers, of the common broad-leaved queen, potted in March, another in May, and a third in September, will produce a succession of queen pines, which will ripen all the year round: but, for winter fruit, there is none, that I am acquainted with, equal to the black Jamaica: it is a slow-growing variety, and requires two years or more to bring it to perfection.

In cultivating the black Jamaica, the following points are to be observed. This sort will not bear to be disrooted like the queen, nor even so much as the Providence: its ball must not be broken a great deal, nor its roots disturbed in shifting; and, above all things, let it not be over-potted. After disturbing the roots in any way, the plants must be shaded from the intense heat of the sun for a week or two, as no variety of the pine, that I am acquainted with, suffers sooner, or more severely, from the powerful rays of the sun, than the Jamaica. It would be akin to madness, in my opinion, to set young pines a-growing in the depth of winter; for, if they are excited in cloudy cold weather, when the supplies of light and heat, so essential to their vigorous developement, are necessarily limited, they will become yellow in the centre at the base of the leaves, and be drawn up, long and flaccid. But grown plants must be fruited in winter: and here is the difficulty. In the first place, then, it is useless for any one to attempt to grow finely flavoured fruits, in winter, without a command of dry heat; and, at the same time, I consider it impossible to swell a pine fruit to its natural size in dry heat; therefore, both vapour and dry heat, by some means or other, must be under the control of the grower.

The plants, having been kept shifted, from one sized pot to another, as they required it, at last show fruit at a season when gardeners, a few years ago, considered them as "tantamount to being lost" (Mackintosh's *Practical Gardener*); that is, just peeping from their sockets in October. If, in a dung-lined pit, let a fresh lining be now applied, in order to draw the flower-stems up to a state of vigorous growth (there is no fear of drawing the leaves of the plants any more now). In this pit let the plants remain till they are ready to open their flowers; then remove them to a dry heat, or apply it to them in this pit without removing them; and pay as much attention to the flowers (that every one may perform its functions, and be symmetrical in all its parts,) as if flowers were all you wanted; and, as soon as ever the plants are out of flower, let them be taken back again to the dung-lined pit; or have dung vapour supplied to them where they are, till they have swelled to their proper size, and show symptoms of colouring: then discontinue vapour and watering at the roots; and let there be a free current of fresh air, with a

temperature of 75°. During the time that the fruits are swelling (that is, between flowering and just beginning to change colour for ripening), about 80°, with plenty of vapour, is not too much artificial heat; allowing it to be ten degrees higher during sunshine. It must be observed, in the ordinary routine culture of the pine, that the soil in the pots must not be kept anywise wet during the time that the plants are in a dormant state, and by no means allowed to get dry whilst they are excited. The bottom heat, too, should bear a due proportion to the active growing, or dormant, state of the plants: about 75°, in the lowest ebb of winter, at the bottoms of the pots, plunged half their depth into the bed, with an atmospheric temperature of 55° to 60°: this I give as an example of dormant culture in the depth of winter, or what is commonly termed "keeping, or standing them over."

As the season advances, let the hot-house be gradually increased in temperature; and, as an example of culture, when the plants are in active developement (say swelling off their fruits, in June or July), 110° or 120° of bottom heat, with the pots only just let into the tan 1 in. or 2 in. and a humid atmosphere, from 90° to 100° in sunshine; which may be accomplished by giving very little air, and using cheese-cloth shading. Such culture as this sets the ravages of worms, and saturation with moisture (two of the greatest evils that pines are subject to,) at defiance, and brings fruits to the highest degree of perfection, notwithstanding the writings of Sweet, and other authors, to the contrary. I speak from the opinions of experienced, aged growers, and from my own observation. The sorts I should cultivate are, the Providence, Trinidad, Enville, Jamaica, Montserrat, common broad-leaved queen, lemon queen, globe, and brown sugarloaf.

Isleworth, September, 1836.

ART. XII. *On the Culture of Asparagus; with a Note on the Globe Artichoke.* By Mr. JAMES CUTHILL, Gardener to Capt. Trotter, Dyrham Park.

THE following plan I have tried with six beds of asparagus this year; and, from the extraordinarily fine growth, and the numerous heads produced, I am confident it will answer. I am a great advocate for plenty of manure; but, to those gardeners who are bound to be very sparing in this respect, I consider that my plan is a very great improvement, and forms a channel for the roots and the crowns to run in with the greatest ease. I believe it has been proved that asparagus likes as much moisture as can well be given it; and, of course, the more dung, the more

moisture. The best asparagus I have ever seen was at Mr. Bird's, a market-gardener at Ipswich, where the beds were under water nearly all the winter; and he always cut asparagus sooner than his neighbours. Mr. Fitch of Fulham grows very fine asparagus: he made 12 acres of beds about five years ago; and, if my memory serves me, he put on 300*l.* worth of manure, and trenched it all over the ground; which is more in proportion than we, walled-in gardeners, can give.

My plan is simply this:— The ground intended for the beds I had well sanded over, and dug several times in winter: as for trenching, here, it is out of the question. The beds were formed in the spring, 3 ft. wide, and the alleys the same. I put six solid inches of dung, measured on purpose, all over the bed: then 4 in. of prepared mould to plant in. The one-year-old plants were put in about three weeks after. As for the time of planting, there can be no stated period; but as soon as the buds are discovered growing, that is the proper time to plant them, two rows in each bed, and 1 ft. apart in the rows. I took up a root this season to examine it, and found twenty heads, thrown up to the height of from 3½ ft. to 4 ft., with forty fine heads for next year visible. The roots had run in the channel of dung upwards of 2 ft. By the above plan, I have, no doubt, saved one year, and shall be able to cut asparagus when the beds are only three years old.

Globe Artichokes are great favourites in most families; and we generally find the gardens empty of them by the 1st of Sept. The plan which I have taken gives plenty up to the time that the frost sets in. I make annually one long row; dig out the mould to the depth of 1 ft., and 2 ft. wide; fill it with dung, and then put mould upon the dung. I now put in the plants, 2 ft. apart; and, though the distance seems very little, yet their time will come round to be destroyed before they get very old.

Dyrham Park Garden, Sept. 17. 1836.

ART. XIII. *Floricultural and Botanical Notices on Kinds of Plants newly introduced into our Gardens, and that have originated in them, and on Kinds of Interest previously extant in them; supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; in monthly numbers, each containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Sir William Jackson Hooker, LL.D., &c.

Edwards's Botanical Register; in monthly numbers, each containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, Professor of Botany in the London University.

Sweet's British Flower-Garden; in monthly numbers, each containing

four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Professor of Botany in King's College, and Librarian to the Linnæan Society.

Birmingham Botanic Garden; in monthly numbers, 4to, 2*s.* 6*d.* each. Conducted by G. B. Knowles, Esq., and Frederick Westcott, Esq., Honorary Secretaries of the Birmingham Botanical and Horticultural Society.

The Botanist; containing accurately coloured Figures of tender and hardy ornamental Plants; with Descriptions, scientific and popular; intended to convey both moral and intellectual gratification. Conducted by B. Maund, F.L.S., assisted by the Rev. J. S. Henslow, M.A., F.L.S., &c., Professor of Botany in the University of Cambridge. To be continued monthly. 8vo; large paper, 2*s.* 6*d.*; small paper, 1*s.* 6*d.* Four plates, with two pages of letterpress to each. London.

It would appear, from the Introduction, that a main object of this work is to teach the natural system in an attractive manner, by conveying fragments of information on the subject, along with the characters and description of each particular plant figured. This is one point of view in which the work may be considered; another is that of a general botanical periodical, resembling Mr. Maund's *Botanic Garden* in many points; but differing from it in including both hardy and house plants; and, in short, plants of every description. At the end are given four pages of a glossary of botanical terms, which, we think, would be much improved by references to particular species, illustrating the term explained. The plates are remarkably well executed, and the whole work has the neat appearance of the *Botanic Garden.*

Pittosporàceæ.

SO'LLY*A* heterophýlla *Lindl.* Hort. Brit., No. 2925.

Some difference of opinion exists in regard to the continuance of Sólly*a* as a genus; Prof. Don remarking that the fruit is the same as that of Billardièr*a*; while Dr. Lindley observes that the seeds are embedded in a fleshy or pulpy substance; which circumstance, added to the inflorescence being opposite to the leaves, to the "short, somewhat campanulate corollas, short stamens with the anthers adhering in a cone round the style, and opening by two pores at the points," would seem to constitute a distinct genus. (*Bot. Mag.*, Oct.)

F*abàceæ, or Leguminòsæ § Papilionàceæ.*

1964. CY'TISUS *L.*
*17523*a* æólicus *Guss.* Æolian ☘ or ⁂ my Y Stromboli 1836 S s.l Bot. reg. 1902.

Spec. Char. — Branches round, and, as well as the leaves, hoary. Leaves trifoliolate; leaflets oval, tomentose on the margin. Flowers ternate, almost bractless, racemose; calyx membranaceous, campanulate, pubescent. Legume glabrous. (*Bot. Reg.*)

Description.—A tall shrub. Branches covered with soft spreading hairs. Leaves trifoliolate, hoary; leaflets narrow, oval, almost sessile, longer than the petiole, downy on the margin. Racemes terminal, short, flexuose, tomentose on the axis.

Flowers yellow, twin or ternate; pedicels longer than the calyx, pubescent. Calyx campanulate, membranaceous, pubescent, 2-lipped; upper lip 2-toothed; lower ovate, quite entire. Standard oblong, blunt, longer than the wings, which are reflexed at the margin. Keel pubescent at the base, with very narrow linear claws. Stamens monadelphous, alternate; anthers smaller. Young legumes glabrous. (*Bot. Reg.*) A native of Stromboli, and introduced into England in 1835, or before. It was raised by the Hon. W. F. Strangways, in his curious garden at Abbotsbury, and flowered there for the first time in May, 1836. In the climate of London, it is supposed to require the protection of a wall: there is a fine plant against that of the Horticultural Society's Garden. "In foliage it bears a striking resemblance to *C.* prolíferus; but its flowers are altogether different. Its real affinity seems to be with *C.* triflòrus, from which it differs in being a much larger and more woody plant, with terminal racemes of flowers; in its larger, deeper, and more distinctly campanulate calyx; and smooth, not hairy pods. It seems as if it were an intermediate species between *C. Labúrnum* and *C.* triflòrus." (*Bot. Reg.*, Oct.)

1985. *LUPI'NUS Tourn.* [fl.-gar. 2 s. 356.
*17711*a* macrophýllus *Benth.* large-leaved [? long-leafleted] ♃ △ spl 4 jn.jl. B ... ... S s.l Sw.

A tall, robust, perennial herb, the whole clothed with copious pubescence. The stems are from 3 ft. to 4 ft. high; the racemes 1 ft. long, and the flowers from ten to fifteen in each whorl, and those of one whorl nearly or quite touching those of the next. "Nearly related to *L.* polyphýllus, from which it is principally distinguished by its more robust habit, and larger leaves, which, together with the rest of the plant, are clothed with copious pubescence. The whorls of flowers are also more crowded, the pedicels shorter, the lower lip of the calyx longer than the upper one, and the corolla is of a purple colour. In other respects both plants are much alike, and it is not improbable that they may be only forms of the same species. We have, however, preferred following Mr. Bentham, who regards them as distinct species, not having had ourselves sufficient opportunities of studying their characters when growing together." A highly ornamental plant, well deserving a place in every flower-garden. Plants are in the nursery of Mr. Gorrie, Stratford, Essex. (*Brit. Fl.-Gard.*, Oct.)

Rosàceæ § Pòmeæ.

1506. *CRATÆ'GUS* 12925 Aròn*ia Bosc.*, Dec., Loud. Arb. brit., Bot. reg. t. 1897.
Synonymes: Méspilus Aròn*ia Willd.*; Méspilus orientàlis apii fólio subtus hirsùto *Pocock.*

Spec. Char. — Nearly spineless. Branchlets tomentose. Leaves cuneate, pinnatifid, and trifid; lobes broad, linear, somewhat cut at the tip; shining above, rather glabrous and glaucous beneath; corymbs almost sessile; fruit of an apricot colour, somewhat angled, having two stones, which have a very thick shell. (*Lindl.*)

Description. — A tree of the middle size, with a conical, somewhat spreading head; branches rigid, never flexuose. The leaves vary in form, as they do in almost every species of *Cratæ'gus*, the outline, however, is always wedge-shaped; they are 3-cleft, or pinnatifid, 3-toothed; the lobes quite entire, emarginate, or cut; the upper surface often glabrous, the under downy. Flowers elegant, white. (*Bot. Reg.*, t. 1897.) "Said to be a native of the Levant, I presume, upon the authority of Pococke's *Travels* [vol. 2. part ii. p. 189. pl. 85.], which I have not at hand to consult. Specimens from Grammont, near Montpelier, are before me, and they are considered wild by Professor Delile, who gathered them. This, I suspect, is the species which yields the fruit called at Montpelier *pommettes à deux closes*, and not *C. Azaròlus*. It is very near *C. Azaròlus*, of which indeed it might be considered a mere variety, if it were not so much more hardy, nearly destitute of pubescence, and constantly furnished with two stones in its fruit; in the true azarole there are five, according to Scopoli.

The tree of *C.* Aròmia is, next to *C.* maroccàna, and *C.* heterophýlla, the largest, and most like timber, of all the thorns. It grows very fast, and makes a handsome head, and, on account of the great quantity of apricot-coloured fruit with which it is loaded, is a suitable ornament for lawns and grass in pleasure-grounds." (*Bot. Reg.*, Oct.)

Onagràceæ.

FU'CHS*IA* macrostèmon *Ruiz et Pav.* Hort Brit. [?1835 C lt.l Bot. mag. 3521.
var. *recurvàta *Hook.* recurved-*sepaled* spl. ? ... 7 ... R V ? Irish hybrid

Sir W. J. Hooker considers this as the most handsome of all the fuchsias, "whether we consider the graceful mode of growth, the delicate green of the large foliage, the deeply coloured branches, or the size and form of the flowers, and their exceedingly rich hues." It was raised from seeds in the Glasnevin Botanic Garden, and sent to the Glasgow Botanic Garden under the name of F. recurvàta. Sir W. J. Hooker agrees with Professor Don in considering many of the alleged species of Fúchs*ia* as only varieties of F. macrostèmon. These varieties, with their synonymes, are thus given in the *Botanical Magazine*:—

F. m 1 díscolor *Lindl.*, B. R., t. 1805.; *Hook.*, B. M., t. 3498.
2 cónica *D. Don*; F. cónica *Lindl.*, B. R., t. 1062.
3 globòsa *D. Don*; F. globòsa *Lindl.*, B. R., t. 1062.; *Hook.*, B. M., 3364.
4 grácilis *D. Don*; F. grácilis *Lindl.*, B. R., t. 847. et t. 1052.; F. decussàta *Grah.*, Sims in *B. M.*, t. 2507.
5 recurvàta *Hook.*; F. recurvàta *Niven*, B. M., t. 3521.

*Escallonià*ceæ.

687. ESCALLO'N*IA* L.
*illinita *Prest* varnished or 5 au.s W. Chili ?1830 C p.l Bot. reg. 1900.

Spec. Char. — Leaves oblong, lanceolate, serrulate, clammy, varnished; corymbs about 3-flowered, racemose; epigynous disk hemispherical. (*Lindl.*)

Description. — An evergreen bushy shrub, covered on all parts with a clammy varnish, and emitting an odour resembling that of melilot or fenugreek. Branches pimpled with resinous dots. Leaves pale green, sometimes shining, sometimes clammy from numerous glands that produce a shining resin. Racemes terminal, consisting of several alternate 3-flowered corymbs, having small leafy bracteas. Flowers greenish white. Calyx with a truncate campanulate limb, and five awl-shaped teeth. Stamens five, alternate with, and shorter than, the petals. Epigynous disk yellow, hemispherical, having ten nectar-bearing slight depressions at the tip. Ovary 2-celled, many-seeded. (*Bot. Reg.*) A native of the mountains of Chili at El Arroyo de los Lunes; and a supposed variety of it has been met with at La Sienta Vieja, at Cuesta, de Chacabuco, and La Laguna near Valparaiso.

" The whole plant emits a powerful odour, which to some persons is highly disagreeable, appearing to them to resemble the smell of swine: to me it seems less unpleasant, and much more the odour of melilot or fenugreek." The most hardy of all the species of Escallò*nia* at present in British gardens; and not unlikely, Dr. Lindley considers, " to become a common evergreen. If this should prove so, the pale green of the leaves, their varnished appearance, and the peculiar habit of the plant, will render it a valuable ornamental species, notwithstanding the want of beauty in its greenish-white flowers." (*Bot. Reg.*, Oct.)

Ericàceæ.

*V*accínium virgàtum *Ait.* We are glad to see Sir W. J. Hooker occupied with this difficult, and, as the species or kinds now stand, most unsatisfactory, genus. If Professors Lindley and Hooker were occasionally to take a particular genus, as *C*ratæ`gus is lately done by the former, and *V*accínium, it would appear by the latter, they would render most valuable service to practical men, independently altogether of the advantages it would afford to science. " The excellent collection of American whortle berries, possessed by the Glasgow Botanic Garden," Sir W. J. Hooker observes, " has given me an opportunity of studying their peculiarities, which few persons have enjoyed to such an extent: yet, I confess myself much at a loss to find characters to distinguish some of the species, which, even to a common observer, appear sufficiently marked; and such is the case with the present individual, which goes by the name of *V.* virgàtum in our gardens, and which I have reason to believe is the plant so designated by Aiton. Mr. Aiton's plant, however, is now almost universally referred to the *V.* corymbòsum; an opinion which I once entertained myself; yet a more accurate examination has led me to a different conclusion."

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MISCELLANEOUS INTELLIGENCE.

ART. I. *Biographical Notice of the late Mr. David Douglas, F.L.S., the Traveller and Botanist; with a Proposal to erect a Monument to his Memory; and a List of the Plants which he introduced.* Drawn up from various Communications by the CONDUCTOR of the *Gardener's Magazine.*

IN submitting to the botanical and horticultural world a proposal for erecting a monument to the memory of the late Mr. David Douglas, it seems proper to commence by giving a brief notice of his public services, in order to show his claims to public gratitude. This we have chiefly extracted from authentic accounts, published in the *Gardener's Magazine* (vols. xi. and xii.), and have since submitted for approval to Mr. Douglas's patrons and personal friends.

En proposant au public des botanistes et des horticulteurs d'ériger un monument à la mémoire de feu M. David Douglas, il paraît convénient de commencer par donner un bref apperçu des services rendus par lui au public pour prouver ses droits sur la reconnaissance publique. Nous avons extrait cela pour la plupart des notes authentiques communiqées dans les volumes xi. et xii. du "Gardener's Magazine;" et depuis nous avons soumis cette notice à l'approbation

Indem wir dem Publicum der Botaniker und Horticulturisten vorschlagen, ein Monument zum Andenken des verstorbenen Hrn. David Douglas zu errichten, scheint es zweckmässig damit zu beginnen, einen kurzen Bericht über seine Verdienste um das Publikum zu geben, um seine Ansprüche auf öffentliche Dankbarkeit darzuthun. Diesen haben wir meist aus den authentischen Nachrichten ausgezogen, welche im Bande XI und XII des „Gardener's Magazine" mit-

Mr. David Douglas was born at the ancient village of Scone, in Perthshire, in 1798. His father, John Douglas, was a working mason there, possessed of good abilities, and a store of general information rarely surpassed by persons in his sphere of life; and, being a very ingenious man, was generally employed as the village statuary and sculptor, in supplying gravestones. His family consisted of three daughters and three sons, of whom David was the second. Mr. Douglas's elder brother was brought up to the same occupation as his father, and has, for some years, been in the employ of an eminent London architect, Wm. Atkinson, Esq., as clerk of the works. Mr. David Douglas, the subject of this memoir, received the greater part of his education at the parish school of Kinnoul, where he acquired what is usually taught there, viz., reading, writing, and arithmetic. His boyish days were not remarkable for any particular incidents. Like others at his time of life, he was gay and active, and never failed in playing his part in the usual sports of the village. At an early period he was put apprentice as a gardener, in the garden of the Earl of Mansfield, at Scone Palace, adjoining his native village. During the time he remained there, he was remarkable for his attention, his whole heart and mind being devoted to the attainment of a thorough knowledge of his business. He was always fond of books; and when the labour of the day was over, the evenings, *in winter*, invariably found him engaged in the perusal of such works as he had obtained from his friends and acquaintances; or in making extracts from them of such portions as took his fancy, which he would afterwards commit to memory. The summer evenings, again, were devoted to short botanical excursions, in company with such of the young gardeners at Scone as were of a similar turn of mind to himself. We have now no means of ascertaining when he formed the idea of becoming a botanical traveller; but we are inclined to think it may be ascribed to his intercourse with Messrs. Robert and James Brown of the Perth Nursery, both of whom were good British botanists, and so fond of the study as annually to devote a part of their time to botanising in the Highlands. Hence their excursions were often the subject of conversation; and, from hearing them recount their adventures, and describe the romantic scenery of the places they had visited in search of plants, he probably formed the resolution of imitating their example.

His active habits and obliging disposition gained him the friendship of Mr. Beattie, by whom he was recommended to the late Mr. Alexander Stewart; and, about the year 1817, or the spring of 1818, he removed to

des protecteurs et des amis personnels de feu Mr. Douglas.

Mr. David Douglas fut né en 1798, dans l'ancien village de Scone en Perthshire. John Douglas, son père, y était ouvrier-maçon: il possédait des talens et une instruction générale, surpassée rarement par de personnes de son état; et comme il était très-habile, il fut employé par tout le monde en sculpteur du village et en fournisseur des pierres monumentales. Sa famille était composée de trois fils, dont David était le second, et de trois filles. Le frère aîné de Mr. Douglas fut élevé pour l'état de son père; et il fut employé pendant quelques années comme aide par un excellent architecte, M. Wm. Atkinson à Londres. M. David Douglas, le sujet de cette notice, reçut la plus grande partie de son éducation à l'école de la paroisse de Kinnoul, où il apprit ce qui y est enseigné ordinairement, c'est à dire, la lecture, l'écriture, et l'arithmétique. Son enfance n'était pas remarquable par des accidens particuliers. Comme d'autres garçons de son âge, il était gai et actif et il ne manquait jamais de prendre sa part dans les jeux usuels de son village. Il fut placé de bonne heure en jardinier-apprenti dans le jardin du Comte de Mansfield à Scone Palace, tout près de son village. Pendant le temps qu'il y restait, il se distinguait par son attention, s'étant dévoué corps et âme à l'acquisition d'une connaissance parfaite de son état. Il aimait toujours les livres; et après les travaux de la journée, les soirées d'hiver le trouvaient invariablement engagé à la lecture des livres qu'il s'était procuré de ses amis et de ses connaissances, ou à faire des extraits de ces parties qui lui plaisaient pour les confier plus tard à sa mémoire. Les soirées d'été étaient également consacrées par lui à de courtes excursions botaniques, en compagnie avec ceux des jeunes jardiniers à Scone qui avaient le même penchant que lui. Il nous est impossible à présent de fixer l'époque où il forma le projet de se faire botaniste-voyageur; mais nous croyons qu'il puisse être dérivé de ses relations avec MM. Robert et James Brown, pépiniéristes a Perth, qui étaient tous les deux de bons botanistes, et qui aimaient tant ces études qu'ils employaient chaque année quelques temps à des herborisations dans la Haute Ecosse. Par cela leurs excursions furent souvent le sujet de leurs conversations; et c'était probablement en les entendant raconter leurs aventures et donner la déscription des sites romantiques des places qu'ils avaient visitées en herborisant, qu'il forma la résolution d'imiter leur exemple.

Son activité, et ses dispositions obligeantes, lui gagnèrent l'amitié de M. Beattie, qui le recommanda à feu M Alexander Stewart; et c'était environ en 1817 ou au printemps de 1818, qu'il se rendit à Valleyfield, la

getheilt worden sind und seitdem haben wir diesen Bericht den persönlichen Gönnern und Freunden des verstorbenen Hrn. Douglas zur Billigung vorgelegt.

Hr. David Douglas ward 1798 in dem alten Dorfe Scone in Perthshire geboren. Sein Vater, John Douglas war daselbst Maurer, er besass Talente und Kenntnisse, selten übertroffen von Leuten seines Standes, und wurde, weil er ein sehr geschickter Mann war, allgemein als Bildhauer und Grabsteinsetzer seines Dorfes gebraucht. Seine Familie bestand aus 3 Söhnen, wovon David der zweite war, und aus 3 Töchtern. Der ältere Bruder des Hrn. Douglas ward zu seines Vaters Geschäft erzogen und war einige Jahre lang Gehülfe eines ausgezeichneten Baumeisters Hrn. Wm. Atkinson in London. Hr. David Douglas, der Gegenstand dieses Berichts, erhielt seine Erziehung grösstentheils in der Schule des Kirchspiels von Kinnoul, wo er lernte, was dort gewöhnlich gelehrt wird, d. h. Lesen, Schreiben und Rechnen. Seine Kindheit zeichnete sich durch keine besondern Vorfälle aus. Gleich andern Knaben seines Alters war er fröhlich und thätig und ermangelte nie an den gewohnten ländlichen Spielen Theil zu nehmen. Frühzeitig wurde er als Gärtnerlehrling in dem Garten des Grafen von Mansfield in Scone Palace ganz nahe bei seinem Dorfe untergebracht. Während seines dortigen Aufenthalts zeichnete er sich durch seine Aufmerksamkeit aus, indem er sich mit Leib und Seele auf Erlangung einer vollständigen Kenntniss seines Berufs legte. Er liebte stets die Bücher und, nach gethaner Tagesarbeit, fanden ihn die Winterabende unwandelbar beschäftigt mit Lesen der Bücher, welche er sich von seinen Freunden und Bekannten verschafft hatte oder mit Verfertigung von Auszügen solcher Stücke, die ihm gefielen, um sie nachher seinem Gedächtnisse einzuprägen. Die Sommerabende widmete er gleichfalls kurzen botanischen Spaziergängen in Gesellschaft derjenigen jungen Gärtner in Scone, welche gleiche Neigung mit ihm hatten. Wir vermögen jetzt nicht mehr den Zeitpunkt festzusetzen, wo er den Gedanken fasste, ein reisender Botaniker zu werden; wir glauben aber dass man diess seiner Bekanntschaft mit den Hrn. Robert und James Brown, Handelsgärtnern in Perth, zuschreiben könne, welche beide gute Botaniker waren und dieses Studium so sehr liebten, dass sie jährlich einige Zeit auf botanische Ausflüge nach Hoch-Schottland verwendeten. Dadurch wurden ihre Wanderungen oft der Gegenstand ihrer Gespräche, und indem er ihre Abentheuer erzählen und die romantische Lage der Stellen beschreiben hörte, welche sie beim Pflanzensammeln besucht hatten, fasste er wahrscheinlich den Entschluss ihr Beispiel nachzuahmen.

Valleyfield, the seat of Sir Robert Preston, Bart., then celebrated for a choice collection of exotics. Mr. Stewart, finding him careful of the plants committed to his charge, encouraged him by every means in his power. He treated him with kindness, and allowed him to participate in the advantages which he derived himself from having access to Sir Robert Preston's botanical library; a privilege of the greatest value to one circumstanced like Douglas, and endued with the excellent faculties of mind and memory which he possessed. After being at Valleyfield for about eighteen months, he removed to the Botanic Garden at Glasgow. Here his fondness for plants attracted the notice of Dr. (now Sir W. J.) Hooker, the professor of botany, whom he accompanied in his excursions through the Western Highlands, and assisted in collecting materials for the *Flora Scotica*, with which Dr. Hooker was then engaged. This gentleman recommended him to the late secretary of the Horticultural Society, Joseph Sabine, Esq., as a botanical collector; and, in 1823, he was despatched to the United States, where he procured many fine plants, and greatly increased the Society's collection of fruit trees. He returned in the autumn of the same year; and, in 1824, an opportunity having offered, through the Hudson's Bay Company, of sending him to explore the botanical riches of the country adjoining the Columbia river, and southwards, towards California, he sailed in July, for the purpose of prosecuting this mission.

While the vessel touched at Rio de Janeiro he collected many rare orchideous plants and bulbs: among the latter was a new species of Gesnèr*ia*, which Mr. Sabine named, in honour of its discoverer, G. Dougl*asii*. He was enraptured with the rich vegetation of a tropical country, and stopped at Rio longer than he anticipated, leaving it with regret. In the course of his voyage round Cape Horn, he shot many curious birds peculiar to the southern hemisphere, and prepared them for sending home. On Christmas-day he reached the celebrated island of Juan Fernandez, which he describes as "an enchanting spot, very fertile, and delightfully wooded;" adding, "I sowed a large collection of garden seeds, and expressed a wish that they might prosper, and add to the collection of a second Robinson Crusoe, should one appear." He arrived at Fort Vancouver, on the Columbia, on the 7th of April, 1825. Here an extensive field presented itself to him; and the excellent manner in which he performed his duty to the Horticultural Society cannot be better exemplified than by referring to the vast collections of seeds which, from time to time, he transmitted home, along with dried specimens, beautiful

résidence de Sir Robert Preston; célèbre alors par une collection choisie de plantes exotiques.

M. Stewart le voyant très soigneux pour les plantes confiées à lui, l'encourageait par tous les moyens. Il le traitait avec bonté et lui permettait de participer aux avantages dont il jouissait lui-même d'être admis à la bibliothèque de Sir Robert Preston; privilège de la valeur la plus grande pour un jeune homme comme Douglas, qui possédait les excellentes qualités de son esprit et de sa mémoire. Après avoir été 18 mois à peu près à Valleyfield, il entra au jardin de botanique à Glasgow.

C'était là que sa passion pour les plantes attirait l'attention du professeur de botanique, le Docteur (à présent Sir W. J.) Hooker, qu'il accompagnait dans ses excursions à l'ouest de la Haute Ecosse, et qu'il assistait dans la collection des matériaux pour la "Flora Scotica" dont le Docteur s'occupait alors. Ce monsieur le recommanda à M. Joseph Sabine, ci-devant sécrétaire de la Société d'Horticulture à Londres, en qualité de botaniste-collecteur; et en 1823 il fut envoyé aux Etats-Unis, où il ramassait beaucoup de belles plantes, et où il augmentait considérablement la collection de la Société en arbres fruitiers. Il retourna en automne de la même année; et en 1824 la Société de la Baie de Hudson offrant l'occasion pour l'envoyer à l'exploration des richesses botaniques dans les environs de la rivière du Columbia et du sud vers la Californie, il partit au mois de Juillet avec l'intention de remplir cette mission.

Pendant le séjour du vaisseau à Rio-Janeiro il cueillit mainte Orchidée et mainte plante tuberculeuse: il y avait parmi les dernières une nouvelle espèce de Gesneria que M. Sabine, en honneur de celui qui l'avait découvert, nomma Gesneria Douglasii. Il fût enchanté par la végétation si riche d'un pays tropical: il s'y arrêtait plus long-temps qu'il avait espéré, et il le quitta à regrets.

En continuant son voyage autour du Cap Horn, il tua beaucoup d'oiseaux curieux propres à l'hémisphère méridional, et il les prépara pour les envoyer dans son pays. Il arriva le jour de Noël dans cette île célèbre de Juan Fernandez, qu'il peint comme "un séjour charmant, bien fertile et très-boisé," en ajoutant: "J'y ai semé une grande collection de graines cultivées dans les jardins en exprimant le desir qu'elles réussissent et qu'elles augmentassent la collection d'un second Robinson Crusoé s'il en parût un tel." Il aborda le 7. Avril, 1825, au Fort Vancouver sur le Colombia. C'était là qu'il se présentait à lui un champ bien grand, et l'excellente manière avec laquelle il remplit ses devoirs envers la Société d'Horticulture ne pourrait être prouvée mieux qu'en renvoyant aux vastes collections de

Seine gewohnte Thätigkeit und Dienstfertigkeit gewannen ihm die Freundschaft des Hrn. Beattie, der ihm dem verstorbenen Hrn. Alex. Stewart empfahl, und um 1817 etwa oder im Frühlinge 1818 zog er nach Valleyfield, dem Landsitze des Baronet Sir Robert Preston, damals berühmt durch eine auserlesene Sammlung fremder Gewächse.

Da Hr. Stewart sah dass er die ihm anvertrauten Pflanzen sehr sorgfältig pflegte, ermunterte er ihn auf alle mögliche Weise. Er behandelte ihn mit Güte und erlaubte ihm die Vortheile mit zu benutzen, die er selbst daraus zog, dass er zu Sir Rob. Preston's Bibliothek den Zugang hatte, ein Vorrecht von dem grössten Werthe für einen jungen Mann wie Douglas, der die trefflichen Anlagen seines Geistes und Gedächtnisses besass. Nach einem Aufenthalte von etwa 18 Monaten in Valleyfield kam er in den botanischen Garten zu Glasgow.

Dort erregte seine Vorliebe für die Pflanzen die Aufmerksamkeit des Professors der Botanik, Doctor (nun Sir W. J.) Hooker, welchen er auf seinen Ausflügen durch die westlichen Hochlande begleitete und welchem er bei Sammlung der Materialien für die „Flora Scotica" half, womit sich damals Dr. Hooker beschäftigte. Dieser Herr empfahl ihn dem vorigen Secretär der Londner Gartenbaugesellschaft, Joseph Sabine, Esq., als botanischen Sammler, und 1823 ward er in die Vereinigten Staaten gesandt, wo er viele schöne Pflanzen sammelte und die Sammlung der Gesellschaft stark an Obstbäumen vermehrte. Er kehrte im Herbste desselben Jahres zurück, und da sich 1824 durch die Hudson's-Bay-Compagnie eine Gelegenheit darbot, um ihn zur Erforschung der botanischen Schätze in der Nachbarschaft des Columbia-Flusses und im Süden gegen Californien hin auszusenden, so segelte er im Julius in der Absicht ab, diesen Auftrag zu erfüllen.

Während das Schiff in Rio-Janeiro landete, sammelte er manche seltene Orchideen und Knollengewächse; unter den letztern war eine neue Art Gesneria, welche Hr. Sabine zu Ehren ihres Entdeckers G. Douglasii nannte. Er ward von der so reichen Vegetation eines Tropenlandes bezaubert, hielt sich in Rio länger auf, als er erwartet hatte und verliess es mit Bedauern.

Im Verlaufe seiner Reise um das Cap Horn schoss er viele merkwürdige, der südlichen Erdhälfte eigenthümliche Vögel und bereitete sie zur Heimsendung vor. Am Weihnachtstage erreichte er die berühmte Juan Fernandez Insel, welche er, als „einen reizenden Aufenthalt, sehr fruchtbar und herrlich bewaldet, beschreibt, indem er hinzusetzt: „Ich säete eine ansehnliche Sammlung von Gartensämereien dort aus und äusserte

fully preserved, and now forming part of the herbarium in the garden of the Society at Chiswick. Of the genus *Pinus* he discovered several species, some of which attain to an enormous size. The *Pinus Lambertiana*, which he named in compliment to Aylmer Bourke Lambert, Esq., Vice-President of the Linnæan Society, is, perhaps, the largest tree of the genus. One of these, which had been blown down, measured 215 ft. in length, and 57 ft. 9 in. in circumference at 3 ft. from the ground! The cones of it, which Mr. Douglas sent home, were 16 in. long, and 11 in. in circumference. The kernel of the seed is sweet and pleasant to the taste, and is eaten by the Indians, either roasted or pounded into coarse cakes for winter store. The resin which exudes from the trees, when they are partly burned, loses its usual flavour, and acquires a sweet taste; in which state it is used by the natives as sugar. Another species, named, by Mr. Sabine, *Pinus Douglasii*, attains nearly the size of the above.

In the spring of 1827, Mr. Douglas traversed the country from Fort Vancouver, across the Rocky Mountains to Hudson's Bay, where he met Capt. (now Sir John) Franklin, Dr. Richardson, and Capt. Back, returning from their second overland arctic expedition. With these gentlemen he came to England in the autumn, bringing with him a variety of seeds, as well as specimens of plants, and other objects of natural history. Through the kindness of his friend and patron, Mr. Sabine, he was introduced to the notice of many of the leading literary and scientific characters in London; and, shortly afterwards, he was honoured by being elected, free of expense, a Fellow of the Linnæan, Geological, and Zoological Societies; to each of which he contributed several papers, since published in their *Transactions*, evincing much research and acuteness as a naturalist.

After being in London two years, Mr. Douglas sailed again for Columbia, in the autumn of 1829; where he continued enjoying his favourite pursuit, and adding largely to his former discoveries. Afterwards he went to the Sandwich Islands, in which he remained some months, and his return was expected by the very ship which brought the tidings of his horrible death; an event the more to be regretted from having been occasioned by circumstances which we shudder to contemplate: that of falling into a pit made by the natives of the Sandwich Islands for catching wild bulls, one of the latter being in it at the time. This lamentable event occurred on July 12. 1834, in the 36th year of his age. The details, which are too horrible to repeat, will be found given at length in the *Gardener's Magazine*, vol. xii. p. 274.

The intelligence of the death

graines qu'il envoyait de temps en tems simultanément avec des plantes séchées et supérieurement conservées, qui font partie à présent de l'herbier de la Société à Chiswick.

Il découvrit plusieurs espèces du genre Pinus, dont quelques unes atteignent un volume prodigieux. Pinus Lambertiana, qu'il nomma en honneur de M. Aylmer Bourke Lambert, le vice-président de la Société Linnéenne, est peut-être le plus grand arbre de cette espèce. Un de ces arbres abattu par le vent mesurait 215 pieds de longueur et 57 pieds 9 pouces de périphérie à 3 pieds de hauteur au dessus du sol! Les cônes envoyés par Mr. Douglas avaient 16 pouces de longueur et 11 pouces de périphérie. L'amande en est douce et agréable à manger, et elle est mangée par les Indiens ou rôtie ou réduite en gâteaux grossiers pour les provisions d'hiver.

La résine provenant de ces arbres quand ils sont brûlés en partie, perd son odeur ordinaire et prend un gout doux, dans quel état elle sert aux indigènes en guise de sucre. Une autre espèce de pin, nommée par M. Sabine Pinus Douglasii, s'approche très-près de la première en hauteur.

Au printemps de 1827 Mr. Douglas parcourait les pays depuis le Fort Vancouver, en traversant les montagnes rocailleuses (Rocky Mountains), jusqu'à la Baie de Hudson, où il rencontra le Capitaine Sir John Franklin, Dr. Richardson, et Capitaine Back revenant de leur second voyage par terre aux pays arctiques. Il arriva en Angleterre à l'automne avec ces messieurs. en rapportant un grand nombre de graines et de plantes séchées et d'autres objets de l'histoire naturelle. Par la bonté de son ami et protecteur M. Sabine il fut introduit chez plusieurs des premiers littérateurs et savans de Londres, et il fut honoré bientôt après par son élection sans frais comme membre de la Société Linnéenne, Géologique, et Zoologique; il présenta à chacune de ces sociétés plusieurs articles publiés depuis dans leurs "Transactions," qui prouvent qu'il avait beaucoup d'esprit scrutateur et de génie comme naturaliste.

Après avoir passé 2 ans à Londres, M. Douglas partit encore pour la Colombie en automne de 1829, où il continuait de jouir de son occupation favorite et à augmenter de beaucoup ses découvertes précedentes. Ensuite il allait aux îles de Sandwich, où il passait quelques mois et où il embarquait un nombre de paquets remplis de graines et de divers objets de l'histoire naturelle, qui se sont perdus malheureusement.

Son retour avec une autre collection était expecté par le même vaisseau qui rapportait les nouvelles de sa mort horrible. Cet évènement est d'autant plus lamentable étant occasionné par des circonstances dont la contemplation fait frémir; c'est à dire

den Wunsch, sie möchten gedeihen und die Sammlung eines zweiten Robinson Crusoe vermehren, sollte einer erscheinen." Er kam im Fort Vancouver am Columbia den 7. April 1825 an. Hier bot sich ihm ein weites Fe'd dar, und die herrliche Art, in welche er seine Verbindlichkeiten gegen die Gartenbaugesellschaft erfüllte, kann nicht besser erläutert werden, als durch Verweisung auf die grossen Sammlungen von Samen, welche er von Zeit zu Zeit heimschickte zugleich mit getrockneten, prächtig erhaltenen Pflanzen, welche nun einen Theil des Herbariums im Garten der Gesellschaft zu Chiswick ausmachen. Von der Gattung Pinus entdeckte er verschiedene Arten, von denen einige eine ungeheure Höhe erreichen. Pinus Lambertiana, welche er zu Ehren des Vice-Präsidenten der Linnäischen Gesellschaft Aylmer Burke Lambert, Esq., nannte, ist vielleicht der grösste Baum dieser Gattung. Einer derselben, welchen der Wind umgeworfen hatte, mass 215 Fuss in der Länge und 57 Fuss 9 Zoll im Umfange 3 Fuss hoch über der Erde! Die Zapfen, welche Hr. Douglas davon heimschickte, waren 16 Zoll lang und 11 Z. im Umfange. Die Samenmandel ist süss und wohlschmeckend und wird von den Indianern entweder geröstet gegessen oder in grobe Kuchen für den Wintervorrath zerstampft. Das Harz, welches aus diesen Bäumen schwitzt, wenn sie theilweise verbrannt werden, verliert seinen gewöhnlichen Geruch und bekommt einen süssen Geschmack, in welchem Zustande es von den Eingebornen als Zucker gebraucht wird. Eine Art, von Hrn. Sabine Pinus Douglasii genannt, kommt der vorigen an Grösse nahe.

Im Frühlinge 1827 durchwanderte Hr. Douglas das Land vom Fort Vancouver aus über die Felsengebirge (Rocky Mountains) bis zur Hudson's Bay, wo er zusammentraf mit Capt. (nun Sir John) Franklin, Dr. Richardson und Cap. Back, welche von ihrer zweiten Landreise zum Nordpole zurückkehrten. Mit diesen Herren kam er im Herbste nach England und brachte eine Menge Sämereien sowohl als getrockneter Pflanzen und andrer naturwissenschaftlichen Gegenstände mit. Durch die Güte seines Freundes und Gönners Hrn. Sabine wurde er mit vielen der ersten Literatoren und Gelehrten in London bekannt und bald darauf durch die kostenfreie Wahl zum Mitgliede der Linnäischen, Geologischen und Zoologischen Gesellschaft beehrt; zu jeder derselben trug er verschiedene Artikel bei, welche seitdem in ihren Verhandlungen gedruckt worden sind und vielen Forschungsgeist und Scharfblick als Naturforscher an ihm beweisen.

Nachdem er in London 2 Jahre geblieben war, segelte Herr Douglas im Herbste 1829 wieder nach Columbia, wo er fortfuhr

of this enterprising traveller and botanist was received by the botanical and horticultural world of Britain with feelings of the deepest regret, not only on account of the eminent services he had rendered to botany, but also to other branches of natural history. During the twelve years in which he was indefatigably employed in the cause of natural science, the name of Douglas is associated with all the rare and beautiful plants lately introduced from North-west America; and which, by means of the Horticultural Society of London, have been extensively distributed, not only in Britain, but over Europe, and those parts of North America where they are not indigenous. To him we are indebted, not only for many valuable timber trees, some beautiful ribeses, and other ornamental shrubs, but for the elegant clarkia, the different species of pentstemons, lupines, œnotheras, and a host of other ornamental plants, enumerated below, which now adorn our gardens; and which have formed, and still continue to form, the great attraction of the several botanical publications wherein they have been figured and described. In short, if we only imagine the British gardens deprived of the plants introduced by Douglas, we shall find them but very little farther advanced, in point of ornamental productions, than they were a century ago. One great advantage of the introductions of Douglas, independently of their beauty, is, that they are, with only one or two exceptions, not only able to stand without protection, but very hardy; and, consequently, from ripening seeds in abundance, they are calculated for ornamenting the garden of the cottager equally with that of the prince, in Britain, and the central districts of Europe.

The Perthshire Royal Horticultural Society, which includes most of the botanists and gardeners of the district in which Douglas was born, desirous to express their sense of the services which he has rendered to the botany and gardening of his country, and deeply sympathising with the manner of his death, have resolved to erect a monument to his memory, in his native village of Scone, in Perthshire; and have appointed a committee of their number to carry the same into effect, by soliciting the aid of the gardening world, and more especially of the gardeners of Britain, who may approve of the undertaking. The committee has limited the sum to be subscribed by practical gardeners to *5s.*; and they expect no more than 1*s.* from journeymen, and 6*d.* from apprentices. Any sum from amateurs, however small, or however large, will be thankfully acknowledged. The object is, not so much to procure a large sum, as to afford the means to gardeners, in every part of the

qu'il tomba dans une fosse creusée par les indigènes pour prendre des taureaux sauvages, juste au moment où il y en avait un pris. Cet accident déplorable eut lieu le 12 Juillet, 1834, à l'âge de 36 ans qu'il avait alors. Le détail de toutes les circonstances, trop terrible pour être repété ici, se trouve dans toute sa longeur au douzième volume du "Gardener's Magazine," page 274.

La nouvelle de la mort de cet entreprenant botaniste-voyageur fut reçue par le public des botanistes et des horticulteurs avec les sentimens des plus profonds regrets à cause des services distingués rendus par lui, non seulement à la botanique mais aussi aux autres branches de l'histoire naturelle. Pendant les 12 ans où ils s'occupait infatigablement des sciences naturelles, le nom de Douglas fut joint à toutes les plantes rares et belles introduites dernièrement du nord-ouest de l'Amérique, qui ont été repandues au loin par la Société d'Horticulture à Londres, non seulement dans toute la Grande-Bretagne, mais aussi dans toute l'Europe et dans ces parties de l'Amerique septentrionale où elles ne sont pas indigènes. Nous lui devons non seulement plusieurs valuables arbres de haute futaie, quelques belles espèces de Ribes et d'autres arbustes d'ornement, mais aussi la jolie Clarkia (Clarkia pulchella), les différentes espèces de Pentstemon, Lupinus, Œnothera et une légion d'autres plantes d'ornement énumérées là-bas qui décorent à présent nos jardins et qui ont donné et qui donnent toujours encore tant de charmes aux écrits périodiques des botanistes où elles sont figurées et décrites. Enfin, imaginons nous seulement les jardins Britanniques privés des plantes introduites par Douglas, et nous ne les trouverons pas, sous le rapport des plantes d'ornement, beaucoup plus avancés qu'un siècle avant nous.

Un grand avantage que les végétaux introduits par Douglas possèdent, indépendamment de leur beauté, c'est qu'à une ou deux exceptions près ils ne demandent pas seulement point de protection, mais ils sont parfaitement rustiques, et par conséquent, portant des graines mûres en abondance, ils forment aussi bien l'ornement du jardin du cottager que du prince dans la Grande-Bretagne et dans le centre de l'Europe.

La Société Royale d'Horticulture pour Perthshire qui comprend la plupart des botanistes et jardiniers du pays de feu Mr. Douglas, désirant exprimer leur reconnaissance des services qu'il a rendus à la botanique et à l'horticulture de son pays et regrettant profondément la manière de sa mort, a résolu d'ériger en son honneur un monument dans son lieu de naissance à Scone en Perthshire, et elle a nommé un comité de son nombre pour exécuter cette résolution en appelant ou secours tous les jardiniers et plus particulièrement

sich mit seiner Lieblingsbeschäftigung zu vergnügen und seine frühern Entdeckungen reichlich zu vermehren. Hierauf ging er nach den Sandwich-Inseln, wo er einige Monate blieb und eine Anzahl Packete mit Sämereien und verschiedenen naturhistorischen Gegenständen einschiffte, welche aber unglücklicherweise verloren gegangen sind. Seine Rückkehr mit einer andern Sammlung wurde auf demselben Schiffe erwartet, welches die Nachricht von seinem schrecklichen Tode brachte; dieses Ereigniss ist um so bedauernswürdiger, da es durch Umstände veranlasst wurde, deren Betrachtung uns schaudern macht: er fiel nämlich in eine Grube, welche die Eingebornen gemacht hatten, um wilde Stiere zu fangen, gerade zu der Zeit, da ein solcher darin war. Diese klägliche Begebenheit trug sich am 12. Julius 1834 im 36sten Jahre seines Alters mit ihm zu. Die besondern Umstände davon, welche zu schrecklich sind, um hier wiederholt zu werden, sind der Länge nach zu finden im 12ten Bande des „Gardener's Magazine" Seite 274.

Die Nachricht von dem Tode dieses unternehmenden reisenden Botanikers wurden von dem Publikum der Botaniker und Hortikulturisten mit dem Gefühle des tiefsten Bedauerns aufgenommen, wegen der ausgezeichneten Dienste, welche er nicht bloss der Botanik erwiesen hat, sondern auch den übrigen Zweigen der Naturgeschichte. Die 12 Jahre hindurch, wo er unermüdet sich mit Naturwissenschaft beschäftigte, war der Name Douglas mit allen seltnen und schönen Pflanzen vereinigt, welche neuerlich aus Nord-West-Amerika eingeführt wurden und welche vermittelst der Gartenbaugesellschaft in London weit verbreitet worden sind, nicht bloss über ganz Gross-Britannien, sondern über ganz Europa und diejenigen Theile von Nord-Amerika, wo sie nicht einheimisch sind. Ihm verdanken wir nicht nur viele kostbare Bauhölzer, einige schöne Ribes-Arten und andre Ziersträucher, sondern auch die niedliche Clarkie (Clarkia pulchella), die verschiedenen Arten von Pentstemon, Lupinus, Oenothera und ein Heer anderer Zierpflanzen, welche unten aufgezählt sind, welche nun unsere Gärten schmücken und welche die verschiedenen botanischen Schriften so anziehend gemacht haben und noch immer zu machen fortfahren, wo dieselben abgebildet und beschrieben worden sind. Kurz, stellen wir uns nur die britischen Gärten als der von Douglas eingeführten Pflanzen beraubt vor, so werden wir sie in Betracht von Zierpflanzen nicht viel weiter vorgerückt finden, als sie vor einem Jahrhunderte waren.

Ein grosser Vorzug der von Douglas eingeführten Gewächse, unabhängig von ihrer Schönheit, ist, dass sie, nur mit einer oder

world, of evincing their sympathy with the celebrity and misfortune of one of their brethren; and thus, at the same time, honouring themselves, by doing honour to the memory of Douglas. Every contributor to the amount of 1*s.* shall be entitled to a printed list of subscribers' names, to which a lithographic design of the monument and inscription shall be attached.

It is hoped that gardeners, and all the friends to gardening and science, will come forward in such a manner as to enable the committee to realise the idea they have formed of what will be a suitable monument to the memory of Douglas; suitable not only to the kind of services rendered by the individual, but to the spirit of the age, which recognises utility to the living as the great principle of guidance in commemorating the services of the dead.

The committee, viewing the subject in this light, propose, if the amount of the subscription will admit, to purchase a piece of ground sufficient to hold full-grown specimens of all the trees, shrubs, and plants introduced by Douglas; to enclose it; to plant it with these trees and shrubs; to erect a monument, such as may be agreed on, in some part of the ground, and to build a house; which, together with the whole demesne, shall be settled on his heirs at law for ever. They also propose to purchase as much additional ground (say two or three acres) as will suffice for keeping the representative of the family for the time being, as a market-gardener, a small farmer, or a nurseryman.

The portrait of Douglas, placed at the head of this article, is copied, by the kind permission of Samuel Curtis, Esq., from an engraving which appeared, along with a very copious life of Douglas, in the *Companion to the Botanical Magazine;* which engraving, Mr. Curtis informs us, is after a chalk drawing of the size of nature, in the possession of Dawson Turner, Esq.

Subscriptions will be received by Archibald Turner, Esq., treasurer of the Perthshire Horticultural Society; at the office of the London Horticultural Society, 21. Regent Street, London; by Messrs. Longman, Rees, and Co., 39. Paternoster Row, London; by Messrs. Peter Lawson and Son, seedsmen, Edinburgh; by Messrs. Vilmorin and Co., seedsmen, Quai de la Mégisserie, No. 30. Paris; by Messrs. Booth, Floetbeck Nursery, Hamburg; by M. Otto, director of the Botanic Garden, Berlin; by M. Charles Rauch, curator of the Imperial Gardens at Rennweg, Vienna; by M. Sckell, inspector-general of the Royal Gardens, Munich; by Messrs. Thorburn, seedsmen, New York; by Robert Cleghorn, Esq., nurseryman, Montreal; and, in general, by all the directors of botanic gardens, and nurserymen and seedsmen, in Europe and North America.

tous les jardiniers de la Grande-Bretagne qui approuvent cette entreprise.

Le comité a fixé le montant de la souscription pour les jardiniers praticiens à 5 ch. (6 fr.), et ils n'attendent pas plus qu'un ch. d'un journalier et 6 pence d'un apprenti. Toutes les contributions, soit modestes, soit considérables, seront reçues avec de la reconnaissance. L'intention n'est pas avant tout de ramasser une grande somme, mais plutôt de donner occasion à tous les jardiniers dans tous les pays de montrer leurs intérêts à la célébrité et au malheur d'un de leurs confrères, et de s'honorer ainsi par eux-mêmes en même temps qu'ils honorent la mémoire de Douglas. Chaque contribution d'un chelin donnera le droit de recevoir une liste imprimée des noms des souscripteurs, à laquelle sera joint une lithographie du monument avec sa description.

On espère que les jardiniers et tous les amateurs du jardinage et des sciences naturelles se montreront d'une manière telle que le comité soit mis en état d'exécuter l'idée qu'il s'est formée d'un monument digne de la mémoire de Douglas; digne non pas seulement de cette espèce des mérites que cet individu a conquises, mais digne aussi de l'esprit du siècle qui reconnait dans l'utilité pour les vivans le grand principe directeur pour la commémoration des services des morts.

Le comité, qui regarde l'objet sous ce point de vue, propose donc si le montant des souscriptions le permet, d'acheter une terre suffisamment grande pour contenir tous les arbres, arbrisseaux, et plantes introduits par Douglas dans toute la vigueur de leur végétation, d'en faire un enclos, d'ériger dans une partie de cette pièce de terre un monument convenable, d'y bâtir une maison qui sera cédée avec la pièce de terre aux héritiers légitimes sous le titre de propriété perpétuelle. Le comité propose aussi d'y ajouter par achat assez de terre (à peu près 2 ou 3 arpens anglais) pour suffire à faire vivre le représentant actuel de la famille comme maraîcher, petit fermier, ou pépiniériste.

Des souscriptions seront reçues: par M. Archibald Turnbull, trésorier de la Société d'Horticulture en Perthshire; au bureau de la Société d'Horticulture à Londres, 21. Regent Street, Londres; par MM. Longman, Rees et Comp., 39. Paternoster Row, Londres; par MM. Peter Lawson et fils, marchands grainiers à Edinbourg; par M. Vilmorin et Comp., marchands grainiers, Quai de la Mégisserie, 30. à Paris; par M. Booth, pépiniéristes à Floetbeck près de Hambourg sur l'Elbe; par M. Otto, directeur du jardin de plantes à Berlin; par M. Charles Rauch, curateur des jardins impériaux sur le Rennweg à Vienne en Autriche; par

zwei Ausnahmen, nicht bloss fähig des Schutzes zu entbehren, sondern auch sehr hart sind; und folglich, da sie Samen im Ueberflusse zur Reife bringen, sind sie geeignet zur Verzierung des Gartens des Häuslers sowohl als des Fürsten in Britannien und Mittel-Europa.

Die königliche Gartenbaugesellschaft von Perthshire, welche die meisten Botaniker und Gärtner der Gegend in sich begreift, wo Douglas geboren war, wünscht ihre Erkenntlichkeit für die Dienste auszudrücken, welche er der Botanik und Gärtnerei seines Vaterlandes erwiesen hat und bedauert tief die Art seines Todes; sie hat beschlossen zu seinem Gedächtnisse in seinem Geburtsorte Scone in Perthshire ein Monument zu errichten, und einen Ausschuss aus ihrer Mitte ernannt, um diesen Entschluss auszuführen durch Anrufung des Beistandes der Grtänerwelt und insbesondere der britischen Gärtner, welche das Unternehmen billigen.

Der Ausschuss hat die Subscriptionssumme für praktische Gärtner auf 5 Schillinge festgesetzt; und es erwartet nicht mehr als 1 Schilling von Taglöhnern und 6 Pence von Gärtnerlehrlingen. Jeder Beitrag von Gartenliebhabern, so gering oder bedeutend er auch seyn mag, wird dankvoll anerkannt werden. Die Absicht ist nicht so wohl eine grosse Summe zusammen zu bringen, als Gärtnern in allen Weltgegenden Gelegenheit zu geben, ihre Theilnahme an der Berühmtheit und dem Unglücke eines ihrer Brüder zu beweisen und so zugleich sich selbst zu ehren, indem sie dem Andenken Douglas's Ehre erweisen. Jeder Beitrag von 1 Sch. soll zu einem gedruckten Verzeichnisse der Namen der Subscribenten berechtigen, welchem eine Steinzeichnung des Monuments nebst Beschreibung beigefügt werden soll.

Man hofft, dass Gärtner und alle Freunde der Gärtnerei und Naturwissenschaft sich auf eine solche Art zeigen werden, dass der Ausschuss in den Stand gesetzt wird, die Idee auszuführen, welche derselbe sich von einem des Andenkens an Douglas würdigen Denkmale gemacht hat; würdig nicht bloss der Art von Verdiensten, welche dieser einzelne Mann sich erworben hat, sondern auch des Zeitgeistes, welcher Nützlichkeit für die Lebenden als den grossen leitenden Grundsatz für die Gedächtnisstiftung der Dienste der Todten anerkennt.

Der Ausschuss, welcher den Gegenstand in diesem Lichte betrachtet, schlägt vor, wenn der Subscriptionsbetrag es zulässt, ein Grundstück anzukaufen, welches hinreichend gross ist, um alle von Douglas eingeführten Bäume, Sträucher und Pflanzen in ihrem vollen Wachsthume zu enthalten, dasselbe einzuhägen, auf einem Theile des Grundstückes ein beliebiges Denkmal zu errichten und ein

We are indebted for the translation of this biographical notice of Douglas to Dr. Lippold, author of the *Taschenbuch der Verstandigen Gärtners*; and of an article *On the Belgian mode of cultivating the Chicory, &c.*, in this Magazine, p. 250. Dr. Lippold is himself a candidate for filling a situation as Botanical Traveller and Collector, in foreign countries.

M. Sckell, inspecteur général des jardins royaux à Munic; par MM. Thorburn, marchands grainiers à New-York; par M. Robert Cleghorn, pépiniériste à Montréal; et en général par tous les directeurs des jardins de plantes, par tous les pépiniéristes, et par tous les marchands grainiers en Europe et en Amérique.

Haus zu bauen, welches nebst dem ganzen Grundstücke seinen gesetzlichen Erben auf immer zum Eigenthume eingeräumt werden soll. Der Ausschuss schlägt weiter vor, soviel Land (etwa 2 bis 3 Acker) dazu anzukaufen, als hinreichen mag den derzeitigen Repräsentanten der Familie als Gemüsegärtner, Kleinpächter oder Handelsgärtner zu erhalten.

Subscriptionen werden angenommen: — von Archibald Turnbull, Esq., Schatzmeister der Perthshirer Gartenbaugesellschaft; im Sitzungshause der Londner Gartenbaugesellschaft, 21. Regent Street, London; von den Hrn. Longman, Rees, und Comp., 39. Paternoster Row, London; von den Hrn. Peter Lawson und Sohn, Samenhändlern in Edinburg; von den Hrn. Vilmorin und Comp., Samenhändlern, Quai de la Megisserie 30. Paris; von den Herrn Booth, Floetbecker Baumschule in Hamburg; von Hrn. Otto, Direktor des botanischen Gartens in Berlin; von Hrn. Carl Rauch, Curator der kaiserlichen Gärten am Rennwege zu Wien; von Hrn. Sckell, General-Inspector der königlichen Gärten zu München; von den Hrn. Thorburn, Samenhändlern in New-York; von Robert Cleghorn, Esq., Handelsgärtner in Montreal; und überhaupt von allen Directoren botanischer Gärten, Handelsgärtnern und Samenhändlern in Europa und Amerika.

List of Plants introduced by the late Mr. David Douglas, F.L.S., &c., all of which, with one or two Exceptions, are now in British Gardens in a living State. Arranged from a List furnished by the London Horticultural Society.

DICOTYLEDO'NEÆ.

Ranunculàceæ. Clématis virginiàna
- *A*nemòne Hudson*iàna* △
- *D*elphìnium Menzièsii ? ? △
- *Pæ*ònia Brówni

Berberàceæ. *Bérberis* glumàcea
- *A*quifòlium

Rhamnàceæ. Ceanòthus collìnus

Papaveràceæ. Platystèmon califórnicus ○
- Eschschóltz*ia* califórnica △
- cròcea △

Cruciferæ, or *B*rassicàceæ. Crucìfera péndula (Turrìtis retrofrácta ?*Lindl.*) ? ? △

Violàceæ. *V*ìola præmórsa △

Silenàceæ. Silène inamœ'na ? ○

Alsinàceæ. Spérgula ramosíssima

Linàceæ. *L*ìnum sibíricum △

Malvàceæ. *M*álva coccínea (*M*álva Munro*àna* Bot. Reg.)
- *S*ìda *m*alvæflòra △

Aceràceæ. *A*'cer macrophýllum
- circinàtum

Geraniàceæ. Gerànium caroliniànum ? ? △

Leguminàceæ. Thermópsis *f*abàcea △
- *T*rifòlium tridentàtum
  - macrocéphalum (Lupinàster) ? △
- *T*rifòlium fucàtum ○
- Hosáck*ia* (Lòtus) bìcolor △
- Psoràlea macrostàchya △
- *A*strágalus succuléntus △
- *L*áthyrus califórnicus △
- *L*upìnus leucophýllus △
  - trìstis
  - plumòsus △
  - lùcidus
  - ornàtus △
  - grandifòlius
  - flexuòsus
  - álbifrons
  - arbústus
  - rivulàris
  - lépidus △
  - polyphýllus △
  - álbus △
  - nànus ○
  - littoràlis △
  - succuléntus
  - bìcolor ○
  - densiflòrus ○
  - micránthus ○
  - Sabin*iànus* △
  - áridus △
  - laxiflòrus △
  - sulphùreus
  - leptophýllus ○
  - hirsutíssimus ○

Limnanthàceæ. Limnánthes Douglàs*ii* ○

Rosàceæ. *P*rùnus depréssa ?
- *Tigàrea* tridentàta (Púrsh*ia* tridentàta)
- *S*piræ'a *a*riæfòlia
  - Arúncus (americàna *L.*) △
- *R*ùbus spectábilis
  - leucóstachys
  - nutkànus
  - leucodérmis
  - longipétalus
- Potentílla ontópoda △
  - arachnöìdea △
  - glandulòsa △
  - pectinàta △
  - argùta △
  - effùsa △
  - obscùra △
- Horkèl*ia* congésta
- *C*ratæ'gus Douglàs*ii*
- *Amelánchier* flórida
- *P*ýrus rivulàris

Onagràceæ. Epilòbium mínimum
- *Œ*nothèra albicaúlis (pállida of *Lindl.*) △
  - vimínea ○
  - (Godèt*ia*) rubicúnda
  - decúmbens ○
  - (Godèt*ia*) vinòsa ○
  - Lindley*àna* ○
  - (Godèt*ia*) lépida ○
  - quadrivúlnera ○
  - dentàta ○
  - densiflòra *Lindl.* ○
  - muricàta ○
- Clárk*ia* pulchélla ○
  - élegans ○
  - gauròìdes

Loasàceæ. Bartòn*ia* aúrea ? ○

Portulacàceæ. Calandrìn*ia* speciòsa ○

Grossulàceæ. *R*ìbes divaricàtum
- glutinòsum
- cèreum
- *m*alvàceum
- irríguum
- speciòsum
- echinàtum
- sanguíneum
- nìveum
- petiolàre
- setòsum
- viscosíssimum
- lacústre
- tenuiflòrum

Saxifragaceæ. Téllima grandiflòra △
- Heùchera micrántha △

Umbellàceæ. Cicùta occidentàlis ? ? △

Cornàceæ. *Córnus álba* ♒
Caprifoliàceæ. Symphòria racemòsa ♒
Caprifólium Douglàsii ? ♃
ciliòsum ? ♃
hispídulum ♄
Valerianàceæ. *Valerianélla* (Plectrítis) congésta ? ○
Compósitæ. *Erígeron* sp. (Stenáctis speciòsa *Lindl.*) ☿ △
Diplopáppus incànus *Lindl.* ♀ △
Mádia élegans ○
Eriophýllum cæspitòsum ☙ △
Heliánthus lenticulàris ○
Gaillárd*ia* aristàta ☿ △
Calliópsis Atkinson*iàna* ♀ △
Tanacètum boreàle
Dòn*ia* villòsa ? ♀ ? △
Lasthènia californica ○
glabràta ○
*Lobel*iàceæ. Clintòn*ia* élegans ○
pulchélla
Ericàceæ. *Arbutus* procèra ♀
tomentòsa ♒
Gaulthèr*ia Shállon* ♒
Vaccínium ovàtum
Polemoniàceæ. *Phlóx* speciòsa " ♊ "
Leptosíphon densiflòrus ○
androsàceus ○
Gília capitàta and c. álba ○
tricolor ○
achilleæfólia ○
púngens ○
splèndens ○
pharnaceoïdes ○
Ipomópsis élegans ◑
Collòmia grandiflòra ○
lineàris ○
pinnatífida ○
bellidifólia
grácilis
Hydrophyllàceæ. Benthàm*ia lycopsóides Doug. MS.* (Phacèlia rùdis *Lindl.*)
Phacèlia hastàta
tanacetifólia ○
Eùtoca multiflòra ◑
víscida
divaricàta ○
Nemóphila insígnis ○
aurìta ○
Solandàceæ. Nicotiàna multiválvis ○
Scrophulariàceæ. Pentstèmon acuminàtus ♀ △
speciòsus ♀ △
venústus ♀ △
glandulòsus ♀ △
Richardsòn*ii* ♀ △
triphýllus ♀ △
ovàtus ♀ △
diffúsus ♀ △
pruinòsus ♀ △
confértus ♀ △
Scrophulariàceæ. Pentstèmon attenuàtus ♀ △
deústus ♀ △
grácilis ♀ △
staticifólius ♀ △
digitalifólius ♀ △
Scoúler*i* ♀ △
Chelòne centranthifòlia ♀ △
nemoròsa ♀ △
Mímulus moschàtus ♀ △
cardinàlis ☿ △
guttàtus ♀ △
*r*òseus ☿ △
floribúndus
Castillèj*a* coccínea ○
Collíns*ia* grandiflòra ○
parviflòra ○
bicolor ○
Labiàceæ. *Hyssópus* (Lophánthus *Benth.*) urticifòlius ☿ △
Sálvia sp. (Audibért*ia* incàna *Benth.*) ♊
Primulàceæ. Douglàs*ia* nivàlis *Lindl.* ? ♀ △
Verbenàceæ. *Verbèna* bracteòsa ☿ △
Nyctaginàceæ. Abrònia (Tríc*ratus Hérit.*) mellífera ☙ △
Polygonàceæ. Eriógonum compósitum *L.* ☿ △
nùdum ☿ △
Garryàceæ. Gárry*a* elíptica ♒
Coníferæ, or *Pinàceæ.* *Pinus* Lambert*iàna* ♀
Douglàs*ii* ♀
ponderòsa ♀
nóbilis ♀
amábilis ♀
grándis ♀
Menziès*ii* ♀
montícola and insignis ♀
with red cones ♀

MONOCOTYLEDO'NEÆ.

Iridàceæ. *Iris* tènax ☿ △
Sisyrínchium grandiflòrum ? ♀ △
Hemerocallidàceæ. Brodiæ*'a* congésta ☿
grandiflòra ☿
Asphodelàceæ. *Scílla* (*Camássia* esculénta *Lindl.*) ☿
Hesperoscórdum lácteum ☿
Triteleía láxa ☿
Callipròra flàva ☿
Liliàceæ. Calochórtus Barnárd*i* ☿
élegans ☿
álbus ☿
splèndens ☿
venústus ☿
lùteus ☿
pulchéllus ☿
pusíllus ☿
macrocárpus ☿
Lílium pudícum ☿
Erythrònium grandiflòrum ☿
Melanthàceæ. Helònias tènax ♀ △

Several additions will require to be made to the above list; because a number of plants which have been raised from seeds sent home by Douglas, have not yet flowered. Sir W. J. Hooker, who is publishing an interesting Memoir of Douglas, with extracts from his Journals, in the *Comp. to the Bot. Mag.*, to the proprietor of which we are indebted for permission to copy the portrait at the head of this article, states to us that the dried collections of plants sent home by Douglas probably contain 800 Californian species alone, of which most likely many are new, but of which Douglas could neither send home roots nor seeds. The total number of species enumerated above are, — ligneous plants, 53; herbaceous plants, 145; in all, 198: a greater number of hardy species than were ever before introduced into Britain by one collector. When, as we have already stated, it is considered that all these plants, with only one or two exceptions, are quite hardy, and that they actually, at the present moment, form the principal ornaments to British gardens, from the cottage to the palace, the name of Douglas ought to be continually present to our minds; and we ought never to forget how much we are indebted to him, and to those who were his patrons and employers.

Art. II. *The scientific Examination of Gardeners.*

A grand step has been taken by the London Horticultural Society for the promotion of gardening, and one from which may be dated a new era in the art. It is proposed by the Garden Committee of the Society to receive no gardeners for permanent employment in the gardens who cannot produce satisfactory evidence that they have received a certain degree of preliminary education; and, after any one has been admitted, he cannot be recommended to any place as a gardener, until he shall have undergone an examination on what may be called horticultural science, and received a certificate, a copy of which will be recorded in a book kept for the purpose. We cannot sufficiently express the high opinion which we entertain of the good that will result from this determination of the Society. Hitherto, a young gardener, who has studied, and understands, the science of his art, has not had a fair chance; because another, with not half his knowledge, but more favoured by fortune and accident, may have been apprenticed, and worked as journeyman, at places of greater celebrity; and the head gardeners at such places generally taking apprentice or journeyman fees, they consequently feel bound to recommend their pupils, whether they particularly deserve it or not; and they, of course, are much more likely to succeed in getting places, than those who have been apprentices or journeymen in places less celebrated, and who depend solely, or chiefly, on their own merits. Another good effect of this examination system, will be, that young men of industry in acquiring knowledge will be duly appreciated by their employers; while those who have no natural talent for acquiring a knowledge of the science of their profession will be induced to relinquish it, and adopt some other for which they are better adapted by nature. Or, if they do not adopt another, they will be considered as belonging to a secondary grade in the profession, and fit only for secondary places. In this way, the profession will be weeded out, as it were, and those which remain will constitute a body of men who will attain that rank in the scale of intellect which, though long deserved by many individuals among them, has not hitherto been obtained by the profession generally.

We have said above that this determination of the Horticultural Society will form the commencement of a new era in gardening; but still more effectually will it create a new era among gardeners, by distinguishing and elevating all those that are really worthy of the name: and this will lead to their being more suitably paid, and more respectfully treated by their employers, than many of them are at present.

The circumstance of a certain preliminary education being necessary before the parents of any young man can even hope that he will ever attain to the situation of head gardener, will do an immense deal of good, by showing the advantages of school education to young persons generally; and, with other causes now in operation, it will contribute towards that most desirable result, the establishment of a national system of education, at the expense of all, and for the benefit of all.

We hope all other Horticultural Societies, who have gardens and scientific secretaries, or curators, will institute preliminary regulations of a similar kind; for, though a certificate from a provincial institution can never rank with one from the Metropolitan Society, yet it will be of some value, and tend to enhance the worth of that obtained from the Metropolitan Society. We hope, also, that young men, in every part of the country, who are in their apprenticeship, or who are working as journeymen, will prepare themselves for examination by the London Horticultural Society; and will be sufficiently ambitious, not to desire to fill a place till they have proved that, as far as respects the science of their art, they are properly qualified for it.

The books that we would recommend for perusal to a young man desirous of preparing himself are, all Dr. Lindley's works; more especially his *Outlines of Botany*, *Outlines of Horticulture*, and his *Introductions to Botany*, *to the Natural System*, and his *Ladies' Botany* (which, we are happy to say, has

already reached a third edition) Davy's *Agricultural Chemistry* ought also to be studied, and Main's *Vegetable Physiology*, and Hayward's *Principles of Horticulture*.

While we offer these remarks for the encouragement of young men entering into the profession of a gardener, we think it may not be amiss to caution all such against supposing that the possession of scientific knowledge *alone* will fit them for filling situations, either first or second-rate, as head gardeners; much less will it put them on a par with many gardeners, both young and old, who, in connexion with the practice of their art, have been studying the science of it, from books and from nature, all their lives. Whatever may be the science of any art possessed by a young man, nothing can enable him to practice that art with a certainty of success, but time and experience. Experience cannot be gained without time; and, therefore, in this respect no young gardener can be on a par with an old one. Besides, in gardening, as in every other pursuit, it is not always those who have most knowledge who are most capable of carrying what they know into practice. The operations of grafting, and even planting with the dibble, however simple they may appear, may be perfectly understood from description, and yet not performed in such a way as to insure success. It is well known that some of the most successful cultivators, both of fruits and flowers, in the neighbourhood of London, and in Holland, are men who never read. We submit these remarks, not to discourage young men who may wish to study their art scientifically from doing so; but simply to prevent the chance of the young men who have obtained, or who may obtain, certificates, from being puffed up by their newly acquired honours, and perhaps despising their elder brethren.

After these preliminary remarks, we shall submit the documents which have given rise to them.

[*Form of a Letter which will henceforward be sent to all Candidates for Admission into the Horticultural Society's Garden.*]

Horticultural Society's Garden,
Chiswick, . 183 .

Sir,

I am directed to transmit to you, as a candidate for admission into this garden, the accompanying resolutions, to which I beg particularly to call your attention. I am also to request that you will immediately inform me, by post, whether you will be prepared to comply with these resolutions, in order that your application may in that case be confirmed. If I do not receive an answer to this letter in the course of a month, you will be considered to object to the regulations, and your name will be removed from the list of applicants.

I am, your obedient servant,

Gardener.

To Mr.

[*Regulations respecting the future Admission of young Men into the London Horticultural Society's Garden, and their Examination afterwards.*]

Extract from the Minutes of the Garden Committee, Feb. 22. 1836.

The Garden Committee, having had their attention called to the defective state of the education of some of the young men who are recommended to them for employment in the Society's Garden, and feeling it to be most desirable that all persons intended for gardeners should possess the means of becoming acquainted with the principles of the art which they intend to practise, have directed that the following regulations be in future observed:—

No person is to be received into the Garden for permanent employment who cannot produce satisfactory evidence upon the following points: —

1. That he has been employed for at least three years in some good garden.
2. That he can write and spell respectably.

3. That he is sufficiently acquainted with arithmetic to be able to keep accounts.

4. That he is able to measure land, and make simple ground plans.

No person, *after having been received into the Garden*, can be recommended to a place as gardener until he shall have submitted to examination, not only in the three last subjects, but also in geography, and the elements of botany and vegetable physiology.

When any person employed in the Garden is ready to undergo such an examination, he is to give notice in writing to the assistant secretary, who will appoint the time and manner in which the examination is to take place. The result of the examination will be recorded in a book kept for the purpose: if it be satisfactory, a certificate to that effect will be granted, and the person examined will be then entitled to be recommended to a place, provided his general conduct is approved of.

The standard of qualification is placed very low by the Committee, in order to render the system of examination applicable to all capacities; but the examiner will have directions to raise it in those cases in which men may desire it; and the certificates will be varied accordingly. Of course, those persons will be considered to be qualified for the highest places whose examinations are the most successful.

The examinations will be verbal, and private. [This appears to us the only doubtful part of the plan. We certainly think that, at least, two or more members of the Garden Committee, and the head gardener, and perhaps, also, the foremen of the different departments, ought to be present at the examination.]

A copy of these resolutions is to be given to every person employed in the Garden, and is to be transmitted to every candidate for admission.

Publication of the Names of Gardeners who have been examined.

It is our intention to apply to the Council of the Horticultural Society for permission to publish the names of all candidates who have passed their examination, immediately after they have obtained their certificate; in the mean while we have been favoured by Dr. Lindley with the following list of names.

Certificates granted in the Garden of the Horticultural Society of London, from June 1st to October 1st, 1836.

June 24. — George Henry Brown of Stockport, Cheshire. A certificate of the second class.

August 1. — John Lumsden of Inchture, Perthshire. A certificate of the first class.

September 26. — Robert Fortune of Kelloe, Berwickshire. An extra certificate of the first class.

Horticultural Society, October 10. 1836.

Art. III. *Obituary.*

Mr. James Young, F.H.S., of the Epsom Nursery, who was much respected, by both professional and commercial gardeners, and by a numerous circle of friends, died in the last week of September.

Mr. Robert Adams died in the month of January last, at the School-house of Banchoy, Devinich, schoolmaster of that parish, at the age of 45 years. He was a most *enthusiastic*, persevering, and intelligent florist, and possessed a collection equalled by few, and surpassed by none, to the truth of which the books of the Aberdeenshire Horticultural Society bear ample testimony. The premature demise of Mr. Adams is universally regretted by a numerous circle of practical men, who enjoyed the pleasure of his acquaintance.

THE

GARDENER'S MAGAZINE,

DECEMBER, 1836.

ORIGINAL COMMUNICATIONS.

ART. I. *A summary View of the Progress of Gardening, and of Rural Improvement generally, in Britain, during the Year* 1836; *with some Notices relative to the State of both in Foreign Countries.* By the CONDUCTOR.

THE progress of a science, or of an art, is not so readily measured by the advances made in it, during the comparatively short space of a year, as by a comparison of its present state with its state at some former and more distant period. Accordingly, if we were to look back six years, and to compare the state of gardening in Britain in 1836, with its state in 1830, we should find a wonderful difference between the two periods; more especially with reference to public institutions. In 1830, there were only two zoological gardens in Britain, and these were both in the metropolis. Now we have zoological gardens established at Dublin, Liverpool, and Bristol; and others are projected, or commenced, at Cheltenham, Birmingham, Manchester, and various other places. The number of provincial horticultural societies has, also, been nearly doubled during the same period.

But, though surveys of the state of an art made at different intervals may afford the most striking views of its progress, surveys at short and regular periods appear better calculated to stimulate to improvement, by speedily making known to all what is done by a few; and hence the utility of an annual summary view like that which we are now about to submit to the reader. Our notices under each separate head will be very slight, but the reader who wishes to enter into the details of any particular subject or improvement, has only to look for it in the table of Contents.

GARDENING AS A SCIENCE.

The Education of Gardeners. — The most remarkable circumstance which has occurred during the past year is, the determi-

nation of the Horticultural Society of London to admit no young men into their garden, as journeymen, who have not received a certain degree of school education; and to recommend no journeymen from the gardens, to fill situations as head gardeners, who have not been regularly examined as to their physiological and other scientific knowledge, and received a certificate stating the degree of proficiency they have attained. The details of this measure, with our remarks on it, will be found at p. 610. We consider this as by far the most important step for the improvement of gardening that has been taken by the Society since its commencement; and this step, by its immediate influence on the young men who may be candidates for admission into the garden, and by its indirect influence in other places, in consequence of the plan being imitated by other societies, will speedily be felt, not only in Britain, but on the Continent, in North America, and, in short, throughout the world.

It has appeared to us that the rules and regulations of the London Horticultural Society adopted in 1826, with reference to gardeners employed in their gardens, had a tendency to depress, and even degrade, young men desirous of becoming proficients in gardening, rather than to encourage them; and to lower the art of gardening, and the profession of a gardener, in the eyes of the country gentlemen, their employers, rather than to elevate both. In fact, it appears to have been thought by the influential party connected with the Horticultural Society, about the time the garden at Chiswick was commenced, that it was possible to improve the art of gardening without at all improving either the minds or the condition of gardeners; and that, while the latter were to be kept stationary as far as respected themselves, the productions of the gardens they cultivated were to be greatly increased in excellence, or enhanced in value, by being produced at unusual seasons. We refer, for the grounds of our opinion, to the *Report of the Garden Committee*, &c. published in March, 1826, an abstract of which will be found in Vol. I. p. 312—316. In that *Report* two conditions only are stated with reference to young men desiring admission into the garden; viz. first, that the party should be recommended by a subscriber; and, secondly, that he must be between the ages of eighteen and twenty-six, educated as a gardener, unmarried, and "*capable of reading and writing moderately well.*" These young men are designated in the regulations as "labourers," and the terms "gardener" and "under gardener" are only applied to the head gardener and the foremen of the different departments.

It is curious and interesting to look back to the time of the commencement of this Magazine (1826), and to mark the different opinions which now prevail amongst the higher ranks respecting the working classes of society, from what were prevalent

even at that short distance of time. The working classes, and more especially servants of all sorts, were then considered as the natural enemies of the wealthy and independent classes; and the great object of government, and of individuals, was to keep them ignorant of every thing beyond the kind of work in which they were employed. The contrast between these times, near though they be, and the times at present, is indeed most remarkable; and not less remarkable than it is gratifying. We find, in 1836, a committee of the House of Commons recommending the establishment of a general system of education, in which all useful knowledge is to be taught to all persons; and another committee (that on the fine arts) recommending the establishment of schools of design, museums, and libraries, for the benefit of the working mechanics and manufacturers; and also the establishment of botanic gardens, &c., for the same purpose. We find, too, a benevolent individual in the House of Commons, and a highly respectable committee under the presidency of the Earl of Euston (see *Architectural Magazine*, vol. iii. p. 360.), recommending the establishment of public gardens and public baths, and promenades for the health and recreation of the inhabitants of towns. It is evident, from these appearances, that the working classes are now looked upon in a very different point of view from what they were formerly; and that, instead of attempting to keep them under as slaves, or useful living machines, they are now considered worthy of enjoying life, as well as the rich, and of being raised to the moral and intellectual level of their employers. Such is the wonderful change of opinion that has come over the face of society in this country during the last ten years!

It is highly satisfactory to us to find the London Horticultural Society keeping pace with the spirit of the times; and cooperating with the general desire for improvement. The idea of examining gardeners in the manner before stated, we have no doubt originated with Dr. Lindley, who has thus rendered a most important service to the gardening world. It affords us some satisfaction to reflect that, from the period of the publication of the first edition of the *Encyclopædia of Gardening*, in 1822, to the present moment, we have always been an advocate for a general system of education applicable to all; and especially for highly educating gardeners. We have persisted in recommending this, both in the *Gardener's Magazine*, and in the *Magazine of Natural History*. Mr. Denson, in the year 1834 (see vol. x. p. 59.), also strongly recommended that candidates for the curatorships of public gardens should be examined by a professor of established reputation, either belonging to the institute, or hired for the occasion; an excellent idea, which may afford a valuable hint to provincial societies of various descriptions, both

with reference to their curators, and to the recommendation of young men from their gardens.

The London Horticultural Society having advanced in their conditions of qualifications for the admission of young gardeners, from "reading and writing moderately well" (see Vol. I. p. 315.), to "writing, arithmetic, land-surveying, mapping, and geography" (see p. 610.), the circumstance will not only tend to raise the character of gardeners, but to show the real practical value of school education to working men generally. This will consequently aid in accelerating the progress of measures for establishing a national system of education; a part of which system will consist in the examination of pupils, and the granting of certificates from the masters and managers of the national schools to all persons whatever that have been educated in those schools, after they have been publicly examined. These certificates, by showing the natural taste and acquired knowledge of the pupils, will regulate the kind of profession, or employment, to which they are most likely to apply with success. This is the case at present in Wirtemberg and other parts of Germany. (See Vol. V. p. 692.)

Vegetable Physiology and Systematic Botany. — We have not much to say under these heads. The facts that plants may be kept alive in the smoke of cities, and in close rooms, by covering them with glass cases, the lower rims of which are placed in water, so as to exclude the free entrance of air; and also that they may in this manner be transported in a living state from any one part of the world to any other part, have been proved by the indefatigable zeal of Mr. Ward, whose experiments we have noticed in former volumes. A curious fact, which bears on the subject of the duration of the vitality of seeds, will be found noticed in a paragraph in a future page, respecting some raspberry seeds which vegetated after having been buried many centuries. A hybrid plant between *Cýtisus purpùreus* and *C. Labúrnum* has reverted to its original parentage; by one part of the plant becoming *Cýtisus purpùreus*, and the other *Cýtisus Labúrnum*; which seems to show that permanent hybrids cannot be produced between genuine species; and to confirm that part of the definition of a species which designates it as a form which cannot be obliterated either by nature or art. A botanical society has been established in Edinburgh, and another in London. (See *Domestic Notices.*)

New Agents of Culture. — Of these the most valuable which has been produced during the year is Reid's new hydraulic machine, which combines all the advantages of a syringe, and most of those of a garden watering-engine. In this machine, a great acquisition of power is obtained by having two cylinders, in one of which the air is compressed as in Montgolfier's engines.

We regret to observe that, owing to the imperfection of the present laws relating to patents, Mr. Reid's invention (the most important, we think, that he has yet made for gardening) has been pirated by two individuals. A double action garden pump, invented by Mr. Greene of Sheffield, has been exhibited at some of the provincial shows; but we have not had an opportunity of seeing it. A pruning-knife for vines, and a botanist's spud, with some other articles belonging to this department of gardening, will be found figured or described under their appropriate heads.

Landscape-Gardening. — We are not aware of any remarkable improvement that has been made in this branch of the art, as such; but we think we may refer to several papers in the present Volume, to show that a knowledge of it is making considerable progress among practical gardeners. Nothing contributes more to the improvement of any young man in landscape-gardening, than visiting country seats and gardens, endeavouring to ascertain the causes of their beauties and defects, and committing his criticisms and remarks on what he has seen to paper. One advantage of writing down our opinions, accompanied by our reasons for having formed them, in this as in every other case, is, that the doing so obliges us to examine our opinions with more care; and thus to test their justness and propriety. By this means a habit is attained of thinking correctly, as well as of writing correctly; and these will ultimately lead to habits of order in every thing.

In Garden Architecture, some very useful designs appear in the present Volume, accompanied by highly instructive remarks. A plan for laying out a public cemetery well merits attention; and there are various designs for different descriptions of forcing-houses. The practice of heating by hot water continues to increase; and the two modes most generally in use about London are, that with common horizontal pipes and an open boiler; and that practised by Weeks, by which the water is first raised to a level varying in height according to circumstances, and afterwards circulated in small tubes on the same or on different levels; every inequality being overcome which is below the level of the elevation to which the water is raised. Cast-iron tubes are in most general use; but zinc is employed in some places, and earthenware in others; and at Vienna, glass, as will appear by the design of a house so erected, which will be given in our succeeding Volume. The use of iron sash-bars, and of curvilinear surfaces, in theconstruction of hot-houses, appears to be on the increase.

Arboriculture. — The advantage of girdling trees has been pointed out by Mr. Ward; and Mr. Gorrie has illustrated Mr. Lawrence's plan for forming plantations with a view to facilitate their after-management. The difference between the stalked-

fruited oak, and the sessile-fruited oak, as painters' trees, has been shown, for the first time, we believe, by the Rev. W. T. Bree. The establishment of the pine and fir tribe, in situations where they are liable to be blown down by high winds, may be effected by increasing the number and strength of their roots; and this, it is said, is to be done by pinching off the leading shoot of the tree for several years in succession. A paper illustrating this theory was read by Mr. Nuttall at the British Association; and we expect to be able to give the essence of it, together with some other interesting particulars respecting the pine and fir tribe, in our succeeding Volume. A number of papers on the study of trees, on their culture, on the dimensions which they have obtained in different parts of the country, and on the comparative progress which they have made in different soils and situations, are distributed throughout this Volume; and some of them, we think, are extremely interesting. No new trees have been introduced from foreign countries during the past year; but some old trees, and some new shrubs, will be mentioned in our Arboricultural Notices for January, 1837.

Floriculture, as a branch of cultivation, may be considered as advancing, both in the ordinary and in the higher departments. Great progress is yearly making in raising new sorts of roses, dahlias, pansies, &c., from the seeds produced by flowers which have been cross-fecundated; and great progress, also, is making in the difficult culture of the tropical Orchídeæ. New orchideous plants are being continually introduced, chiefly from South America; and hardy herbaceous plants, which have been raised from seeds sent home by Douglas, Drummond, and other collectors, or brought to England by travellers, are coming into flower from time to time, and are thus added to our collections, and recorded in our catalogues. All of these which have been figured in the botanical periodicals in the course of the year will be found enumerated in our Floricultural and Botanical Notices. The most beautiful hardy annual of the year is *P*hlóx Drummónd*i*; and the most beautiful new dahlia Dod's Mary. The most interesting modes of cultivating flowering plants given in the present Volume are, those applied to the brugmansia by Mr. Spence, and to the solandra by Mr. Symonds.

Horticulture. — A notice by Mr. Thompson, the fruit-gardener in the London Horticultural Society's Gardens, of the new fruits which have been lately proved, and deserve culture, will be found in a succeeding article, followed by one on the new culinary vegetables of the past year. By far the most remarkable tropical fruit which has been brought into notice for many years is the Mùs*a* Cavendísh*ii*, which produces abundance of highly flavoured fruit, at an early age, with less care and attention than either the pine-apple or the melon. From the difficulty of procuring

plants, this Mùsa has not yet been much cultivated; but the reader will find in p. 316. the high anticipations that have been formed of it by Mr. Paxton, who, in a letter to us dated Nov. 8., informs us that after nine months' trial he has no reason to suppose that his most sanguine expectations will not be realised. We are not aware of any remarkable culinary vegetable having lately attracted attention, though some new modes of managing those in general cultivation will be found treated of by different correspondents. The articles on cropping kitchen-gardens, on the management of fruit trees, and on fruit tree borders, by Mr. Errington; those on the cultivation of the pine and vine, by Mr. Forsyth; that on the cultivation of chicory, by Dr. Lippold; and various others, will be found highly instructive to the practical gardener. The quinoa can scarcely be considered as having answered as a spinach plant; but it ripens abundance of seeds, which may, perhaps, form a useful substitute for rice or millet. In our notices of the provincial societies, it will be seen that Sir Charles Lemon is cultivating the quinoa on a large scale. Few experiments have been made during the past year with the *O*'xalis crenàta.

STATISTICS OF GARDENING.

Botanical Collectors. — We are happy to find that the Horticultural Society, after a pause of several years, has revived a practice which has been attended with so much success; viz. that of sending out botanical collectors. In October last, M. Theodore Hartweg, the son of the late M. Hartweg, director of the Botanic Garden at Carlsruhe, sailed from Liverpool for Vera Cruz; whence he will proceed to Mexico, and remain there three or four years, collecting specimens, and other objects of natural history, all of which will be sent home to the Horticultural Society. From the Kew Gardens, a collector was sent out to South America during last year. Mr. Knight of the Exotic Nursery, King's Road, has also a collector in that part of the world, chiefly in search of *O*rchídeæ; and Mr. Low of the Clapton Nursery lately had our correspondent Mr. Henchman as a collector in Demerara, and still has Mr. Anderson as a resident collector in Australia. The Earl of Mount Norris, we have elsewhere stated, has sent out a gardener to collect in New Zealand; and Mr. Bateman, who obtained so many new *O*rchídeæ through Mr. Colley, has, we believe, sent out another collector in pursuit of the same objects. We are surprised that no collectors are sent out to California, and to other parts visited by Douglas; where, as stated in our biographical notice of that indefatigable botanist, it is known that there exist many plants, not yet introduced, of which he sent home specimens, but could not procure seeds; or, having procured them, was unfortunate enough

to lose them, or even, as he himself has told us, to be obliged to eat them, for want of other food.

Provincial Botanical and Horticultural Societies and Exhibitions continue to prosper, and even to increase, since the summary view of their exhibitions given in our last Volume. We refer to an article headed London Horticultural Society and Garden, to show the increase of visitors to the exhibitions of the Society, and the excellence of the articles exhibited. The most interesting provincial show of the season appears to have been that at Sheffield, which attracted commercial and private gardeners from almost every part of England, and from several parts of Scotland; above 150 master-gardeners, and more than that number of journeymen, having been present. The substitution of books and articles of plate, as prizes, instead of medals, is an improvement which is taking place generally both in the London and provincial societies.

Public Gardens. — We have noticed, in various places, the progress making in the establishment or projection of zoological gardens; and the circumstance of the Bristol Zoological Garden being finished, and a plan published. The provincial botanic gardens, and the gardens of provincial horticultural societies, are, in general, in a prosperous state. In the garden of the London Horticultural Society some new pits are constructing, and the tent for the exhibitions has been extended. In the Royal Gardens at Kew a new palm-house is nearly completed; and in the Botanic Garden at Oxford various improvements are making, under the direction of the active and profoundly scientific professor of botany, Dr. Daubeny, and the superintendence of the excellent curator, Mr. Baxter. The new Liverpool Botanic Garden is completed; and considerable progress is making towards the removal of the Cambridge Botanic Garden to a more eligible site. The public garden at Gravesend is completed. At Exeter some public walks have been commenced; and we have just seen a plan, by Mr. Forrest, which has been approved of, for the Cheltenham Zoological Garden. In the Edinburgh Botanic Garden, the erection of additional hot-houses, so as to complete the splendid range which forms such a fine object in that establishment, is nearly finished; and we hope, in our next Volume, to give a plan and elevation of it; with, possibly, an isometrical view of the whole garden, like that given of the garden of Canonmills Cottage. The Glasnevin Garden is undergoing most important improvements, under the curatorship of Mr. Niven, one of the most active and intelligent gardeners in Ireland. Mr. Niven expects shortly to be able to carry into execution the plan for a natural arrangement, which he obligingly furnished us with some months since, and which will be found in the present Volume. The report of

Mr. Niven on this garden, made in November last, is of very great interest; and we regret we are obliged to defer its publication for want of room. A great many cemeteries are projected in different parts of the country: that at Kensall Green, near London, is in a highly prosperous state; and, independently of its use as a burying-ground, it is rapidly becoming a school of improvement in architectural taste, and of instruction in trees and shrubs.

Private Gardens. — Those private gardens, the improvement of which is most likely to be noticed in this summary, are, such as are so extensive, and so well known, as almost to entitle them to be considered public. The greatest encourager of gardening in England, at the present time, is, without doubt, the Duke of Devonshire: he has already planted the extensive arboretum described in our former Volume, and is now erecting a house for palms and other tropical plants, which, it is said, is to cover nearly an acre of ground. The plan and elevation of this house may be compared to those of a cathedral, the central ailes being wider and higher than the two side ailes. The roof is of the ridge and furrow kind, first described in our remarks on hot-houses (4to, 1816, p. vi.), and which is admirably calculated for uniting strength with lightness. The Duke of Devonshire's large house is expected to be completed in the course of the year 1838.

The next greatest improvements making in private gardens are those at Woburn Abbey; where the Duke of Bedford has recently completed a large rustic structure for the protection of araucarias during winter, and where an extensive range of glass, including a palm-house, has been commenced. The beauty, and high order and keeping, of all the gardens of the different persons belonging to the Woburn Abbey establishment, including the cottage and village gardens, are beyond all praise; and we are not aware of any landed estate, of similar extent, on which it is equalled. Extensive improvements are making at Bagshot Park, by the Duchess of Gloucester; at The Deepdene, by H. T. Hope, Esq.; and at Gunnersbury, by Mrs. Rothschild. In the grounds of different noblemen's and gentlemen's residences throughout the country, many alterations are going forward under the direction of Mr. Nesfield, a landscape-gardener who only requires to cultivate a botanical and horticultural knowledge of trees and shrubs to place him at the head of his profession. Mr. Nesfield perfectly understands the difference between the picturesque and the gardenesque; between fac-simile imitation of nature, and imitation on artistical principles; and between lowering and caricaturing real scenery, and elevating and ennobling it. The pervading error of one class of landscape-gardeners (those, viz., who have arisen

from being painters) is, that of arguing, or seeming to argue, that there is only one kind of beauty applicable to natural scenery, viz. the picturesque; and the pervading defect of those landscape-gardeners who have arisen from being cultivators is, that they do not know correctly what constitutes either the picturesque or the gardenesque. The error of supposing that the only kind of beauty adapted for garden scenery is the picturesque, was a very natural one to fall into in the early days of Price and Knight, after the long prevalence of the very opposite kind of beauty in garden scenery, viz. the geometresque, or the architecturesque, if we may be allowed these terms. At present, however, the picturesque is found to be only a beauty among other beauties; and, though appropriate for some kinds of artificial scenery, such as extensive parks, dells, dingles, &c., it is much less adapted for scenes of cultivation, such as shrubberies, lawns, and flower-gardens, than the gardenesque; and by no means so suitable for the immediate vicinity of a mansion as the architecturesque. It is a happy circumstance when the architect and the landscape-gardener operate harmoniously together; and this has been, and is long likely to continue to be, the case with Mr. Nesfield, and his brother-in-law, Anthony Salvin, Esq., architect. The latter is an artist of real genius; and, though not regularly initiated in the profession of architect, and still a young man, he is, perhaps, next to Mr. Barry, more extensively employed by country gentlemen than any architect in England. Another landscape-gardener who has been, and continues to be, extensively employed, is Mr. Forrest, than who no artist in England is more thoroughly acquainted with the executive part of his profession; and particularly with the various kinds of trees and shrubs adapted for different soils and situations, without attending to which, the execution of the most elegant design would lose half its interest. As a garden architect, we know no man to be compared with Mr. Forrest. Among many examples, in different parts of the country, we may refer, as a standing proof of his abilities in this department of his profession, to the admirable range of forcing-houses and pineries erected in the kitchen-garden at Syon (see the plan, &c., Vol. V. p. 509.), and to the walks and general arrangement of that garden. Mr. Forrest has, also, had more experience in laying out zoological gardens and arboretums than any other artist.

Commercial Gardening, taking the country generally, is in a more prosperous state than it has been for some years; though, as we have elsewhere observed, a large portion of the business of the metropolitan nurserymen is transferred to the provinces; a change which cannot fail to be highly beneficial to the public as a whole, and ultimately so even to the metropolitan nursery-

men, by increasing their wholesale business with the trade in the country.

The nursery business in the neighbourhood of London, to be carried on with success, must now be established on a different principle from what it was formerly; and, instead of the main object being to get business by keeping an extensive stock, and by travelling through the country to solicit orders, it must be sought by having the articles composing that stock true to their names, and by exhibiting specimens not only of fruits and flowers, but of all the more remarkable trees and shrubs, to gentlemen and country nurserymen who propose becoming purchasers. Facilities must also be given to young gardeners to acquire a greater knowledge of the articles grown and sold by nurserymen, than they have hitherto enjoyed; otherwise, how is it possible that they can order them after they have entered on situations as head gardeners? The London nurserymen, in short, would do well to take a hint from the horticultural and agricultural exhibitions made by some of their brethren in Scotland. Mr. Forrest, who (as observed in a future page) has lately commenced nurseryman at Kensington, appears to us to have set out in a manner likely to be attended with success. In the first place, he undertakes, with the name of every plant, seed, or root, which he sends out, to add the authority for that name, in the manner done by Messrs. Audibert of Tarascon. Secondly, he intends having specimen plants of all the hardy trees and shrubs, and, as far as practicable, of all the fruit trees and fruit shrubs, which he sells. Thirdly, he intends, in every month of the year, to exhibit in his shop gathered specimens, correctly named, of the best fruits, flowers, flowering plants, and culinary vegetables, which are in perfection at that particular season; so that, by visiting Mr. Forrest's shop, any person, though totally ignorant of the art of gardening, may become acquainted with every useful gardening production which the open air of this country will afford; and will know the season, or the different seasons, at which each production will arrive at perfection. Fourthly, he intends to have a collection of garden implements, machines, utensils, and articles used in gardening, foreign and domestic, both for show and for sale. This was the practice about a century ago, as may be seen by the gardeners' calendars and nurserymen's catalogues published about that time; but the practice has gradually been left off, and, in consequence, the sale of garden implements has fallen into the hands of ironmongers and agricultural implement makers, to the injury of the young gardener, who has thus no opportunity of seeing any tools, but those used in the garden where he is at work. Fifthly, he proposes to have a library of reference of the best gardening and botanical works; and he intends to keep a small stock of all

such works, and to sell them to working gardeners at very little more than the trade price. Sixthly, in the library of reference he will place his own very complete hortus siccus, and collect specimens of seeds, fruits, cones, &c., of useful and ornamental trees and shrubs; and also specimens of woods, commencing with a copy of the *Holz Bibliothek* from Germany. And, lastly, he intends to devote a room to the use of young gardeners, either working in his nursery, or elsewhere, for them to meet in to read, discuss, or otherwise to improve themselves; the young men being at the expense of their own fire and candles, and paying a small sum per volume for the loan of books.

Mr. Forrest will not be able to accomplish all these things at once; but such is his activity of mind, his ambition, and his perseverance, that, if health permits, we have no doubt he will carry the whole into effect, and that sooner than any other man we know.

In no article sold by seedsmen has there been a greater increase of consumption, during the past year, than in that of bulbous roots, which are now imported from Holland to more than double the extent to which they were seven years ago. Of all the flowering plants in existence, bulbs are the best adapted for small gardens, for street gardens, and for all gardens that are not under the care of a professed gardener. They are desirable for street and suburban gardens, because they flower early in the season; and gratify the citizen at a time when the distant country is less inviting than during summer and autumn, when he may leave his town or suburban residence for a watering-place or a villa at some distance; and they are desirable to all gardens whatever, because they are certain, with little or no care, of flowering well for the first year at least; and, with very little care, for several years in succession. The transactions between the London and American nurserymen and seedsmen continue greatly to increase; and we only regret that country gentlemen in Britain are not aware of the very low prices at which American tree seeds may be purchased in London, and by which they might add some hundreds of new species to their collections, at a far cheaper rate than they could do by purchasing plants. The only difference between seeds and plants is that of time. The connexion between British nurserymen and those in France and Germany is steadily on the increase; and what will contribute to this perhaps more than any thing else is, the now greatly extended cultivation of the English language in Germany, and of the German in England. Continental gardeners, and the sons of French, German, and Dutch nurserymen, are now very frequently to be met with in this country, either on a visit, or on immediate business, or residing here for improvement. In the course of the past year, the gardener of Prince Metternich made

a tour of upwards of two months through the different counties of England at his master's expense (see p. 550.); and Mr. Rosenthal, the son of a Vienna nurseryman, now resident in this country for his instruction, has visited a number of gardens and nurseries, not only in England, but in Scotland and Ireland. A New York nurseryman has had his son for some years in Paris with M. Vilmorin; and the son of a London seedsman is now working in a garden in the neighbourhood of Paris. Mr. Booth of Hamburgh makes a commercial journey through Great Britain and Ireland every year.

The Condition of Gardeners may, we think, be considered as improving rather than otherwise; partly from the great general prosperity of the country, and partly from the increasing knowledge in gardening of the employers of gardeners: since nothing can be more certain than this, that the more a proprietor knows of gardening, the more anxious will he be to employ a first-rate gardener; and this, too, whether his garden be large or small. However paradoxical it may appear, it is, nevertheless, strictly true, that to manage a place of great extent does not require one whit more gardening skill than to manage a very small place, even one of a single rood; supposing the object to be to bring the gardening of both places to the highest degree of perfection. But to manage the large place other qualities in the gardener are required, in addition to those of a knowledge of his art; such as forethought; unity of design in contriving work; and system and vigilance in the management of men, and in otherwise carrying work into execution. These are qualities totally distinct from a knowledge of gardening, and may, and often do, exist in an individual who is below mediocrity in his profession; while, on the other hand, a man may be a first-rate cultivator, and yet below mediocrity in comprehensive views, and in a system of management. When the beauties and enjoyments of gardening come to be duly appreciated by the employers of gardeners, those who have small places, of a quarter of an acre or less, will be just as anxious to have first-rate gardeners to manage these places, as those who have a walled-in garden, and pleasure-grounds of 100 acres. For example, to make the most of our garden here at Bayswater, which, exclusively of a few square yards for culinary crops, is only 50 ft. by 160 ft., would require a man with just as much scientific and practical knowledge of gardening as Mr. Paxton, head gardener to the Duke of Devonshire, who has, perhaps, 2000 acres under his care; or as Mr. Marnock, curator of the Botanic Garden at Sheffield, who has the management of one of the most extensive botanical and horticultural establishments in the country: though, in these two last situations, higher qualities of mind would require to be added, than could ever be brought into use in taking care

of our garden, in order to insure proper general management. Hence it follows, that, as a small garden requires as much gardening knowledge as a large one, all gardeners whatever ought to be highly educated and scientific men; and that all ought to have certificates as to their physiological and physical knowledge. This will raise the gardener in the scale of society; and, as the love of gardening and agriculture takes the place of the love of dogs and horses in country gentlemen, and the cultivation and improvement of a man's own estate or farm, affords him a deeper interest than hunting or shooting, driving or gambling, the enjoyments of gardening and farming will be more highly prized, and the professions of gardener and of farmer will be more respected. Whoever will give himself the trouble of comparing what passes at the meetings and exhibitions of the provincial horticultural societies with what was transacted at similar meetings ten years ago, will be convinced that such a change is gradually taking place.

Obituary. — Among the eminent men connected with botany and gardening who have died in course of the year are, the celebrated Jussieu, the founder of the natural system of botany; Deleuze, the historian of the introduction of ornamental plants into European gardens; Richard Cunningham, the colonial botanist at Sydney; and Dr. Hosack of New York, the founder of the Elgin Botanic Garden, in the neighbourhood of that city. Besides these, we have lost Sir John Sinclair, one of the greatest agricultural and economical writers that has ever appeared, and an active-minded and benevolent man; and the Rev. Henry Berry, proprietor and editor of the *British Farmer's Magazine*, and an excellent judge of live stock. Among the practical gardeners who have died during the last year may be mentioned, Mr. Malcolm, Mr. Young of Epsom, and Mr. Falla of Gateshead, all eminent nurserymen. Some further particulars respecting the death of the lamented Douglas, proposals for erecting a monument to his memory, and a biographical notice of him in three languages, will be found in the present Volume. We are happy to find that the intention of erecting a monument to the memory of this eminent botanical collector, to whom gardening and botany are so much indebted, has excited the sympathy of gardeners both at home and abroad. No very large sum will be raised; because the subscriptions, though numerous, are limited to very small sums; and it is not to be supposed that the same exertions will be made to erect a monument, as would have been done if Douglas had left a wife and family to be provided for, or, indeed, any one dependent on him. Enough, however, will be collected to show the respect in which his memory is held; and to do this has been our great object in furthering the subscription, both at home and abroad,

to the utmost of our power. It is highly gratifying to us to observe the spirit with which this subscription has been entered into at Paris, Vienna, Berlin, and Göttingen. (See *Annales de Fromont*, and Otto's *Garten Zeitung*, vol. iii. p. 294.)

Garden Literature. — A work on landscape-gardening, by Prince Pückler Muskau, from which we have given copious extracts, contains some remarks which may be useful in Germany; but the work is strikingly deficient in every thing that relates to fundamental principles which would be of universal application. Dennis's *Landscape-Gardener* is written with great carelessness, considering that its author is a clergyman, and is of little value in either a scientific or a practical point of view. The best agricultural work which has appeared in the course of the year is Lawson's *Agriculturist's Manual*, which every gardener who acts as a farmer or land steward ought to procure. Two new botanical periodicals have been commenced, viz. the *Birmingham Botanic Garden* and the *Botanist;* and the *Floricultural Magazine*, by Mr. Marnock of Sheffield, adds another to the number of provincial magazines already in existence. The excellent work of Mr. Royle, on the *Botany of the Himalayan Mountains*, &c., of which nine parts have already appeared, will be completed with the tenth part, at the end of the year. Of the foreign garden literature, it may be sufficient to observe, that, with the exception of a work on fruit trees by Van Mons, and Otto's *Garten Zeitung*, there have been very few books published, either in France or Germany, that are not mainly made up of translations; or, as in the case of the *American Gardener's Magazine*, of verbatim copies of articles from English books.

RURAL IMPROVEMENT GENERALLY.

Agriculture is certainly in a prosperous state in Scotland; and, from the increasing intercourse between the influential encouragers of agriculture in England and the first agriculturists of the north, great improvements may be anticipated throughout both countries.*

* Mr. Handley, well known for his exertions with a view to promote the employment of steam in cultivating the soil, in a speech made at the public dinner of the Highland Society of Scotland, in October last, adverting to the present state of agriculture in England, expressed a wish that a "public body like the Highland Society of Scotland existed there, to stimulate the activity of the farmers, and take the lead in improvement." He hinted, and the *Scotsman*, from which we quote, adds, he "might have stated in the broadest terms, that such an institution would do more good to the landed interest than fifty parliamentary committees. The value of the Highland Society is not to be measured by the premiums it bestows, or the immediate effects of its patronage; but by the spirit of improvement which it spreads abroad, and the activity it gives to the circulation of useful ideas among a class of men whose situation renders them, in most countries, the slaves of prejudice and routine. So rapid and easy have the means of communication now become in Scotland, and so numerous are the intelligent active minds

The observations on the subject of agricultural improvements, by Mr. Shaw Le Fevre, quoted in a future page, under General Notices, are remarkable for taking a new and masterly view of what is called agricultural distress, and showing that the only permanent remedy for that distress must be found among the farmers themselves. The employment of steam in agriculture seems to be no longer a chimera, as it was thought to be at the time when we first mentioned the subject in our Third Volume. We refer to the article "Ploughing by Steam," p. 488.; and to various subsequent paragraphs on the subject in this Volume. The editor of the *Scotsman* truly observes that, "if even half the advantages of the steam plough are realised, some millions of acres of bog in Scotland will be reclaimed, and the arable surface of that country doubled;" and we have seen in p. 489. that about 3,000,000 of acres would be added to the arable surface of Ireland."

The important uses of the Deanston subsoil plough (see p. 1308. fig. 1187. of the *First Additional Supplement to our Encyclopædia of Agriculture*, cannot be too strongly impressed on the minds of gardeners as well as farmers; because loosening the subsoil, without bringing it to the surface, is fully as important to gardeners, especially in arboriculture, as it is to farmers in agriculture.*

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stationed in every quarter of the country, that any useful discovery, in husbandry or the kindred arts, will find its way from Maidenkirk to John o' Groat's, in half as many months as it would have required years at the end of the American war. It is a striking fact, in illustration of the want of a great institution of this kind in the south, that every year new inventions applicable to agriculture are sent from various parts of England to the Highland Society, as the best means of bringing their merits into notice. If Mr. Handley's sentiments are shared by his countrymen generally, the want may, perhaps, soon be supplied; and, if the attempt is made, there is one piece of counsel we would tender to the parties concerned in it: it is, to follow the example of the Highland Society, in carefully excluding, not only all political topics, but all theoretical questions upon which a division of opinion exists. Had the Highland Society engaged in discussions about the wisdom of the corn laws, or the propriety of abolishing the malt tax, it would soon have made one half of the people its enemies, and its utility would have been at an end. The improvement of agriculture, *as an art*, presents an ample field for the employment of its funds, and to this it wisely devotes itself." (*Scotsman*, Oct. 12. 1836.)

* To show how well the use of the Deanston plough is understood by Mr. Shaw Le Fevre, we quote his own words: — "Smith's subsoil plough is a necessary accompaniment to draining; and, when that is done effectively, it seems calculated to render the most sterile and unproductive soil fertile and profitable. There is no difficulty more fatal to the practical farmer than that of cultivating a thin shallow soil with a stiff retentive subsoil. Whatever pains may be taken with the tillage of the former, however expensive the dressing which may be used in its cultivation, the nature of the subsoil will always counteract its beneficial effects. Many persons have endeavoured, by trenching, to obviate this difficulty; but, where the subsoil is of that sterile nature which requires exposure to the atmosphere for a long period to make it productive, few farmers have been found bold enough to repeat the experi-

Another agricultural improvement, perhaps of equal importance to the use of the subsoil plough, is the system of thorough under-draining adopted in Scotland. This system will be found described in the *Quarterly Journal of Agriculture*, vol. vi. p. 325. and 515.; and also, in a concise and masterly manner, in Mr. Le Fevre's *Report*. To Mr. Smith of Deanston is also due the invention of this improved mode of effectually draining land; and his plan will be found noticed in our Ninth Volume, p. 448., and given at length in the *First Additional Supplement* to our *Encyclopædia of Agriculture*, p. 1347.

The greatest agricultural novelty of the past year is the cultivation of beet for the purpose of manufacturing sugar. We refer to a paragraph on this subject in a future page; and, also, to an article in the *British Farmer's Magazine* for Oct. 1836 (vol. x. p. 369.). We cannot conceive it possible that this manufacture should answer in any country where there is a trade in the sugar of tropical climates, subject to only a moderate duty; but more especially in this country, where, we should think, there is not a sufficiency of solar light and heat to produce a maximum of sugar in any plant whatever. It is possible, however, that we may be mistaken in this supposition, since it is alleged that more sugar is produced from a given quantity of beet-root grown in the temperate parts of France, than in that grown in the warmer provinces of that country; and since we know that the cultivation of the beet, as a sugar plant, has been tried in the Isle of France, and turned out far from satisfactory. While this is passing through the press, we find that the French have succeeded in procuring potash from beet, in the proportion of one sixth part to that of the sugar which the root yields.

The exhibitions of agricultural and horticultural produce, by the seedsmen of Edinburgh, Stirling, and Perth, are continued,

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ment. Mr. Smith's most ingenious invention, by breaking the subsoil without bringing it to the surface, renders it pervious both to air and water. The same chemical changes which take place in a fallow, owing to its exposure to the action of the wind and rain, are thus brought into operation in the subsoil, whilst the surface soil is in the ordinary course of cropping; and when, after a few years, by a greater depth of ploughing, the subsoil is mixed with the upper soil, it is found to be so completely changed in its nature as to be capable of producing every kind of corn.

"The advantages of this system of husbandry are so apparent, that no farmer will be at a loss to appreciate the merit of the invention. I believe it to be quite as important an improvement in the management of clay lands as the introduction of the turnip system has been with reference to light soils; and, as the experiment has been tried for twelve years, and with uniform success, I cannot but anticipate its ultimate adoption in those districts of England where, from the cold retentive state of the soil, the greatest extent of agricultural distress has hitherto prevailed, and where draining is essential to preserve the soil in a state of cultivation." (*Le Fevre's Remarks on the present State of Agriculture*, &c.)

as usual, with the same successful results; and the Highland Society, who hold their exhibitions in different parts of Scotland, had, this year, the one before mentioned in the month of October, at Perth, which was remarkably well attended by the practical farmers of that district, and by many proprietors from different parts of Scotland, and also from England. The partial failure of the potato crop, for three successive years, in many parts of Scotland, and also in several districts both of England and Ireland, has called forth various remedies; the most rational of which appears to us to be, that of burying the tubers intended for sets in thin layers, mixed with soil, in a cool cellar, or in thoroughly drained soil, in the open air, where they will be kept plump, till wanted to be cut into sets. Taking up the tubers before they are quite ripe, and exposing them, thinly strewed on the ground, to the action of the atmosphere, will be found a useful adjunct to this practice. After the tubers are cut into sets, care should be taken never to let them lie together in such quantities as to endanger their heating. The supposition of insects being a cause of failure of the sets, and, also, that the kinds and varieties in cultivation are worn out, appear to us alike unsupported by facts. Insects seldom attack either plants or animals till they are in a state of disease or decay; and there is no reason to suppose that healthy sets from a healthy potato, of any given variety, or healthy cuttings of any healthy variety of willow, poplar, or vine, will not produce healthy plants to the end of time.

The most curious piece of agricultural quackery which has occurred during the past year is, the success which has attended the sale of the seed of the variety of borecole called the cow cabbage, which has been brought forward under the highly sounding name of the Waterloo Cæsarean evergreen cow cabbage. (See p. 441.)

In agricultural science, the only point that we can recollect worthy of notice, that has occurred during the past year, is the advancement of the principle, by the American agricultural writer, Mr. Ruffin, that no soil whatever will continue fertile, for any length of time, that does not contain calcareous matter. This, we believe, was never distinctly stated as a principle by Kirwan, Chaptal, Davy, or any other European chemist or agriculturist. We refer to the review of Mr. Ruffin's book, in p. 156.; and those who wish to peruse his work entire will find it copied in vols. viii. and ix. of the *British Farmer's Magazine*, where it is given as a series of original communications to that periodical! New agricultural machines are every year coming into notice, and others every year falling into disuse. Such, we may readily anticipate, will be the fate of the mill for chopping turf, noticed in a future page, which affords a

fine example of the application of main force, instead of skill, in the improvement of agriculture. A siphon to facilitate the milking of cows has been patronised by the Society of Arts, and may, probably, lead to some useful purpose. At the meeting of the Highland Society of Scotland, at their great agricultural show, held at Perth, on October 7., a trial was made of two reaping machines; the one the invention of Mr. Smith of Deanston, and the other of our correspondent Mr. Bell. Mr. Bell's machine clips, by means of fourteen pairs of scissors (see the engravings and description of this machine in Vol. VI. p. 296.); and Mr. Smith's cuts, or mows, by means of a circular plate with a sharp edge. (See the description and engraving of this machine in our *Encyclopædia of Agriculture*, 2d edit. p. 422.) Both these machines seem to answer; but which is the most likely to come into general use, does not appear from the report of their trial. A gentleman who was present, however, M. Rosenthal of Vienna, now in London, informs us that Mr. Bell's machine did decidedly the most, and the best, work. (See the *Constitutional, and Perthshire Agricultural and General Advertiser*, for Oct. 8.) An economical mode of forming furrow-drains, and of making draining tiles of peat, will be found in the *Quarterly Journal of Agriculture* for September last (vol. vii. p. 244. and 256.).

Rural Architecture is making considerable progress in every part of the country; and the Highland Society of Scotland have lately adopted an admirable mode of improving both cottage architecture and cottage gardening; viz. that of offering premiums for the neatest cottages and the best kept gardens; and limiting the competition to particular districts, and even, in some instances, to particular parishes. This mode of making the competition for premiums local, deserves the particular attention of all societies the object of which is rural improvement; and it shows the much greater advantages to be derived from provincial societies of every kind, than from central societies alone, however wealthy and powerful the latter may be. This is admirably illustrated both in the case of the provincial horticultural societies, and in that of the Highland Society. What effort of the London Horticultural Society, for example, could have produced the results which we see in Cornwall, Jersey, Yorkshire, and a hundred other places more or less remote from the metropolis? The Highland Society, for several years, had offered premiums for improvements in cottages; but, as the competition extended to the whole of Scotland, it produced no result; for a competitor in those places where cottage-building was in a backward state, though he might produce a far better cottage than any of those in his vicinity, might yet find his cottage as far behind those in another district, as it was in advance of those around it. A great

improvement in agriculture, and in rural matters generally, has taken place in Scotland since the Highland Society have adopted the plan of holding their shows in different parts of the country; and this has taken place precisely on the principle above mentioned; viz. that of stimulating locally one part at a time, as well as in endeavouring to stimulate the whole country at once.

The Improvement of Furniture, Domestic Utensils, and Clothing is still kept in view by the government; and a *Report of the Committee of Arts and Manufactures*, forming a thick folio volume, with illustrative plates, has just been published. A summary of this *Report* will be found in the *Architectural Magazine* for December 1836. A gardener would not expect to find much in this *Report* that would be of any direct use to him; but in this he will be mistaken. In Vol. III. p. 250. of this Magazine will be found an article compiled by us from a lecture given by Mr. Reinagle at the Royal Institution, "On the Original Beauty of Lines and Forms," which will, we think, be allowed to be extremely interesting and valuable to any gardener who professes to lay out grounds. Now, in the *Report* referred to (p. 51—53.) Mr. Reinagle has given the essence of his system, illustrated with figures.

Railroads. — The number of railroads and common roads, in progress or projected, cannot fail to have a wonderful influence on the general improvement and prosperity of the country for many years to come. The grand and characteristic effect of railroads is that of equalisation. Not only will the value of landed property be rendered comparatively the same every where, but the comforts and enjoyments of each particular class of society will be comparatively raised to the same level. An immediate effect of the completion of every line of railroad will be, the erection along its margin of numerous villas; and thus rural architecture and landscape-gardening will be called into exercise, and displayed to advantage. The prosperity of the country, it is now generally acknowledged, has been promoted by the working of the New Poor Law; and we look forward to the establishment of a rural police as a beneficial public measure.

An improvement which, we think, would be second only to that of the railroads, and before them, as far as gardeners are concerned, would be the equalisation of the slopes of public roads; a subject on which we have already said much in different volumes of this Magazine. (See Vol. VII. p. 450., and Vol. XI. p. 627.) Were all hilly roads reduced, so that no part of their surface were steeper than the steepest parts of the Holyhead road, viz. one in thirty-six, it would be as easy for three persons to travel from one point to another in a gig, or any two-wheeled carriage with one horse, as it is now with a four-wheeled carriage and a couple of horses. This would greatly facilitate gardeners

in visiting one another; and would enable many, who now seldom leave their own neighbourhood, or see only those gardens which they can approach by stage-coaches, to inspect the principal gardens throughout the country. This they cannot do by travelling by stage-coaches alone, because many of the first-rate gardens are situated at a distance (too far for walking) from the main roads. We have often had occasion to regret the loss which foreign gardeners, who have come over to this country solely for the purpose of visiting our gardens, have sustained from this circumstance; it being a well-known fact that a person may be conveyed fifty miles on a stage-coach along a main road, for less than he can go five miles in a post-chaise, or in a gig, on a cross road. Another improvement, which would greatly facilitate the travelling of the working classes, including both artisans and artists, would be the removal of all turnpike-gates, and the taking off the present heavy tax on stage-coaches and gigs, and on horses drawing in them. Stage-coaches and gigs are the carriages of the middle and working classes; and by means of them nearly all the important business of the country is transacted. Let the taxes, therefore, be removed from them, and placed on the post-chaises, and other carriages of the wealthy. Another improvement which we should like to see take place, is the increased stability of every description of public carriages by widening them, and allowing no luggage whatever to be placed on the roof, or even above the level of the axletree. There ought, also, to be a law to regulate the number of outside passengers, the rate of driving, and the length of stages, so as to lessen the great number of coach accidents which annually occur. (See an excellent article on this subject in the *Scotsman*, Oct. 12. 1836.)

GARDENING AND RURAL IMPROVEMENT IN FOREIGN COUNTRIES.

In *France*, in the Jardin des Plantes, a new palm-house has been completed, and the hot-houses in that establishment generally have been altered and improved. The new variety of mulberry, *Mòrus* multicaúlis (see *Arboretum et Fruticetum Britannicum*, art. *Mòrus*), has been lately extensively propagated by the nurserymen, both for planting in France, and for exportation to America and other countries. The Maclùra has ripened fruit at Lyons and Marseilles; and the leaves have been employed to feed the silkworm in the latter place. Young plants of the Salisbùria have been raised from fruit produced in the neighbourhood of Montpelier. All these facts will be found in detail, at more length, in their appropriate departments in this Magazine. (See Foreign Notices, in the table of Contents.)

Holland, in consequence of the increased commerce in bulbous

roots, and the quantity of melons, grapes, and other fruit grown in that country, and sent annually to the London and Brighton markets, may, we conclude, be considered as prospering in a gardening point of view. The celebrated Botanic Garden at Leyden is still carefully kept up, as appears by Professor Reinwardt's letter, in a future page.

In Belgium, we understand, few horticultural improvements are going forward; and we regret much to learn that the Botanical and Horticultural Garden at Brussels is still suffering from want of funds. Gardening seems rather in a more prosperous state in the neighbourhood of Ghent, where, our correspondent Mr. Maddison informs us, a hall for horticultural exhibitions has been erected. A valuable communication from Mr. Maddison, on this subject, will appear in our succeeding Volume.

Germany. — A number of plants, new to the gardens of Vienna, have been sent thither from the Swan River, and from the south coast of New Holland, by Baron Hügel, just returned from a scientific voyage to the East Indies and New Holland; and Prince Metternich's gardener has, also, introduced several new species, which he carried with him from England. (See Otto's *Garten-Zeitung*, vol. iv. p. 199.) The grand centre of landscape-gardening and architectural improvements, in Germany, continues to be Munich, where the English garden has recently undergone various changes, and an Ionic temple has been raised on the summit of an artificial mount, and finished interiorly with polychromic, or many-coloured, paintings. This new and singular mode of interior finishing is at present engaging the attention of architects throughout Europe. It seems a revival of an art practised by the ancient Greeks on and within their temples, and continued through the dark ages, by painting the ceilings of cathedrals and churches with blue, and varying the surface with golden stars, the sun, moon, and other figures, and also by the stained glass of church windows, and the illuminated missals of the church. A detailed account of the process will be found in the *Foreign Quarterly Review* for October, 1836; in the *Transactions of the Institution of British Architects*, vol. i.; and in the *Architectural Magazine*, vol. iv. A splendid new country house has been built by W. Von Marenholtz, at Wilhelmsburg, near Brunswick (see *Architectural Magazine*, vol. iii.); but we have heard nothing respecting its gardens.

The botanical garden at Berlin is acknowledged to be the first in Germany. A correspondent (apparently G. Bentham, Esq., secretary to the London Horticultural Society) of the *Companion to the Botanical Magazine*, writing, in August last, says of this garden, that it is, he believes, "still the most important in Germany in the number of species, trees excepted, in which respect the Vienna garden excels." "Californian plants,"

he adds, "thrive remarkably well in it." Speaking of the Hamburgh Botanic Garden, the same writer observes, that, "in point of situation, it is, next to Edinburgh, the most beautiful one I know. It occupies about sixty English acres, of which the greater part is on the old outer ramparts of the town, planted with a good deal of taste. The old town ditch is here broad, and the water clear. The walks and plantations come down to the water's edge; and on the opposite side the bank is laid out as a promenade, with flower-beds, shrubs, and plantations that conceal all the town, except the end of a very handsome new street, which, from several parts of the garden, looks like a fine château in an extensive park. The whole circuit of the ancient rampart of Hamburgh is, in the same manner, converted into promenades, full of flower-beds and of flowering shrubs, neatly kept, and perfectly open to the high road; which has a beautiful effect, especially near the large lake called the Alster. In a purely botanical point of view, the garden is chiefly rich in Cape plants, introduced by M. Ecklon, with a fair proportion of the Chilian and other new things, which have been much raised, of late, in German gardens; several very interesting Californian plants from the Petersburgh garden, and the ordinary quantum of ill-named, ill-defined garden species, which infest Continental, and especially German, botanic gardens. Amongst the Cape plants, the most curious are the palms, introduced by Ecklon, and published by Professor Lehmann, under the name of *Rakathia*. There are six or seven species, chiefly in small specimens; but, amongst those received last December, there are two or three, above 8 ft. high, that are now shooting leaves from the top. There is also a very extensive collection, lately introduced, of medicinal plants. The whole is kept up at the expense of the state or town of Hamburgh, and is open to the public, nominally, on certain days, at certain hours; but, really, all day, and every day, without fee or payment. It is under the immediate arrangement of an active and intelligent curator, M. Ohlendorff, and under the general superintendence of the professor of botany, Dr. Lehmann." (*Companion to the Botanical Magazine*, vol. ii. p. 74.)

Booth's Nursery, at Floetbeck, near Hamburgh, the same writer observes, continues to be the first in Germany, and has received extensive additions since I last saw it, especially in the houses. It contains, altogether, 105 English acres at Floetbeck, and 10 more at some distance. I was surprised to hear from Mr. Booth, that a great part of his commerce is now with America. This nursery is, however, also the great entrepôt of the nursery commerce between Germany and England. (*Companion to the Botanical Magazine*, vol. ii. p. 75.)

Denmark, Sweden, and Norway. — A very interesting work

has lately been published on Norway, entitled the *Journal of a Residence* there, by Mr. Laing; but, as the subject of it belongs more to agriculture and to general improvement, than to gardening, we shall pass it over, strongly recommending its perusal, as a work full of practical information, and of liberal and benevolent views. Some curious extracts from it, on the subject of the uses of the pine and fir tribe, will be found in our *Arboretum et Fruticetum Britannicum.*

Russia. — It is in contemplation to erect a splendid palm-house in the Imperial Botanic Garden at St. Petersburgh; and Dr. Fischer, the director of that garden, has been some months in England, for the purpose of inspecting the different modes of construction, and of heating. We understand that Mr. Kewley is likely to be employed for the latter purpose. A railroad is forming from the very centre of St. Petersburgh to the village Tzarskojeselo, and continued to the great park of Pawlowzk, of which details will be found in the *Architectural Magazine.* An agricultural school has been founded by the government in the province of Mohiloff, which will be found noticed in our succeeding Volume.

In Poland, we have been agreeably surprised, during the past year, with the account of Count Wodzitzcki's arboretum, at Cracow, which has been established upwards of twenty years, and of which details will be found in our succeeding Volume.

From Switzerland we have received some notices of remarkable trees by Mr. Strutt, the eminent artist, who lately resided there; and we learn from other sources, that the Botanic Garden of Geneva is in its usual state. The paper by M. Adolphe De Candolle, on the ligneous flora of Switzerland, given in this Volume, will be read with interest.

From Italy we have received some most interesting communications, from our highly scientific and intelligent correspondent, Signor G. Manetti, which will be found under their appropriate heads. There can be no question that gardening is in a prosperous state in Lombardy. In the kingdom of Naples, we are informed by an English gentleman, who has resided there many years, that very great general improvement has taken place, in consequence of excellent Macadamised roads having been formed all through the interior of the country. It is now practicable, in the kingdom of Naples, to live in a country house apart from a village or a town; which was not the case till these roads were formed, and the banditti either employed on them, or deterred from pursuing their avocations, by the facility these roads afford of detection. It is difficult for a native of Britain, in the present day, to form an idea of the great additional comfort which such a state of things must be to the owners of property in the south of Italy. From Signor Manetti we have received, this autumn,

a quantity of seeds of the Lombardy poplar, which we have distributed; and, if they should vegetate, and plants should be raised from them, there will doubtless be found among them the female, which has not hitherto been introduced; the Earl of Rochford, in 1758, having only brought over cuttings of the male plant.

On the State of Gardening in Spain, Portugal, Sardinia, Greece, the Ionian Isles, Malta, Gibraltar, and other Parts of Europe, we have nothing to state. It is gratifying to find at Gibraltar a descendant from the family of Andrew Heron of Bargally, as noticed in a future page, imbued with the same taste as that eminent botanist and horticulturist, and cultivating there "florists' flowers," pelargoniums, and other Cape shrubs, with the plantain of the tropics, and the raspberry of the North of Europe, all in the same garden.

From Africa and Asia we are without gardening news; unless it may be considered as belonging to this head, that plants, in boxes covered with glass, and hermetically closed, have arrived safely, with all the plants alive, at Calcutta, from London; and at Messrs. Loddiges's, London, from Dr. Wallich, at Calcutta. (See p. 263.) The discovery of the tea plant in Assam, in great abundance, was announced in our preceding Volume; and, as we have since learned that this immense tract of country abounds in botanical riches, we hope it may be found to contain many plants which are likely to prove hardy, or half-hardy, in the temperate climates of Europe and North America.

In North America, gardening, in common with every other description of rural improvement, is making rapid progress. Two magazines, exclusively devoted to gardening, are published, one in Philadelphia, the other at Boston; and, as we believe they have both reached a second volume, we may consider them as established. In these magazines, accounts are given of the improvements made in the country seats of several men of wealth, and of various extensive ranges of glass, heated by hot water; and including all the modern European improvements. We refer to the other articles headed North America, under our Foreign Notices.

From the British West India Islands a new orchideous plant is occasionally received; but we have had no accounts lately of the progress of garden cultivation in that quarter; though, happily, the new law respecting the emancipation of the slaves is said to work well.

From South America Mr. Matthews continues to send home splendid specimens; and the Horticultural Society of London have lately sent to Mexico a zealous young naturalist, M. Hartweg, who will probably penetrate into Columbia. Engravings of some new species of pines and firs, brought from Brazil

and Mexico by Dr. Coulter, are about to be published by Mr. Lambert.

Australia has lost the curator of the Sydney Botanic Garden, Mr. Richard Cunningham; and a notice of the distressing manner in which he met his death will be found in a preceding page. Mr. Allan Cunningham, the brother of the deceased, has been appointed his successor, and sailed from London in October last. From the new colony established in Southern Australia much is expected, in consequence of the adoption of the new principle of concentration; by which means, in a very short period, a distant colony may be made to unite all the essential advantages of an old country with those of a new one. This principle consists in government assuming the proprietorship of the land, and allowing no person to settle who does not become a purchaser, or an occupier at a fixed rent, and show that he has sufficient capital to bring what he purchases or hires into proper cultivation. It is easy to conceive that the application of this principle will have a tendency to produce a great number of small estates, all lying near together, and within an easy distance of a town occupied by tradesmen and labourers, who will supply the wants of the agriculturists, in return for a portion of the produce of their farms. In such a colony, it will be long before there can be any overgrown estates; and it may probably grow up a second Norway, where every head of a family, among the rural population, is an owner of land, which he cultivates himself. A number of portable houses, such as those figured and described in our *Encyclopædia of Cottage, Farm, and Villa Architecture*, p. 251.; a portable school and church; and a portable banking-house, of two stories; have been constructed in London, and sent out to this colony, for the convenience of the first settlers. Mr. Allen, an early correspondent of this Magazine, has gone out as a nurseryman and garden architect; and we have already seen, in a South Australian newspaper, one of his advertisements, offering his services in laying out and planting small gardens. From the latitude of Southern Australia, we should expect the climate to be more analogous to that of Van Diemen's Land than to that of Sydney; and, consequently, that it will be found better adapted for the health of British emigrants, and for the growth of British productions. The great article of export from Australia to Europe continues to be wool; but it is highly probable that, at no great distance of time, cotton and silk will be added. Wine and oil may, doubtless, be produced there in sufficient abundance for home consumption, if not for exportation.

ART. II. *Pomological Notices; or, Notices of new Fruits, which have been proved, during the past Year, to deserve general Cultivation in British Gardens.* By Mr. ROBERT THOMPSON, Fruit-Gardener in the Horticultural Society's Garden.

THAT the selections of fruits which have been already published include too great a number of varieties, is a fact to which most cultivators will, I believe, readily assent; still I consider, that although they were divested of every objectionable superfluity, yet they would not be in that perfect state to which they will doubtless be ultimately brought by the progressive advancement of horticulture. If such reduction were now made, there would either be blanks in the supply for some periods of the season, or cultivators would be limited occasionally to a variety which, in many situations, would not be suitable. No new varieties should, however, be brought into notice, unless they possess fair claims to superiority in regard to the following particulars: first, intrinsic value, or richness of flavour; secondly, productiveness; thirdly, hardiness; fourthly, season of ripening. Flavour is the first and greatest consideration; and, accordingly, no varieties are intended to be brought forward in the following notices, unless they possess a good share of merit in this respect, whatever their other properties may be.

The season has been unfavourable for fruits in general. The spring was very cold, and even frosty, about the time of blossoming, although this was considerably later than usual; and many of the strongest blossoms, from being the most forward, were cut off. Such of the rudiments as escaped were brought on tolerably well during the short period that could be termed summer weather. There was, however, a great want of sunshine from the beginning of the month of September, and the nights were frequently unusually cold; so that the ripening was imperfect.

Of the hitherto unknown sorts that have this year fruited, for the first time, in the Society's Garden, many have proved of inferior quality; others so little above mediocrity, as to render them unworthy of recommendation, whilst there are already so many superior ones known; and a considerable number have proved synonymous. The merits of part of the production, of course, remain to be decided.

The pears form the only class in which anything of sufficient interest for noticing has been discovered.

Fingal's Pear, or *Ellanrioch*, is a hardy variety, obtained from Inverness, and is said to succeed better than any other in the Isle of Skye; in which, or in some of the adjoining isles, the original tree was found. The fruit, from a standard, is large; ripening about the same time as Williams's bon Chrétien, to which it is considered preferable. It is the only pear from Scotland that I would recommend.

The *Marie-Louise Neuvé* is a middle-sized pear, of a totally different shape from the Marie-Louise, being roundish, or bergamot-shaped. In flavour, it much resembles that of the Marie-Louise; and is equal, if not superior, to it. It ripens about the same time, or rather later.

King Edward's Pear, from a standard, is very large, and exceedingly handsome; of a pyriform shape, and of a bright red next the sun. The flesh is melting, and very good, but has the fault of soon turning mealy. Ripens in the beginning of October.

The *Eyewood Pear* is one of Mr. Knight's new varieties. It resembles the crassane, both in appearance and flavour; but it has an important constitutional difference, for it bears well as a standard; whereas the crassane will not, to any perfection. Mr. Knight's pears are still hardier than the Belgian varieties, with which, as they are now becoming in a fruiting state, there is an opportunity of comparing them in the Society's Garden. The result, so far, inclines me strongly to recommend them for general cultivation; and more especially in the northern parts of the kingdom. The following sorts may, perhaps, be mentioned, not unacceptably, as a selection to proceed with in the mean time, until another season shall have afforded additional proofs of the relative excellence of numerous others, which have been raised by the skill and perseverance of the above-mentioned patron of horticulture: —

Althorp crassane, Oct., Nov.; Belmont, beginning Nov.; Brougham, Nov.; Croft Castle, Oct.; Dunmore, Sept., Oct.; Broom Park, Jan.; Rouse Lench, Jan.; Pengethley, Feb., Mar.; monarch, Dec., Jan.; March bergamot, March or later.

Among those which have proved synonymous, there is one which has been the subject of many enquiries — the beurré Spence. This name has not yet been ascertained to belong to any distinct sort in this garden. The beurré de Capiaumont, and beurré Diel, have been so called; and, last summer, the sort with the above name, received from your garden at Bayswater, was found to be the same as the beurré de Mons. This pear hardly deserves the name of a beurré, being rather a crisp juicy pear, and not so high-flavoured as to lead us to infer that it is the kind so highly prized by Van Mons. Perhaps your correspondent M. De Wael of Antwerp could give some interesting information in regard to this and others of the Belgian varieties.

[A large eating pear has, this autumn, been brought into notice by Mr. Willmott of Isleworth, as Willmott's new pear; and a lithograph of it is about to be put into circulation. Having seen a specimen of the fruit in Mr. Forrest's shop-window at Kensington, we made enquiries respecting its origin; and Mr. For-

rest informs us, that "the only account Mr. Willmott can give of his new pear is, that, about ten years ago, his foreman, Campbell, brought a cutting, but he does not know whence; and it was grafted on the Napoleon pear; and this new pear is the produce of the graft." —*R. F. Oct.* 2. 1836.

Having, previously to receiving this information, directed the attention of Mr. Thompson to the specimen of this pear in Mr. Forrest's window, he sent us the following remarks: —]

"I have not sufficient information respecting Willmott's new pear, exhibiting in Mr. Forrest's window at Kensington. I believe that it is the same as the *Monsieur le Curé* of the French. That sort will probably be soon obtained from Paris, and the identity will then be better determined."

[In the mean time, we hope that this pear, of the real merits of which very little is known, will not be introduced into collections under any fixed name, till its real one is ascertained. We have no doubt that Mr. Forrest will take particular care not to be instrumental in doing this; because one of the points that he professes particularly to attend to is, to use no names, in sending out plants, without giving their legitimate authorities. Whoever originates a new fruit from seed, imports a foreign one, or (as in the case before us) revives an old one, ought, in our opinion, previously to bringing it before the public, to submit it to Mr. Thompson of the Horticultural Society's Garden, in order that its merits may be determined by him; and, also, whether it is really new or not. This is not only due to the Horticultural Society, to the horticulture of this country, and to the public generally, on the principle of maintaining order in nomenclature; but to Mr. Thompson, as having a far greater knowledge of fruits, than any other man in Britain, indeed, we might say in Europe, has had an opportunity of acquiring. — *Cond.*]

ART. III. *Olitorial Notices; or, Notices of new Culinary Vegetables deserving of general Cultivation in British Gardens.*

THE sources of information to which we have had recourse, in order to enable us to draw up this article, are various; but our main reliance has been on Mr. Charlwood. As clerk of Covent Garden Market (an office which he has filled for several years), Mr. Charlwood is personally acquainted with all the principal market-gardeners and fruit-growers in the neighbourhood of London; and three times every week throughout the year it becomes his duty to inspect their productions. Mr. Charlwood informs us, that no perfectly new culinary vegetable or fruit has been introduced into Covent Garden Market during the past year; or, as far as he knows, into private gardens. We may here observe, that it has always been our opinion that more

injury may be done, both to the growers of fruits and vegetables for the market, and to the private gardener and his employer, by recommending new articles that have little merit but their novelty, than by saying nothing on the subject. We are aware of the ardent thirst for novelties of every kind, more especially among those who are only novices in any particular taste; nevertheless, we have always acted on the principle of recommending nothing that we did not feel perfectly confident was decidedly of superior merit to any thing of the kind previously in cultivation. If this determination on our part should render our olitorial notices rather meagre, the fault is not in us, but in the state of the art. The truth is, the nurseryman's catalogues, like the botanical catalogues, are already much too long; the same thing being introduced under many different names, without its being indicated which of these are mere synonymes. The London Horticultural Society has made some progress towards the correction of this evil, as far as respects culinary vegetables and fruits; and we have attempted it, as far as respects trees and shrubs, in our *Arboretum et Fruticetum Britannicum.* Nevertheless, as new culinary vegetables are every now and then coming into notice, either originated in this country, or introduced from abroad, the labours of the Horticultural Society, in examining them, and laying their results before the public, would require to be perpetual. It gives us much pleasure to learn that the kitchen-garden department of the Horticultural Society, which had been neglected for several years, is about to be revived. We are certain that this news will be hailed with satisfaction by a number of the best friends of the Society.

Mr. Charlwood has marked a few articles in his *Seed Catalogue* for 1837, which he thinks deserve to be better known, or brought more into notice; and we shall proceed to place the names of these articles, and of some others, before our readers, following the same arrangement as that given in the catalogue of culinary vegetables in our *Encyclopædia of Gardening*, and in the article Covent Garden Market, in this Magazine.

Cabbage Tribe. — Knight's early dwarf cabbage is a very early variety, which has been brought to market since 1835, and seems to deserve to take the place of the early York. The Braganza cabbage is entirely a cabbage of luxury, requiring fully as much care as the summer cauliflower; but it is a most delicious vegetable when well grown.

Legumes. — The tall green Knight's marrow pea is one of the best where there is abundance of room. If sown in rows 12 ft. apart, in the direction of north and south, different crops, such as turnips, cauliflower, &c., may be grown between the rows of peas; and, if sown in rows at the same distance, in the direction of east and west, those crops may be sown or planted between

the rows which, in summer, require the shade; as spinach, lettuce, small salading, &c. The nonsuch, or Woodford marrow, and the new grotto marrow, are good varieties; and the dwarf green Knight's marrow is held in much estimation.

Tubers and Roots. — Mr. Charlwood remarks that salsify, scorzonera, and skirret are not nearly so much cultivated as they used to be; a circumstance to be regretted, because they make excellent side dishes and stews in the winter season, when the stalks and leaves of vegetables are in many places scarce, on account of the inclemency of the season. With respect to potatoes, the quality of that tuber seems to depend much more on the climate and soil in which it is grown, than on the variety cultivated. We have never yet tasted any potatoes, either of Scotch, Irish, or English growth, equal to those that are grown in the immediate neighbourhood of Prescot, in Lancashire; but, unfortunately, they are never to be found in the London market. A dry soil and a moist climate seem essential in bringing the potato to perfection, either in point of size or flavour; for which reason, in the south of France, and in Spain and Italy, little is to be expected from them, except when grown on the mountains.

(*To be continued.*)

Art. IV. *Provincial Horticultural Societies.*

The most remarkable feature in the horticultural societies of the present year is, the increasing attention which has been paid throughout the country to the exhibitions of the poor. The produce of the cottagers' gardens has been generally admired; and the influence which these exhibitions are likely to have on the condition of the cottager is most important, and demands the serious attention of every person who wishes to promote the welfare of his poorer compatriots. It is gratifying to see the rich sympathising with the poor, as in nature and reason they ought to do; and this must, in the end, lead to the moral and intellectual elevation of the former. We are happy to see several gentlemen giving up the prizes they have obtained to the general funds of the society; and others giving them to the fund for cottagers' prizes.

Mr. Niven of the Glasgow Botanic Garden has thrown out the following very judicious suggestions: — "That all plants, fruits, or flowers exhibited should be *correctly named*, or, if not so, *disqualified for competition;* that a prize, or prizes, might be awarded for the encouragement of *botanical science*, a most important branch of the education of every practical man." In a preceding page, we have suggested the idea of offering prizes for the culture of trees and shrubs, with a view to the more

general distribution of those valuable and beautiful old and neglected, or new and comparatively unknown, species and varieties, which, at present, are scarcely to be met with, except in the gardens in the neighbourhood of London.

Several new societies, which have been originated during the past year, in the following notices are distinguished by a *.

Berkshire. — *Royal Berkshire Horticultural Society. — June* 15. This Society held its first fête and second show at Wallingford, in the castle grounds of W. S. Blackstone, Esq.; and, notwithstanding the untoward circumstance of the Oxford commemoration happening upon the same day, the company was exceedingly numerous. Six of the Society's marquees and tents were pitched in various parts of the grounds; and the one in which the show was held was beautifully decorated with the choicest exotics from the conservatories of W. S. Blackstone, Edward Wells, J. K. Hedges (one of the honorary secretaries), W. J. Clarke, Esqrs.; Mr. Brown of Slough, and Mr. Sutton of Reading; and the prize flowers. In the minor tents, ices and other refreshments were provided for the company. The scene, altogether, was exceedingly interesting; and the proceedings of the day gave universal satisfaction. No comparison can be instituted between this method of holding horticultural shows, and that which is confined to a narrow crowded room. Mr. Blackstone is entitled to the gratitude of the Society, and the town at large, for the accommodation he has so liberally afforded. A magnificent bouquet, formed of the choicest of the prize flowers, was taken by Mr. Blackstone for presentation to the Queen, at the drawingroom on the following day; and another, collected from the cottagers' prizes, to be presented to Her Royal Highness the Duchess of Kent. (*Macclesfield Courier*, July 9.)

* *Hungerford Dahlia Society. — Oct.* 9. There was a fine display of flowers; and the room was very tastefully decorated with evergreens, intermixed with dahlias of different colours, including several pretty devices of the crown, stars, &c. In addition to these devices, was the figure of a Mexican chief, formed of dahlia blooms of every different shade, made by Mr. Sparry of Hungerford, and which was greatly admired. Mr. Hillier of Marlborough exhibited a pretty collection of pansies; and Mr. J. Kington of Corsham, two beautiful stands of seedling and other dahlias, not for competition. (*Salisbury Herald*, Oct. 15.)

Cambridgeshire. — *The Cambridgeshire Horticultural Society. — March* 23. This show was distinguished by the adoption, for the first time, of a guard fence placed round the plants, and extending to the extremity of the gallery. Mr. Newman exhibited some apples (scarlet nonpareil, royal pearmain, and Norrington wonder) preserved from last year; and Mr. Widnall and Mr. Searle, some beautiful hyacinths. (*Huntingdon Gazette*, April 2.)

* Cheshire. — *Aldersley Floral Society. — July* 2. The most successful competitor for pinks and roses was Mr. Hammond; and for ranunculuses, Mr. Massey. (*Macclesfield Courier*, July 9.)

Cornwall. — *Royal Horticultural Society of Cornwall. — June* 3. Of fruit, the quantity exhibited was very small: the pines and grapes, however, which obtained the prizes, were of very superior quality; and it afforded much pleasure to the members of the Society to find that the first medals offered by them should have been awarded to its *founder*, J. Vivian, Esq., of Pencalenick. There was a dish of very fine strawberries from the garden of Mr. Stephens of Penryn, who has for the third year carried off this prize. The pelargoniums were unusually fine, and a great many new varieties were exhibited; and the calceolarias, from the collection of B. Sampson, Esq., of Tullimaar, attracted universal admiration. The new seedlings were finely formed, and of excellent colours.

After the prizes had been decided, Mr. Vivian addressed the meeting at

some length; and, among other topics, remarked that Dr. Wallich, who had taken a great interest in the Society, and had forwarded to it, during the past year, a great variety of seeds from India, was desirous of receiving some roots and seeds of the Dáhl*ia*, the Maránt*a*, or Calàthea zebrìna, and the *C*ánna viridiflòra. He also wished to get some seeds of South American plants; but for these, he believed, they must be indebted to the gentlemen of the packets. He (Dr. Wallich) would be glad as well to have some seeds of grapes, oranges, limes, and lemons; and the Society would be able, he hoped, to show Dr. Wallich that they were not unmindful of his request. With regard to the indigenous botany of Cornwall, the first collection was sent by Mrs. Grylls of Cardingham; the most interesting plant in which was Botrý-chium Lunària, which, if not an addition to the Cornish flora, is, at least, extremely rare in this part of the kingdom, although we know it is common in the northern counties both of England and Scotland. The second collection, sent by Mr. William Lobb, comprised dried specimens of those plants wanted for the hortus siccus of the Society. Besides the above, there was a splendid collection of specimens of mosses, also from Mr. Lobb, which appeared to have been collected and arranged with great care.

Mr. Vivian concluded by saying a few words with respect to the cottagers. The improvement of their condition had been one of the chief objects of the Society; and, therefore, it gave him great pleasure to state that, by the encouragement afforded by the Society, many local cottagers' societies had been formed in different parts of the county; and he had reason to hope that others would soon be established. The specimens exhibited by cottagers had gone on increasing and improving every year.

The only nurseryman who exhibited was Mr. Pontey of Plymouth, who displayed about 20 varieties of *Petùnia*, 100 of heartsease, and numerous pelargoniums, roses, and ericas. (*West Briton*, June 10.)

July 22. From the great backwardness of the season, and the heavy rains of the preceding week, the show of flowers was very small, and there was only one dish of peaches; but the pines and grapes, and the small fruits, were very fine, particularly the Naples black currant, which, for size and flavour, is far superior to the common, and well deserves the attention of gardeners. The vegetables were very much admired; amongst them was a sample of the Chenopòdium *Quinòa*, from the garden of Sir C. Lemon, Bart., an account of which will be found in Vol. X. p. 588. After dinner, the secretary begged leave to call the attention of the company to a letter which he had received from Mr. Booth, gardener, of Carclew, respecting the subscription for erection a monument to poor Douglas; when the sum of 2*l.* 12*s.* 6*d.* was subscribed. At the dinner, some of the leaves of the quinoa were served up, dressed as spinach, and were very much admired. (*Cornwall Royal Gazette*, July 29.)

Sept. 27. The grand stand for flowers and plants occupied the centre of the room, and was well filled with beautiful specimens. One side was set apart for the different varieties of fruit and vegetables; the other was appro-priated to nurserymen's flowers, of which there was a brilliant display from Mr. Veitch of Exeter, Mr. Pontey and Mr. Rendle of Plymouth, and Mr. Fox of Penzance; while the end opposite the chair was crowded with excellent samples of showy flowers, and the more important, because the most useful, fruit and vegetable productions of the cottager.

The following extract from the speech of Sir C. Lemon will give an idea of the great variety of the plants exhibited: — Sir Charles "begged particularly to notice the purple-fruited guava, from the garden of Mr. R. W. Fox, as new and interesting; and two beautiful pines, contributed to the dessert, though not exhibited for a prize, from Mr. M. Williams. The grapes, also, were of a very superior character. Among the vegetables he wished particularly to direct attention to the quinoa, which is stated by Humboldt to be as valuable to the inhabitants of tropical America as the rice is to the inhabitants of India. He was cultivating it; and, though unable to state the probable produce per acre, the specimen he held in his hand proved how freely its

seed was produced; and, even its unripe state, it contained a large proportion of farinaceous matter. He also noticed the Pomeranian cabbage, and the turnip-rooted cabbage, from the Cape of Good Hope, the value of which, for general cultivation, would doubtless soon be ascertained, as it appeared that they were cultivated by more than one exhibiter. Among the flowers the most interesting was the Cattlèy*a* Loddigès*ii*, from the collection of Mr. G. C. Fox; a beautiful plant, in a particularly healthy state. By the same gentleman a very interesting group of plants was exhibited, raised from exotic seed, some of it sent by Dr. Wallich to the Society. Among them was the Indian tamarind, a beautiful plant, of graceful foliage; and two species of *Anòna*, one of them the celebrated *Cherimòlia*. A plant of that rare and beautiful passion flower, the Passiflòra kermesìna, was exhibited by the Rev. Thomas Phillpotts. Of the cottagers' productions, and the improvement which had taken place amongst them, it was difficult to speak in too high terms: many of those exhibited might vie with those of their more wealthy neighbours, in respect of cultivation and of goodness of quality, proving that the importance of getting the best seed was appreciated by them. He had also to notice that Mr. Richard Davey had presented the Society with a collection of 300 plants, for their general herbarium, from Switzerland. Miss Fox had presented a group of lichens, indigenous to Cornwall, peculiar for their dying properties; in connexion with which, he must mention the interesting fact, first noticed by that lady, that the colour of the dye was affected by the nature of the rock on which the lichen grew. With regard to the indigenous plants, Mrs. Grylls, Miss Rodd, Miss Warren, and Mr. W. Lobb, had made some valuable discoveries."

After the business of the meeting was finished, a splendid *déjeûner* was served, which was partaken of, for the first time, by the ladies as well as gentlemen [an example which we think well worthy of imitation by other societies]. (*West Briton and Cornwall Advertiser*, Sept. 30.)

* *Gwennap Cottage Gardening Society.—July* 26. This was the first meeting of the Society; and a more satisfactory exhibition has seldom been witnessed. The room was decorated in the most tasteful manner. Many beautiful specimens of stove and other choice plants were supplied by the gentry of the neighbourhood; and the display of fruits, flowers, and vegetables, from the cottagers' gardens, gave ample promise of the future success of the Society. At two o'clock, on the motion of Michael Williams, Esq., seconded by John Paul, Esq., the Rev. T. Phillpotts took the chair. The Rev. gentleman, after congratulating the meeting on the complete success of the experiment that had been made in the formation of this Society, alluded, in feeling terms, to the advantages which must ever accrue to the cottager himself, as well as to his family and neighbours, from the encouragement of industrious and sober habits. At four o'clock, the numerous company adjourned to a field adjoining the vicarage, where another equally gratifying scene awaited them. The children of the church Sunday-schools, upwards of 500 in number, with their teachers (having previously been admitted to view the exhibition), were plentifully regaled with tea and cake; and their orderly and becoming demeanour was extremely creditable to themselves and their instructors. An excellent band attended, and enlivened the scene by their performances. The day was concluded by the "Evening Hymn" being sung by the assembled children, assisted by the church choir: the effect of their united voices in the open air was calculated to excite devotional feelings in every breast. The whole passed off with the utmost harmony; and it was pleasing to hear from some of the oldest parishioners, that a day so marked by unanimity and good feeling had never been witnessed within their recollection. (*Cornwall Royal Gazette*, July 29.)

* *The Western Cottagers' Gardening Society.— Sept.* 22. The first meeting of this Society was held at Penzance. The show of fruit, vegetables, &c., was remarkably fine, especially on the cottagers' tables, and it was most gratifying to observe such a display of the fruits of the cottagers' labour and industry;

as, from the hasty manner in which the meeting was necessarily determined on, and the short time afforded for circulating the objects of the Society, its views and intentions could have been little known in the neighbouring and more distant parishes. The show of flowers was equally attractive, and was greatly enhanced by the support which the private gardens of the neighbourhood afforded, aided by the kind assistance of some ladies, who took a deep interest in the arrangements of the day. It is due to the market-gardeners generally, to notice the readiness with which they have forwarded the objects of the Society; and Mr. Fox, more especially, claims our mention; in the first place, for his liberality in a pecuniary point of view; and, secondly, for the individual exertions he has made in promoting its views from its first formation. The chair was taken at half-past two, by John Scobell, Esq., of Nancealverne, who briefly adverted to the nature and objects of the Society, and the great good which had been produced by the formation of similar associations in different parts of the county. (*West Briton*, Sept. 30.)

Tywardreath Rural Gardening Society. — The show of fruit, &c., was particularly fine, more especially on the cottagers' table, which far exceeded any former year, and proves that a spirit of innocent ambition and harmless rivalry is spreading among the labouring classes who are within the reach of this Society. Among the list of prizes we find one for the cottager whose rental does not exceed 6*l.* 10*s.* per annum, for the neatest and best-stocked garden; another for the labourer, miner, or fisherman, in each of the above parishes, who has brought up the largest family without parochial assistance; and another, given by Capt. Collins, R.N., to the cottager, labourer, miner, or fisherman, who has bound to trades the greatest number of children within the last twenty-one years, or one year in permanent service, a prize of 1*l.* 1*s.*; gained by William Woolcock, of Lanlivery (11 children bound). A prize of 5*s.* to each of the parishes, given by the Society; and a second prize of 2*s.* 6*d.*, given by W. Carlyon, Esq., to the cottager, labourer, miner, or fisherman, who has now in his garden the greatest number of hives of bees. (*Ibid.*, July 29.)

Cumberland. — *Whitehaven Horticultural Society.* — *Auricula Show. May* 3. The flowers were fewer than usual, but very fine. The most successful competitors for prizes for auriculas were T. Falcon, Esq., and Mr. R. Elliot; and for polyanthuses, Mr. J. Clarke and Mr. J. Gaitskell. (*Whitehaven Herald*, May 10.)

Tulip Show. May 24. The display was very good, and the most successful competitors for prizes for tulips were, Miss Mossop, the Rev. J. Fox, and Mr. W. Thornton. The roses, pelargoniums, and cactuses, were very fine. Among the apples exhibited were some French pippins, remarkably well kept, by Mr. Pennyfeather. (*Cumberland Pacquet*, May 31.)

Carnation Show. Aug. 18. The carnations were not so good as last year; but ample amends was made for this falling off by the splendid show of dahlias, which was by far the finest ever seen here. The show of fruit and vegetables was uncommonly good, not merely as regards quality, but quantity; the tables being literally covered with every species of fruit of which the North can boast. Mr. Robert Elliot of Rose Hill displayed no less than fifty different kinds of roses. They were arranged in front of one of the stages, and a finer array of floral beauty was perhaps never witnessed. Mr. Clark's green grapes were the largest ever seen in Whitehaven; and a brace of cucumbers, on one stem, from Gilgarron, attracted their full share of attention. The most successful competitors were, Mr. W. Gird and Mr. W. Thornton, of Keswick, for carnations and picotees; Mr. Thornton and Mr. J. Clark, for dahlias; and Mr. J. Clark and Mr. R. Elliot, for peaches, nectarines, melons, and grapes. Currants were judged by the fewest bunches being required to the half pound. Of these, fifty bunches of red, and 39 of white, were the heaviest: Mr. J. Pennyfeather won both prizes. The heaviest gooseberry was a red one (huntsman), which weighed 17 dwt. 5 gr. (*Ibid.*, Aug. 23.)

Derbyshire. — *Alfreton Horticultural and Floricultural Society. — July* 2. The display of ranunculuses was rather small, owing to the unfavourable season; but of plants there was an abundant supply, of first-rate quality. Some very superior strawberries, and good specimens of vegetables, were exhibited by Mr. Sheel, gardener to D'Ewes Coke, Esq. Mr. Fowell, of Okerthorpe, brought some beautiful pelargoniums, and a splendid specimen of the *Delphínium grandiflòrum*. Mrs. Radford of Carnfield Hall exhibited a very neat basket of choice flowers, which attracted particular notice; and Mr. Rickards, some beautiful roses and pansies, as well as some vegetables of a superior quality. Mr. Smith, of Tansley, contributed a very large and choice collection of roses. An assortment of dahlias was shown in great perfection, at this early period of the season. (*Derbyshire Courier*, July 9.)

Brampton Pink Show. — July 5. The flowers shown by Messrs. Beard and Cotterill were of very superior quality: their seedlings were greatly admired, as was also one grown by Mr. Coulson, and another by Messrs. Marsden and Bower. The present is the first year of Mr. T. Cotterill cultivating flowers; and yet he carried off the first prizes, not only in this, but in other shows; an encouraging precedent for young florists. (*Ibid.*)

Chesterfield Floral and Horticultural Society. — May 2. The hyacinths were very indifferent, and scarcely deserving any prizes at all; but the auriculas and polyanthuses were very good. The best seedling auricula was shown by Messrs. Heath and Stevenson, of Newbold: it was a self, with a very dark purple border, almost black. The best seedling polyanthus was shown by Messrs. Tomlinson and Simpson of Barlow. J. B. Bowden, Esq., of Southgate House, was one of the principal contributors of stove and green-house plants. This gentleman returned the prizes he gained to the Society, to be added to the general fund. Among the vegetables, the most remarkable was a dish of very fine early potatoes, grown in the open ground, by John Chorge, Esq.; and we regret to say that these were stolen in the course of the day. (*Ibid.*, May 7.)

May 31. The room was tastefully decorated, the visiters numerous; and we are happy to say that, in consequence of the excellent arrangements made by the committee to prevent confusion, we have heard of no injury done to the plants exhibited; the officers of the Society promptly prohibiting any person from touching any of the specimens. The principal contributors of tender exotics were G. H. Barrow, Esq., the Rev. F. Foxlowe, and Mr. Hurst. The specimens sent from Mr. Foxlowe's extensive collection were numerous and highly interesting, amongst which were a great variety of pelargoniums; several of them entirely new, and never before exhibited in this part of the country. The plant called Jane, which gained the first prize, we understand was a seeding, raised by Mrs. Foxlowe, and was universally admired. Several choice calceolarias were, also, sent by Mr. Foxlowe; one of which, with deep crimson flowers, was a very beautiful specimen. Of vegetables the supply rather limited, but much improved in quality as compared with those shown at the last meeting. Of cut flowers there were three baskets; one of tender exotics, by Mr. Foxlowe; and two of hardy specimens, by Mr. Coulson. The most interesting feature of the meeting was the display of tulips, which far exceeded the highest expectations of the most ardent amateur. The one selected as the best flower of any colour, named Walworth, was of unexceptionable merit, and well deserved the distinction conferred upon it; being of excellent shape, well bleached, and the colour on the edge remarkably clear and well defined. The tulips forming the pan which won the premier prize, and of which the above-named flower was one, were grown by Messrs. Tomlinson and Simpson of Barlow. Mr. C. Cotterill obtained the prize for the second pan. Mr. Foxlowe liberally returned half the amount of prizes allotted to him, which was considerable, to be added to the general fund. (*Ibid.*, June 4.)

August 2. The principal contributors of green-house and stove plants were, the Rev. F. Foxlowe of Stovely, G. H. Barrow, Esq. (who, among other plants, sent some beautiful spotted French balsams), Mr. Cloughton, and Mr.

Hurst. The specimens of fruit were very fine, and the supply of vegetables was extensive, and of first-rate quality. The principal flowers were carnations, of which there was a great number and variety. They were not, perhaps, so large as are frequently seen; but, for clearness and perfection in colour, they could not well be excelled. There was a very good display of dahlias, which were much admired; as were the baskets of hardy flowers exhibited by Mr. Coulson, one of which had his name worked in flowers on the side immediately fronting the entrance into the room. The Rev. F. Foxlowe liberally returned the whole of the prizes awarded to him at this and at former meetings, which, in connection with the variety of specimens he has supplied to this, as well as to the previous exhibitions, sufficiently evinces his desire for the welfare of the institution. (*Derbyshire Courier*, Aug. 6.)

Devonshire. — *Devon and Cornwall Botanical and Horticultural Society.* — *May* 19. The display of flowers, exotics, and vegetables was excellent. A citron sent by Mrs. Carew of Antony drew particular attention. The flowers, plants, and shrubs from Endsleigh, the seat of His Grace the Duke of Bedford, were very fine, and reflected much credit on Mr. Bray, for the care evinced in bringing them such a distance. Mr. Cornelius of Kelly also deserves great praise for the manner in which his articles were exhibited. The plants furnished by the Rev. Henry Hare of Curtisknowle were very beautiful. The conservatories of Kitley, as usual, furnished ample supplies to the grand stand. Major Gammell of Stoke Villa, and J. Norman, Esq., of Belmont, sent some very splendid plants. We cannot omit noticing, if not among the most conspicuous objects, at least one of the most attractive, a pair of fairy roses sent by Mr. Noah Barry of Port Eliot. The largest with the rose-bud on it was not above 1½ in. in height. The nurserymen's room had, also, a very imposing appearance; Mr. Rendle and Mr. Pontey having contributed some beautiful specimens. It gives us much pleasure to find that this excellent Society is in a highly prosperous state. Its funds are increasing, and each succeeding year brings further support to it. (*Plymouth Herald*, May 21.; and *West Briton*, May 27.)

Devon and Exeter Botanical and Horticultural Society. — *June* 3. Mr. Veitch's exhibition was of the most splendid description: it occupied two thirds of one side of the room, and the whole of one of the centre stands; and could not have been brought to, and removed from, the room without great labour and expense. His collection of pelargoniums was very superior. The most remarkable were P. spéculum múndi, and Dennis's perfection. He had also a beautiful collection of calceolarias; viz. mountain of snow, ferrugínea, and Veitch's picturàtum, beautifully spotted. His display of ericas was universally admired: they consisted of 50 different varieties, one of which was quite new. Among his green-house and hardy plants were, *P*hlóx Drummóndi, Cliánthus puníceus, and the new yellow Scotch roses. Mr. Charles Sclater of Summerlands exhibited some splendid calceolarias, and some very fine pelargoniums; among which a beautiful seedling, called Sclater's Adelaide, excited particular attention. Hewett, Nott, and Co., displayed a superb collection of pelargoniums; also, a collection (consisting of 100 varieties) of new double Dutch anemonies, which were exceedingly fine; and a choice variety of Cape heaths. Mr. J. Manly, of Heavitree, produced many beautiful specimens of plants and flowers. Among the vegetables the most remarkable was a dish of 100 heads of asparagus (none of which exceeded 7 in. in length), which weighed 7lb., and was exhibited by Sir J. Kennaway. (*Woolmer's Exeter and Plymouth Gazette*, June 4.)

West Devon Annual Pink Show. — *July* 2. The room was elegantly decorated with numerous choice plants sent by the gentlemen in the vicinity, and by Mr. Rendle, nurseryman. Mr. F. Wood appears to have been the most successful competitor for the prizes. (*Plymouth Herald*, July 9.)

Royal Devon and Cornwall Horticultural Society.—*Sept.* 10. J. Collier, Esq., M.P., in his address from the chair, after having stated that the Society was in a most prosperous state, added that it was contemplated to erect a public

building for the purpose of accommodating more visiters. The intended exhibition-room will be upwards of 100 ft. in length, and of a proportional breadth; and so constructed, with regard to light and ventilation, as to obviate the inconvenience generally felt in a crowded room. The shares are put up up at 10*l.* each, in order that they may be generally diffused; and, when a certain number of names are attached to the list, a general meeting will be held, and a committee appointed to carry the plan into execution. Among the plants exhibited, the dahlias and annuals of Mr. Rendle, and the dahlias, annuals, and green-house plants of Mr. Pontey, were particularly admired. The latter gentleman obtained two gold medals; which, giving him a majority over all the candidates of the season, entitled him to receive, also, a handsome silver cup. (*Devonport Telegraph*, Sept. 17.)

Dorsetshire. — * *Sherborne and Yeovil Horticultural Society.* — *July* 27. The first show of this Society was, in every department, brilliant and attractive; the plants being rare, and in the fullest perfection of beauty. The ornamental baskets of flowers for competition, from the gardens of R. Gordon, Esq., M.P., and J. Gooden, Esq., were splendid collections; and the nosegay of the choicest plants, from the Upway Gardens, was greatly admired for the variety of rich and choice plants which it contained. It was arranged in the form of a Chinese temple, and had a pretty effect. The fruit was not inferior to any other part of the exhibition: it comprised the most valuable productions from the hot-house and open garden; consisting of pines, melons, grapes, peaches, apricots, raspberries, strawberries, plums, cherries, &c. &c. The second table was appropriated to vegetables; consisting of peas, beans, celery, carrots, onions, turnips, cabbages, &c., in profusion, and of the finest description. The lower part of the room presented a beautiful display of plants, &c., not for competition, from the different gardens in the neighbourhood. (*Western Flying Post*, August 4.)

Essex. — * *The South Essex Horticultural and Floricultural Society.* — We extract the following passage from the prospectus: — "The first leading feature of this Society is, to excite a spirit of emulation amongst a class of men who, from their situation in life, have not an opportunity of displaying the talent many of them possess, and give a higher tone to their mental powers, which, but for a stimulating cause, must to a certain extent have remained in obscurity. This the Society propose doing, by distributing, from time to time such rewards as the committee shall deem advisable, for the superior production of flowers, fruits, and vegetables. The next feature of this Socity is, the rewarding the industrious cottager for the productions of his own garden; thereby raising his mind above the grovelling pursuits now too prevalent, and implanting in his bosom a desire to rank among those persons who, by persevering industry, have obtained a station in society which, while it adds to their comforts in a pecuniary point of view, entitles them to the regard and esteem of those around them." This Society, we believe, has held several exhibitions; but we have not received the particulars.

Gloucestershire. — *Cirencester Horticultural Association.* — *Sept.* 9. The tables and stands were profusely covered; as a proof of which, we may state that there were exhibited, either for competition or ornament, —

Dahlias - - - - - - - -	724
Dishes of fruit, including many by cottagers, upwards of -	200
Baskets and parcels of vegetables, chiefly by cottagers -	46
Plants of varieties in pots - - - - -	280
Total number of specimens, about - - -	1250

Of the dahlias 240, of various splendid colours, were formed into a large star, placed over the central junction of two elliptical arches springing from each side of the room, fully enwreathed with laurel, and elegantly entwined by garlands of the scented clematis, and other flowers. It is due to Messrs. Gregory and Son, nurserymen, to say, that those beautiful decorations were introduced by them at their own expense; and that they also furnished the

principlal stage with groups of evergreens, interspersed with flowers, amongst which the cerulean blue of the agapanthus was conspicuous. There were other pleasing manifestations of a desire to enrich the exhibition, and contributions to that effect were liberally made. Amongst these, we may mention that Miss Smith, the daughter of Mr. Alexander Smith, nurseryman, prepared and presented several ornamental baskets of beautiful flowers, which were placed upon the Society's tables during the show, and much admired. The collection of dahlias certainly was magnificent, and many individual specimens perfect in every requisite. Fruit of the more useful sorts was plentiful and fine; nor were the luxuries of the dessert deficient either in quantity or quality. Great interest was taken in the cottagers' exhibitions of excellent fruit and vegetables: the quality of the latter is obviously improved since the establishment of this Society; a gratifying proof of the benefits to be derived from industrious and sober habits. (*Gloucestershire Chronicle*, Sept. 17.)

Hampshire. — *The Hampshire Horticultural Society. — March* 19. The show was most splendid in forced flowers, vegetables, and green-house plants. Fruits were confined to pears and apples: the latter were numerous, and exhibited good management in the gardeners' method of preserving them. The Rev. F. Beadon, the president, exhibited a large collection of well-kept table and kitchen apples, stove plants, Elford rhubarb, and two varieties of pears. A very fine box of forced lilies of the valley, a large basket of finely flowered Neapolitan violets, a tray of handsome hyacinths, and a collection of other flowering plants, were sent by Sir T. Baring; a good collection of hyacinths, by the Rev. Mr. Cheere; a fine *Daphne odoratissima*, and other green-house plants, with forced vegetables, by Col. Wall; a remarkably fine specimen of Tropæ\olum tricolòrum, with other green-house and hot-house plants, by John Fleming, Esq.; a collection of green-house plants, by the Rev. Mr. Rashleigh; very fine asparagus, and other forced vegetables, by Lord Ashburton; a beautiful specimen of a new stapelia, by the Rev. Mr. Garnier; and numerous other flowering plants and vegetables, by the nobility and gentry of the neighbourhood. There was a distribution of grafts and seeds amongst the members, which were sent by the London Horticultural Society, together with a liberal supply from Messrs. Ronalds of Brentford, and Mr. Page and Mr. Rogers of Southampton; in the whole, between 3000 and 4000 packets. A cottager's prize was gained by Mr. Charles Young, for some rhubarb stalks grown without forcing. (*Salisbury Herald*, March 19.)

June 27. This meeting was held at Winchester, where a most splendid show of flowers was exhibited. The vegetables were plentiful, excellent, and in great variety; the fruits were fine and excellent, but sparing in quantity. A fine collection of pelargoniums, most of them seedlings, were sent by J. King, Esq., of Corhampton; several stove, green-house, and herbaceous plants, as well as melons and strawberries from the Rev. Mr. Beadon; a large and fine collection of plants from Mr. Page of Southampton, and another from Mr. Ingram; and numerous specimens of flowers and fruit from the surrounding nobility and gentry. The competition for cottagers' prizes was very limited. (*Ibid.*, July 2.)

August 4. This meeting was held at the Royal Victoria Archery Rooms, Southampton, where an excellent collection of flowers, fruits, and vegetables was exhibited. The flowers in pots were but few, except the fine collections sent by Mr. Page and Mr. Ingram. The cut flowers, in general, were good; and a handsome collection of pelargoniums were sent by Miss Hale; fine grapes, peaches, and nectarines, by Lord Ashburton; cherries and gooseberries, by Mr. Shenton; melons, apricots, gooseberries, currants, cut flowers, and carnations, by Sir Thomas Baring, Bart.; fine and well-kept old apples, oranges, shaddocks, melons, seeding celsias, and cut flowers, by Col. Wall; vegetables, flowers, and fruits, by Mr. Wickham; hot-house and green-house plants, dahlias, roses, cut flowers, peaches, raspberries, gooseberries, apples, melons, and vegetables, by the Rev. F. Beadon; melons, carnations and picotees, by J. Pultney, Esq.; apricots, gooseberries, and flowers, by

Wm. Fitzhugh, Esq.; queen pines, peaches, nectarines, melons, and cherries, by the Duke of Buckingham; apricots, plums, gooseberries, cherries, flowers, and vegetables, by Mrs. Haines; lettuce, carnations, and cherries, by Mr. Oakley; coxcombs and carnations, by the Rev. the Warden; peaches, coxcombs, cucumbers, celery, and other vegetables, by R. Missing, Esq.; coxcombs, dahlias, hollyhocks, melons, gooseberries, and other fruits and vegetables, by J. Guitton, Esq.; melons, gooseberries, currants, raspberries, and vegetables, by the Rev. Archdeacon Bayley; melons, plums, hollyhocks, dahlias, and vegetables, by Mrs. Wright; hollyhocks, heartsease, roses, carnations, annuals, and herbaceous plants, by Miss Garnier; apricots, cherries, dahlias, roses, and coxcombs, by the Rev. T. Garnier; hollyhocks and potatoes, by Lord Ashtown; figs, carnations, and cauliflowers, by Sir G. Hewitt; green-house plants, by the Rev. G. C. Rashleigh; dahlias, by Col. Worsley; melons, carrots (particularly large and fine white), and French beans, by G. J. Purvis, Esq.; carrots, &c., by Lady Dickson. (*Salisbury Herald*, Aug. 13.)

Sept. 15. The display of dahlias by Mr. Taylor, Mr. Ingram, and Mr. Squibb was superior to any former exhibition. The cut flowers, in general, were good; one stand in particular, for which an extra prize was given, consisted of 150 varieties: also, the green-house plants, from the Rev. G. C. Rashleigh, excited the admiration of the company. Nearly all the nobility and gentry of the neighbourhood sent flowering plants, and fruit, among which were 150 varieties of apples, from Sir T. Baring. There were also numerous specimens of fruit, flowers, and vegetables grown by cottagers. A dinner followed, to which the Society had the pleasure of contributing 36 dishes of fruit for the dessert, and a great part of the fine vegetables exhibited at their meeting. A great number of horticultural implements were exhibited by Mr. Carter, and Messrs. Lankester. (*Hampshire Chronicle*, Sept. 19.)

Winchester Pink Feast.—June. The flowers shown were unusually fine, and reflected great credit on the cultivators. The first prize was adjudged to Mr. Peter Young of Twyford; the second, to Mr. Kingston of Stockbridge; and the third, to Mr. Weaver, gardener to the Warden of Winchester College. The maiden prize was awarded to Mr. Watson, jun., of Winchester. (*Ibid.*)

Huntingdonshire. — *Huntingdonshire Horticultural Society. — April* 26. The flowers were more splendid than we have seen for several years. The first prizes, for the best auricula, polyanthus, and polyanthus narcissus, were won by Mr. Franklin. Mr. Raye showed the best hyacinths. After dinner, R. Fox, Esq., called the attention of the subscribers to an act of injustice practised towards this society, by the editors of the *Gooseberry-grower's Register* for last year, in neglecting to insert their last show; as, on reference to that book and the Huntingdon list, they would find that they produced the *heaviest gooseberries of all England*, and also the heaviest in three of the colours. It is there stated, that Mr. Fardon's wonderful, 24 dwt. was the heaviest gooseberry grown in the year; at the Huntingdonshire Horticultural show, held on July 21. 1835, Mr. Giddings of Hemingford produced a yellow gooseberry (leader) weighing 24 dwt. 17 gr. In the green, that Mr. Ormond's thumper, 20 dwt. 8 gr. was the heaviest; at the Huntingdonshire show; Mr. Gidding's peacock weighed 20 dwt. 15 gr. In the white, Mr. Dewhurt's Eagle, of Richester, at 21 dwt. is stated as the heaviest; the Huntingdonshire first prize was won by Mr. Giddings's ostrich, 23 dwt. 16 gr. the second by Mr. Adams's ostrich, 23 dwt. and the third, by Mr. Fordham's ostrich, 22 dwt. 8 gr. It was unanimously agreed that the secretary should write to the committee of Gooseberry growers at Manchester, and offer to grow the four colours for weight, next year, for 20*l.*—Huntingdonshire against Lancashire. To be shown either at Huntingdon or Manchester, as may be agreed upon. (*Huntingdon Gazette*, April 30.)

Carnation Show. July 26. Mr. Headley was the most successful candidate; but Mr. Wood exhibited the best seedling. Mr. Wood had also the best picotee, and the best dahlia. Among the cottagers, Mr. W. Clarke of Bourne obtained the prize for the best carnation, and for the best pound of

gooseberries, 32 in number. Among the fruit shown, the heaviest gooseberry was leader, by Mr. Giddings, weighing 21 dwt. 11 gr. The heaviest red gooseberry was the roaring lion, shown by Mr. Fordlam, and weighing 20 dwt. 6 gr. The heaviest red currants were 16 bunches to the pound; and the heaviest white, 27. Both were shown by Mr. Giddings.

Kent.—**Dover Horticultural Society.*—*May* 27. This was the first meeting of the Society. The backwardness of the season precluded the display of hardy plants; but this was amply compensated by the beautiful pelargoniums from Mr. Rice, and some rare exotics from the collection of Mr. George Jennings, who obtained the first prizes for flowers. In fruits and vegetables, the Earl Guilford and Mr. Fector were the successful competitors. It was a subject of regret that no cottagers' prizes could be given, as only one nosegay was placed for competition. In the absence of Countess Guilford (from indisposition), Mrs. E. Rice gracefully distributed the prizes. A vote of thanks to her was proposed by Mr. Knocker; after which Mr. Rice rose to acknowledge the compliment, and, in an able and appropriate manner, congratulated the Society on the beauty and excellence of the display before them; concluding his speech with a vote of thanks to the judges. Mr. Masters briefly returned thanks for himself and brother judges, and warmly congratulated the present meeting on the success of this their first exhibition; and gave his opinion that proximity to the sea, or insalubrity of climate, was rather an advantage than otherwise to the pursuit of horticulture, since greater stimulus was afforded. He adduced Scotland as an instance, which has always produced the most clever and experienced practical gardeners, from the skill and perseverance necessary to be exerted to overcome the natural obstacles of temperature and situation. (*Kentish Chronicle*, May 31.)

**Wingham Horticutural and Floral Society.*—*May* 20. A very good display was made of flowers, fruit, and vegetables. Among the last, Mr. Charles Harrison exhibited 50 heads of asparagus, which weighed 4 lb. Mr. Masters sent a beautiful collection of plants, in addition to those which entered into competition for the prizes. (*Ibid.*, May 24.)

Lancashire.—*Bolton Floral and Horticultural Society.*—*July* 6. This meeting was for the show of pinks, roses; stove, green-house, and herbaceous plants; fruits, &c. Every thing was beautifully arranged, and the room was very respectably attended. The band of the 48th regiment, as usual, was present, and played a number of delightful airs. Mr. Wm. Lodge, E. Ashworth, Esq., and Mr. Thomas Walsh were the most successful competitors. (*Manchester Courier*, July 9.)

Lancaster Floral and Horticultural Society.—*Sept* 27. The dahlias were remarkably fine, and very numerous. A very great variety of apples and pears were exhibited; many of the very first-rate sorts. We noticed, in the collections of the Rev. T. Mackreth and Mr. Saul, the beurré d'Aremberg. The specimens were rather small, but we found upon enquiry, that they were from very young standard trees. We also noticed, amongst Mr. Mackreth's collection, very fine specimens of the beurré Diel, Duchesse d'Angoulême, and that decidedly the best of all the late keeping-pears, the Easter beurré. There was a very fine plate of the Marie-Louise pear, from John Swainson, Esq., Halton Hall. They were grown, we understood, upon the wall: but it may be useful to some of our readers to be informed (and we have the best authority for the information), that this most valuable of our autumn pears bears equally well as a standard, and appears capable of affording a certain crop, under whatever circumstances it may be placed. The Duchess of Hamilton honoured the Society by sending from the gardens at Ashton some very fine pine-apples, and also a small, though very choice, collection of apples and pears. Our respected member Mr. Greene sent from his gardens at Whittington Hall a very fine plant of the *Gladiolus psittacina*, and some remarkably fine China asters, and French and American marygolds. We noticed in the room two iron garden chairs, invented by our ingenious townsman, Mr. M. Saul of Sulyard Street. The seat repre-

sents an open flower-basket, with cut flowers strewed round the edge. It is perfectly easy, and is supported by leaves and flowers, springing from two vases (flower-pots). The back represents a flower-pot with leaves and flowers; and the centre of the back is crowned with a bunch of strawberries. The whole is painted to imitate nature, and has a very bold, novel, and beautiful effect. This chair, we believe, may be procured at Messrs. Whewell and Co., ironfounders in this town. (*Lancaster Gazette*, Oct. 1.)

Norfolk. — *Dereham Horticultural Society.—June* 28. There were many choice specimens in all parts of the room; but we were particularly struck by the magnificent display of vegetables and fruit on the cottagers' table: they far surpassed anything exhibited on the subscribers' table; and there were some which would have done credit to any professed gardener whatever: we allude more particularly to those belonging to Jeremiah Martin of Dereham; though there were many others equally deserving of praise. This man, it appears, is a brickmaker in the employment of Mr. Wigg; and the land he cultivates does not exceed a quarter of an acre. He obtained ten prizes; four for the best vegetables, and six extra prizes for vegetables and flowers, amounting in all to 1*l.* 6*s.*; and we cannot but say to him, and to the Society, "Go on and prosper." The entire amount distributed amongst sixteen cottagers was 3*l.* 2*s.* 6*d.* (*Bury and Norwich Post*, July 13.)

Holt Horticultural Society.—April 29. The show was rather thinly attended, the weather being very unpropitious, with the thermometer at noon only 42°; but persons were absent whom the ungenial atmosphere out of doors would not have prevented from attending. (*Ibid.*, May 4.)

June 3. The show was very small, partly in consequence of the weather, partly, as a correspondent hints, in consequence of dissatisfaction with the management of the concern. (*Ibid.*, June 8.)

July 8. At this show there was a good display of flowers. A paid judge has been substituted instead of a selection from the committee, which may tend with other arrangements, to restore the Society to its former prosperity. (*Ibid.*, July 13.)

Norfolk and Norwich Horticultural Show.—June 23. Nearly 1300 persons were present. The show was for fruits and vegetables. The successful competitors were very numerous. Mrs. Burroughes and John Longe, Esq., returned the prizes which they won. (*Norwich Mercury*, July 2.)

Yarmouth Horticultural Society.—June 30. Besides the specimens for which prizes were awarded, there was a beautiful collection of plants exhibited by Messrs. Fenn and Laws of Beccles, not for competition; among which was an excellent collection of calceolarias, some of the best pots of which, we regret to say, were destroyed in bringing to the meeting. The principal competitors were the Rev. J. Burroughes, the Rev. W. Lucas, the Rev. C. Lucas, the Rev. E. Ensor, and Mr. George Thurtell. The latter gentleman gave his prizes to the cottagers. (*Ibid.*)

Northumberland. — *Newcastle upon Tyne Botanical and Horticultural Society.—June* 3. The show of tulips, notwithstanding the late severe weather, was the most splendid ever witnessed on the tables of the Society, and the whole exhibition reflected great credit on the attention and management of the gardeners of the district. A very fine dish of Ribstone pippins, in the highest state of preservation (which had been kept in sand highly dried), was exhibited from the garden of Mrs. Bewicke, Close House. The exhibition was very numerously attended. (*Newcastle Courant*, June 11.)

July 1. The principal prizes given at this meeting were for fruit, but there were some for flowers. Mr. John Wilson and Mr. Isaac Scott, both of Newcastle, obtained, respectively, the prizes for the best pinks, and the best ranunculases. The sum of Three Guineas to the gardener who could produce the best testimonials of his abilities, and of the greatest length of servitude in one family, was awarded to Mr. John Moderill, gardener to J. C. Anderson, Esq., Jesmond, he having been gardener in that family for 13 years. (*Ibid.*, July 9.)

August 26. The exhibition of fruits, flowers, and vegetables was considered to excel all former ones of this Society, both as to the number and excellence of the specimens. A magnificent bouquet from the gardens of John Hodgson Hinde, Esq., M. P. of Elswick House, attracted much attention. Among the prizes was one given to Mr. James Scott, for a seedling pine-apple (Lambér*tia*). (*Newcastle Courant*, Sept. 3.)

October 7. This meeting was principally for fruit and vegetables. The heaviest pine-apple (a Providence) weighed 6 lb. 4 oz., and was shown by Mr. George Dale. The best apples, the best pears, and the best plums were shown by Mr. James Scott, gardener to E. Charlton, Esq., Sandoe. (*Tyne Mercury*, Oct. 11.)

The Florists of Felton held their annual show of tulips, June 4., when Mr. John Earsdon, and Mr. William Scott, were the most successful competitors. The collection of flowers was truly splendid, both as regards variety and quantity; and the care and judgment evinced by the judge in awarding the different prizes gave universal satisfaction. (*Newcastle Courant*, June 11.)

June 27. This show was for ranunculuses and Brompton stocks; where Mr. John Earsdon and Mr. Thomas Dawson won most of the prizes. (*Ibid.*, July 9.)

Ouseburn Florist Society. — *Tulip Show. May* 30. The prizes were gained by Mr. Robert Eltringham, Mr. John Morris, and Mr. Isaac Scott. (*Ibid.*, June 4.)

Ranunculus Show. July 4. The prizes were all gained by Mr. Robert Eltringham, Mr. John Morris, and Mr. Isaac Scott. (*Ibid.*, July 9.)

Whitehill Point Florists.—Ranunculus Show. June 25. Mr. Noble Young gained the first prize with the ranunculus named supreme. (*Ibid.*)

The Florists of Cowpen and its Vicinity.—Tulip Show. May 28. In defiance of the late unpropitious state of the weather, a greater display of flowers than could have been anticipated was brought forward by the indefatigable zeal of the members. The tulips for exhibition were placed on a range of tables which extended down the centre of the room, backed by a flower-stand, containing a variety of pelargoniums, and other exotic plants, in full bloom; also a magnificent bouquet of flowers from the garden of M. Sidney, Esq., of Cowpen. There was also a large stalk of rhubarb, from the garden of Mr. Robert Oliver of Cowpen colliery, which attracted much notice, and reflected great credit on the grower. The day was remarkably fine, and afforded strangers a specimen of the delightful climate, for which Cowpen is so justly celebrated. (*Ibid.*, June 11.)

Nottinghamshire. — *Chilwell and Beeston Auricula and Polyanthus Show. April* 27. The first prize (silver spoons) was awarded to Mr. J. Oldham; and the second prize (silver sugar-tongs) to Mr. Spray. "Though the spring months have been somewhat unfavourable for the perfect blooming of these favourite flowers, still it was surprising to see the many fine specimens brought together on this occasion: we counted nearly 100 pots of auriculas and polyanthuses, besides numerous fine trusses in bottles, which would not have disgraced the stage of a first-rate show. We particularly noticed some seedling polyanthuses of great merit; especially one exhibited in the winning pan, belonging to Mr. Oldham, which attracted the attention of all who saw it, and called forth unqualified approbation. In fact it was allowed to be the best seedling raised in Nottinghamshire for these few years past; and we doubt not the fortunate raiser will realise a considerable sum by its sale. The room was decorated with some well-grown plants from the conservatory of Thomas Charlton, Esq. Amongst the various decorations which excited admiration, was a laurel branch, in which a titmouse had firmly built its nest. Some very fine specimens of pansies were exhibited; and a close contest was the result." (*Nottingham Review*, May 6.)

Radford Floral Society. — *Auricula Show.* Messrs. W. and J. Wild were the most successful competitors. (*Id.*)

Retford and Bawtry Horticultural Society.—April 28. The room was crowded

with ladies and gentlemen of the town and neighbourhood; and the show of plants, flowers, and vegetables, drew forth the admiration of every visiter. The *Rhododéndron Russellìana*, in full bloom, from the garden of R. P. Milnes, Esq. presented a remarkably splendid appearance, decorating one end of the large centre table, and forming a striking contrast to the other end, where appeared a large *Acàcia armàta*, from the same place. The display of auriculas, pansies, ericas, tulips, and hyacinths was exceeding rich and choice. A seedling mimulus excited particular admiration. Nor did the vegetables of every description fail to excite the highest applause, particularly with respect to asparagus, which was remarkably fine, and evinced that no small portion of care had been bestowed in its cultivation, in order to produce so perfect a specimen. We must also mention two dishes of the finest strawberries from the gardens of G. S. Foljambe, Esq., which were perfectly ripe, and attracted the admiration of all the visiters. (*Doncaster Gazette*, May 6.)

Nottingham Floral and Horticultural Society.— Hyacinth Show. April 26. The first premium was awarded to Mr. William Juger, and the second to Mr. John Spencer. (*Nottingham Review*, May 6.)

Gooseberry Shows in Nottinghamshire. — *At Nottingham, July* 25., the largest gooseberry was companion, a red variety, which weighed 22 dwt. 8 grs. Mr. Blundell exhibited two gooseberries of this kind on one stem, which weighed 41 dwt. 7 gr.

July 27. Companion, 23 dwt. 12 gr.

New Radford. — *July* 23. Companion, 22 dwt. 20 gr.

July 25. Wonderful, 24 dwt. 6 gr.

Wollaton. — *July* 26. Wonderful, 23 dwt. 18 gr. Twins on one stem, thumpers, 33 dwt. 3 gr.

Southwell. — *July* 28. H. Stenton, Esq., exhibited the largest red gooseberry, companion, 25 dwt. 2 gr.; and the largest yellow, 20 dwt. 13 gr. Also, a dish of gooseberries, gathered from one tree, 15 to the pound. (*Nottingham and Newark Mercury*, Aug. 6.)

Somersetshire. — *Bath Royal Horticultural and Floral Society.* — *Dahlia Show.* — *Sept.* 15. The dahlias were very splendid and numerous; but, perhaps, the most strikingly curious and beautiful plant was a most stately specimen, 12 ft. high, of the Gloriòsa supérba. It arrived too late for competition, owing to the difficulty of transmitting it uninjured. It belonged to S. J. Phelps, Esq., of Warminster, who brought it in his own carriage, and who had, also, a variety of other curious and rare plants in the collection. Some rare and beautiful orchideous and other stove plants were sent by J. Jarrett, Esq., of Camerton; among the latter of which was a specimen of Clerodéndron speciosíssimum, said to be the first time the plant had flowered in Britain. There were, also, numerous other choice plants, sent by the nobility and gentry in the neighbourhood, and several baskets of cut flowers, most tastefully arranged. The upper tent was appropriated to the fruits; and here the show was allowed, by the judges and visiters, to be splendid beyond any former collection. They consisted of the choicest productions of the hot-house and open garden, in pines, melons, oranges, grapes (growing in pots and cut), figs, peaches, nectarines, numberless sorts of plums, mulberries, pears, and apples (in immense variety, and some of stupendous size); Spanish nuts and filberts, cherries (various), &c. In this tent there was a basket of the common fruits arranged in a conical form, and consisting of alternate circles of apples, pears, plums, Siberian crabs, nuts, &c., the effect of which was curious and pleasing. The booths to the right contained the cottage productions of the same description, with the addition of nosegays, &c., which were all allowed to possess striking merit. The extent of the dahlia show rendered it necessary to allot several of these booths to the stands of those flowers sent for competition and show; so that there was scarcely a corner of this part of the gardens in which the eye did not encounter a collection of floral beauty. On the lawn were some botanical specimens; and among these a collection sent by Mr. Empson,

which attracted the notice of the scientific; particularly a blue fungus, called the Gýmnopus pùrus, or purple (pure) naked foot. The two upper booths to the left contained the drawings of flowers, some of which were very beautiful. They were the productions of artists and amateurs. Among the former, Miss Rosenberg was the most eminent. Her subject was a group of dahlias, and it was certainly a *chef-d'œuvre*. Among the amateurs, Mrs. St. John Maule was deservedly successful, for her beautiful chrysanthemum; a single flower, but drawn and finished with great delicacy. A wreath of wild flowers, by Miss Mintorn, would have occupied hours to examine. (*Bath Gazette*, Sept. 20.)

Staffordshire. — * *Uttoxeter Horticultural and Floral Society.* — *May* 27. This was the first exhibition of the Society. The prizes were mostly for tulips; and upwards of 2000 of them were staged for competition. It is the intention of the Society to extend their objects to prizes for fruits, flowers, and vegetables, as well as to encourage cottagers in the management of their gardens. The number and beauty of the plants and flowers exceeded expectation; and the attendance of company (who expressed a high degree of satisfaction, and promised their support) was so large as to render the room in which the exhibition took place altogether inadequate for the purpose. A great number of rare plants were sent from the gardens of the Earl of Shrewsbury (Alton Towers), Lord Waterpark, and T. S. Kynnessley, Esq. (*Staffordshire Examiner*, June 11.)

* *Walsall Horticultural and Botanical Society.* — *June* 28. The meeting was held at the public gardens; and the arrangements made by the committee of management were excellent. The company was much more numerous than heretofore, and highly respectable. A military band was in attendance; and, by its appearance and performances, added considerably to the spirit and gaiety of the scene. Some choice specimens of plants, &c., were exhibited; indeed, the whole exhibition was much more than equal to any of the previous ones. The various prizes seemed to have been awarded with much taste and discrimination. Messrs. Pope and Sons, and Mr. Wilmore, were the most successful competitors. Altogether, we think a great impression must have been made on the public mind in favour of the objects of the Society. The public gardens at Walsall were laid out by Mr. Dickenson, surgeon, and have recently undergone many improvements by Dr. Kent. They have only been in the possession of the present spirited proprietor a few weeks, by whom they have been opened to the public. The inhabitants of Walsall and their friends will find them a promenade such as few towns of the same size can boast of. We can assure them, from experience, that, in inspecting the Chinese temples and grottoes, meandering through the walks, gazing at the fountains with their varied *jets d'eaux*, and examining the numerous and curious plants and shrubs in the extensive green-houses, they may pass an afternoon very agreeably. (*Id.*, July 2.)

Suffolk. — *Bury Horticultural Society.* — *April* 28. The exhibition was considered good for the season. The report was accompanied by an advertisement, requesting all persons whose names stand in arrear to pay their subscriptions, agreeably to the rules, which will enable the Society to pay those prizes which stand as unclaimed in the years 1833 and 1834: it is expected that all such claims will be made at the next meeting. The prizes for 1835 have been paid, with a balance remaining. (*Bury and Norwich Post*, May 4.)

Oct. 4. The show of dahlias, considering the season, was very excellent; but the supply of other flowers was small. Of the fruit, Mr. Trevethan's grapes and pine, Mr. Knight's currants and morello cherries, and Mr. Wright's pears, were especially admired; and Mrs. Miller, and Messrs. Kneeshaw, Lord, Girling, and Felgate contributed some excellent specimens of horticultural produce. The cottagers' vegetables (especially the potatoes) were exceedingly good. Among the prizes was one for the best six dahlias, to Mr. Girling of Stowmarket; one for the second best, to Mr. Barrett, sen.;

third ditto, to Mr. Felgate, Stowmarket; and one for the best seedling, to Mr. Girling. (*Suffolk Chronicle*, Oct. 15.)

Diss Horticultural Society.— Oct. 6. The show of flowers, though small, was fine; particularly the dahlias of Mr. Girling and of Mr. Felgate of Stowmarket. The fruits and vegetables equalled, if not excelled, any former exhibition. The exhibition of the cottagers attracted general admiration by its profusion and perfection, the vegetables especially: the potatoes were particularly good. The great utility of this Society is evident from the great exertions, and consequent improvement, of the cottagers in horticulture, which is truly surprising; and it is allowed, by competent judges, that the exhibition on the cottagers' table of this Society surpasses that of most other societies, though more wealthy, and of more extended district. The neatness of the gardens which obtained prizes is well worthy remark; whilst the happy countenances, with the looks of honest pride and conscious superiority, which were visible in those who obtained their small but well-earned prizes, combined to form a scene which will not readily be forgotten by those who witnessed it. (*Ibid.*)

Hadleigh Horticultural and Floral Society. — June 28. On no former occasion has been witnessed a more numerous and respectable assemblage. The flowers exhibited were of the most splendid description, and the fruit and vegetables excellent for the season. About sixty members sat down to an excellent dinner; the Rev. Archdeacon Lyall, president of the Society, in the chair. Immediately after dinner the cottagers to whom prizes had been awarded were severally introduced to receive them, and each was presented with a glass of wine. (*Bury and Norwich Post*, July 6.)

Stowmarket Horticultural Society. — July 8. There was a very fine exhibition of fruits and vegetables in season, and a numerous attendance of the gentry and inhabitants of the town and neighbourhood, by whom this Society is most liberally supported. In addition to the prizes obtained by the nobility and gentry, ten prizes were awarded to cottagers, whose exhibition of vegetables were many of them very fine; and it is in contemplation, if the funds of the Society will allow it, to increase the number of prizes to this meritorious class of exhibitors. (*Ibid.*, July 13.)

Sussex. — *Lewes and East Sussex Horticultural Society. — Sept.* 15. The competitors for flowers were numerous, and the dahlias of the most beautiful descriptions. The bouquets for the Society's premiums were superb, especially the one which obtained the first prize, belonging to Mr. John French of Malling, the tasteful construction of which, and the variety and beauty of the flowers of which it was composed, commanded the admiration of the subscribers and visiters. The presentations of fruits, flowers, &c., by the members, were at once numerous, and of the choicest description. It is impossible to describe accurately the great improvement which has taken place in the growth of vegetables since the commencement of the Institution. The display was really astonishing; and consisted of peas, French beans, potatoes, turnips, parsneps, carrots, onions, cabbages (red and white), cellery, broccoli, &c. (*Sussex Advertiser*, Sept. 19.)

Newick Horticultural Society. Sept. 9. This show was principally for flowers and fruit. There were, however, some fine vegetables exhibited; and thé fruit, flowers, and vegetables for the cottagers' prizes attracted considerable attention from the excellence of the productions. The unsuccessful received one shilling each, and a ticket of admission to the show. (*Ibid.*)

Warwickshire. — *Birmingham Botanical and Warwickshire Floral Societies. July* 28, 29. The plants were not so plentiful as on previous exhibitions; but some well-grown and rare orchideous specimens were sent from the collections of the Earl of Stamford, John Willmore, Esq., and George Barker, Esq.; and an excellent selection of calceolarias was exhibited from John Willmore, Esq. The Earl of Stamford and Messrs. John Pope and Sons exhibited a singularly attractive and fine plant of Nepénthes, with very "perfect pitchers." The carnations and picotees formed an interesting feature of

the exhibition, and were displayed to the best advantage. Good fruits, both forced and hardy, were in abundance. There was also a large and excellent show of vegetables. The cucumbers entered for the sweepstakes surpassed, in quality, any that have previously been exhibited. The cottagers' and artisans' stand, it was gratifying to observe, was profusely covered with fruits and vegetables, attracting its full share of notice; and a liberal distribution of prizes being judiciously awarded to them, there is little doubt but that it will stimulate them to increased exertion. The gooseberries were very fine; the largest (companion) was shown by Mr. Fairfield, and weighed 22 dwt. 12 gr. (*Aris's Birmingham Gazette*, Aug. 1.)

Aug. 25, 26. On the first day, above 3000 persons attended the gardens. The plants sent for exhibition, as was expected, were not in great abundance; but those which obtained prizes were fine specimens of their kind, particularly the Orchídeæ, 24 beautiful varieties of which were sent from the collections of the Earl of Stamford, John Willmore, Esq., George Barker, Esq., and from the nursery of Messrs. John Pope and Sons. Messrs. Pope likewise exhibited a rare and valuable seedling hybrid alstrœmeria, which promises to be a great acquisition to hardy ornamental plants. The dahlias were excellent, and admirably displayed; and forced fruits, of good quality, were exhibited in profusion. Four fine Enville pines, sent by William Robins, Esq., did not compete for prizes. Vegetables were rather scarce, but of good quality. The cottagers' and artisans' stand was well covered with fruits, vegetables, and a few flowers, tastefully arranged. (*Id.*, Aug. 29.)

Sept. 29, 30. The exhibition was more attractive and splendid for the season than any preceding show, and included a rich variety of fruits; a brilliant display of dahlias, unprecedented in this town for beauty; a fine, although not numerous, collection of plants; and an abundant supply of vegetables, of remarkably good quality. Three groups of flowers, tastefully and elegantly arranged, very greatly added to the general attraction of the show. The cottagers' and artisans' stand was filled with excellent specimens of dahlias, fruits, and vegetables, and commanded its full share of notice. The exhibition took place in the Town Hall, and a very fine selection of plants, fruits, &c., was sent to it from the gardens of the Horticultural and Botanical Society. (*Id.*, Oct. 3.)

* *Nuneaton Floral and Horticultural Society.—July.* The prizes for the first and second pair of pinks were won by Mr. John Glover of Hinckley, and Mr. W. M'Ewan of Nuneaton; while, in the classes, the former gentleman and Mr. Joseph Ward of Attleborough, were extremely successful. Mr. Ogden of Coventry very handsomely sent over a large quantity of greenhouse plants, which contributed much to the beauty and interest of the exhibition. (*Coventry Herald*, July 15.)

Chippenham Horticultural and Floral Society.—Dahlia Show. Sept. 9. The dahlias were not, as many expected, the only attraction to the admiring visiters; but all the varieties of the season did credit to the science and taste of the contributors, among which were many novelties. The exotics and hardy annuals were entitled to especial approval. The grapes were abundant, and remarkable for their large clusters and their freshness of bloom. The peaches and pine-apples were remarkably fine; but the exotic fruit were eclipsed in attraction by the number and variety of such fruits as we are now accustomed to consider indigenous: upwards of 40 dishes of apples, all of choice varieties, ornamented the plateau, which, for its extent and rich display of every variety of fruit, has never been exceeded. The noble room above the market-place, for which the inhabitants have to thank Mr. Neeld, was ornamented most tastefully. At one end of this apartment a beautiful device was inscribed to Flora, in letters formed by dahlias, the colours admirably chosen, and relieved by a dense background of laurel, from which sprang a Grecian arch, gracefully festooned, &c. A stone vase, ornamented with moss, was filled with that most brilliant of creepers, the scarlet verbena (*V. chamædrifòlia*). On each side of this central display was placed a

pedestal, wreathed with festoons of hops and the purple clematis, and supporting an immense globe, entirely covered with dahlias: one of these globes was divided into twelve compartments, each of a distinct colour; and the other divided into six segments of circles, consisting of flowers. The cottagers' contributions excited the deepest interest: their rewards were as well deserved, as they were gratefully received. (*Bath Journal*, Sept. 12.)

Marlborough Dahlia Show. — *Oct.* 3. This show was, for the first time, *open to all England*; and, from the circumstance of its being fixed the day before the show at Salt Hill, it was expected to be numerously attended by large growers from the lower part of the country, on their way thither. But, owing to the early frosts, and the lateness of the season, the attendance of large growers was not so numerous as was anticipated; notwithstanding, the flowers exhibited were of a superior quality to those produced at several of the previous shows in this part of the country. The attendance of visiters very far exceeded the attendance of former years, and the company were honoured with the presence of the Marchioness of Aylesbury and the Countess Daniskold; both of whom were much pleased with the splendid display of flowers. Thomas Halcomb, Esq., the Mayor, to whom the flowers were presented after the show, made a distribution of them amongst the subscribers, having first selected a box, which was presented to the Marchioness of Aylesbury, who had it conveyed to her mansion at Tottenham Park the same afternoon. The funds of the Society will enable the committee, next season, to present the competitors with prizes very nearly double in amount to those of the present season. The seedlings to which prizes were awarded were all flowers of merit. The fire king is a fine scarlet, perfect and well formed. Whale's Marchioness of Aylesbury, a fine rose, is a perfect and well-formed flower, although no prize was given to it. (*Salisbury Herald*, Oct. 15.)

Salisbury Royal Dahlia Society. — *Oct.* 5. The most successful candidates were Mr. Squibb of Fisherton, Mr. Taylor of Milbrook, and Mr. J. Kymes of Salisbury. Several fine seedlings were exhibited. (*Ibid.*, Oct. 8.)

Wilts and General Horticultural Society. — *May* 17. We feel difficulty in enumerating the many choice specimens so plentifully distributed over the whole room; for, whilst the eyes of one party were intently rivetted on the rare stove plants, the splendid *Cácti*, or the miscellaneous collection of Colonel Baker, those of the other were equally fixed on the ever-varying heaths, or gaudy pelargoniums, from the collections of C. B. Wall, Esq., M.P., and Mrs. Batt; nor must we pass unnoticed the numerous and beautiful hybrid calceolarias, from the gardens of the Earl of Shaftesbury and the Hon. Mrs. Harris; the stately-flowering Bánk*sia* speciòsa, from Dr. Finch; Tropæ'olum tricolòrum, from the Earl of Radnor; Calochórtus álbus, from the Hon. Sidney Herbert, M. P. Amongst the contributions for the day, we recognised heaths and choice exotics, from Thomas King, Esq.; a few good specimens, from Dr. Greenap; calceolarias from Sir Edmund Antrobus, Bart.; and some plants, in high cultivation, from the nursery of Mr. Squibb, not for competition. Among the most successful competitors were, Mr. Dodd, gardener to Colonel Baker; Mr. Evans, gardener to Mrs. Batt; Mr. Christie, gardener to the Earl of Radnor; Mr. Hughes, gardener to C. B. Wall, Esq., M.P.; and Mr. Brown, gardener to the Hon. Sidney Herbert, M.P. (*Ibid.*, May 21.)

July 23. The flowers, fruit, and vegetables were all excellent in their way. The most successful competitors were those mentioned above. Also, the Hon. Mrs. Harris; Mr. Bryant, gardener to Dr. Finch; Mr. Trollop, gardener to S. James, Esq.; and Mr. Alford. (*Ibid.*, July 23.)

Worcestershire. — *Worcestershire Horticultural Society.* — *May* 24. In tulips some very good flowers appeared; and the lofty black baguette, standing pre-eminent above the array on the great stand, had a good effect. The prize *Cácti*, from Mr. Cooke, Mr. Smith, and Miss Shapland, were exceedingly beautiful. Mr. Smith excelled in the various fine specimens of lilies, pelargoniums, and tulips he displayed; and we were much pleased with the

tasteful array of pansies in square mossy frames, one from W. Wall, Esq., and the other, adorned with shells, from Mr. Thomas Burlingham, jun. The nosegays from Mr. Cooke and Mr. Biggs also merited notice. J. C. Kent, Esq., of Levant Lodge, exhibited a specimen of the purple laburnum. Fruits and vegetables were rather scarce. (*Worcester Herald*, May 28.)

Vale of Evesham Horticultural and Floricultural Society. — *May* 26. *Tulip Show.* The principal prizes were gained by Mr. R. Whitford, Mr. W. Murrell, and Mr. Holmes. (*Ibid.*)

Yorkshire. — *East Riding Horticultural and Floral Society.* — *June* 8. Upon the centre stage in the marquee was a splendid specimen of the Metrosidèros; and around the pillars which supported the pavilion were placed three gigantic fuchsias, sent by H. Ellison, Esq. Some beautiful polygalas, azaleas, and pelargoniums, were much admired. The colours were extremely good, and the flowers very bold: the perfection to which they had been brought evinced the care bestowed upon their culture by the gardener of the Rev. L. Thoroton, to whom most of them belonged. Opposite these were a rich display of calceolarias, some of the varieties of which were quite new. Among the plants in pots, was a pretty new hybrid petunia, called *P. cárnea*, from the Hull Botanic Garden, presented to that garden by Booth and Son, of Hamburgh; and a crimson thorn of most delicately beautiful colour. The Rev. F. Best, as usual, exhibited some extremely large and fine-flowered pansies, principally seedlings of his own raising. Of tulips there were some good trays, one in particular from Mr. Beecroft, of Hull; as well as of ranunculuses. The Brompton stocks were gigantic in size, the colours of the richest tinge, and the flowers exceedingly well developed. Around the marquees wreaths of cut flowers were entwined, reaching to the roof; we also observed several novel cast-iron flower-stands, and an elegant garden seat, manufactured by Mr. Crosskill. Above the place appropriated to the president was the magnificent crown and feathers, made of cut flowers, from the conservatory and garden of R. Bethell, Esq. The crown was composed of pelargoniums, hoyas, and many rare exotics; whilst the feathers, and letters "W. R.," tended much to heighten the effect. Among the fruits were several varieties of pines, strawberries, figs, grapes, and apples. Of vegetables, &c., we may notice some enormous cucumbers, excellent new potatoes, green peas, kidneybeans, asparagus, cabbages, lettuce, and rhubarb. (*Hull Advertiser*, June 10.)

Sept. 7. The marquee presented a splendid variety of plants and flowers, although not so many stove and green-house plants as we have witnessed at former exhibitions: those there were, however, were exceedingly choice and beautiful; and the dahlias abounded in almost endless variety. In the place of the large bouquet of cut flowers, from Rise, which was usually suspended over the place occupied by the president, there was only one of exotics, &c., forming a crown, so arranged as to give effect to the word "Floriculture," which was placed at the further extremity of the tent, each letter formed of a class of flowers of the same colour, and including dahlias, roses, china-asters, hollyhocks, &c.; underneath this were the letters "W. R.," formed of French marigolds; in the centre a star, composed of beautiful and choice flowers. At the upper end of the assembly-room was the word "Horticulture," the letters similarly formed of flowers. [This word ought to have been formed of culinary vegetables or fruits.] Among the plants was a petunia with striped flowers. There were also some splendid pines; a bunch of white grapes, weighing nearly 5 lbs.; and peaches, nectarines, plums, &c., in most luxuriant beauty. A dish of Mayduke cherries excited considerable attention; These, from being so far out of season, no less than for their size, were declared entitled to, and obtained, the judge's prize. In the vegetable department, the potatoes, cabbages, turnips, carrots, lettuce, &c., all exhibited the great care bestowed upon their culture. (*Hull Observer*, Sept. 13.)

West Riding Horticultural Society. — *May* 11. Over the chair was an arch wreathed with flowers, from the gardens of Mr. Barratt; and hanging above

that, affixed to the wall behind the chair, was a plan of a conservatory, upon a magnificent scale, all the architectural proportions and compartments of which were indicated by flowers, varying in their kind and hue according to the varieties of the architectural parts of the design. This ingenious plan, and certainly tasteful ornament, was designed by the gardener of G. Wentworth, Esq., of Woolley Hall. [We should be happy to reckon this gardener among the number of our correspondents.] Of hot-house fruits there was a remarkably fine show. The specimens of peaches, nectarines, lemons, oranges, grapes, cherries, gooseberries, &c., at this early season of the year, were as large and as well ripened as they could be in autumn. At the lower end of the room was a cross-table, on which were deposited specimens of culinary vegetables. The broccoli, cauliflower, and rhubarb, could not be excelled; and the new potatoes were uncommonly fine for the season. The whole arrangements of the exhibition reflected much credit on those who made them, and were acknowledged by the visiters to be the very best to show all the specimens to advantage, and with the greatest convenience to the company. In the speech which the Rev. L. Sharp addressed to the meeting, he mentioned that, "from the insufficiency of the funds, the Society had been compelled this year to adopt some honorary prizes." Among the plants exhibited by Mr. Barratt were 13 new mimuluses, and 20 new varieties of shrubby and herbaceous calceolarias. (*West Riding Herald*, May 13.)

July 28. This show was generally deficient in quantity; and the stove plants were miserably poor. The fruit and vegetables were, however, good; and there were some fine specimens of Cape heaths and fuchsias from Mr. Barratt's conservatory. The calceolarias and dahlias were also much admired. Some new pyramidal flower-stands, made by Mr. Rothery of Wakefield, were exhibited to the company by the chairman, as were also some ornamental flower-pots, introduced into this part of the country by Mr. Barratt, which were much praised for their neatness. Several drawings of pansies, fuchsias, and other flowers, drawn by Mr. Terry, gilder, of Wakefield, were exhibited in the saloon, at the request of some gentlemen on the platform; and, for their perfect colouring, elicited unqualified praise. It was intimated the artist would be happy to paint specimens for the company, at a very reasonable price. The falling off in the show was a subject of general remark. It was also noticed that, in the immediate of Wakefield, there are nearly 800 acres of what is termed market-garden ground; and not a single competitor from these appeared at the West Riding Horticultural Show. (*York Courant*, Aug. 4.)

Huddersfield Horticultural Society. — *July* 29. The display of vegetables was particularly fine, and was very creditable to the neighbourhood; indeed, the good effects of the Society are already apparent, by the improvement both in the quantity and quality of vegetables and fruits which find their way into the market of this town. Amongst the fruits were particularly admired two or three of the dishes of strawberries. The raspberries and gooseberries were particularly fine. There were also currants — red, white, pale red, and black; the last, especially, were remarkably fine. Several dishes of excellent cherries ought also to be noticed; as well as that delightful fruit, the gooseberry, the display of which formed an important feature in the assemblage. The grapes were decidedly finer than any which have been exhibited on previous occasions. The melons, oranges, and lemons, were also numerous, and remarkably excellent. (*Ibid.*)

Leeds Florist Society. — *July* 3. Upwards of 500 pinks, of the choicest selection ever exhibited upon a stage, were produced. The company was very numerous, and highly respectable; and all expressed themselves not only satisfied with the splendid show of flowers shown as competitors for the prizes, but also highly gratified by the splendid style in which the room was decorated. Mr. John Kearsley, of Woodhouse Hill, Hunslet, had furnished a large number of the choicest green-house plants, in full bloom, which greatly added to the variety, and enlivened the scene. Several ponder-

ous bouquets graced the room, comprising upwards of 100 different sorts of roses, and containing a specimen of nearly every hardy or annual flower of the season. (*Leeds Intelligencer*, July 9.)

Malton and District Floral and Horticultural Society.—Sept. 27. The chief attraction of this season being the dahlia, the twenty classes of that flower were placed on a continuous line of tables down the centre of the room, with all the winning specimens elevated above the rest. Of fruit, upwards of four hundred dishes were exhibited, occupying tables the whole length of the room. Another not less useful, and more substantial, class of garden produce attracted universal interest and admiration; viz. the vegetables, which were in great abundance, and extremely fine. The specimens of agricultural vegetables were also numerous, and of extraordinary growth at such an early period; and excited particular attention from all the admirers of that valuable produce of this peculiarly agricultural district. A more than ordinary interest was created by an extra prize of half a guinea, by the committee, for the best dahlia of any colour, to be selected from all the winning flowers, after the first selection was made by the judges. The principal competitors were Messrs. Morrell, Revis, Slater, and Mrs. Kimberley. The flowers of the two latter being withdrawn, the umpires were called in to assist in the decision, when Mr. Morrell's flower (Criterion) was declared the premier. The room was embellished by three beautiful and tastefully arranged bouquets, sent from the gardens of Capt. Newbery, and Messrs. Dunlop and Hopkins. (*Yorkshire Gazette*, Oct. 1. 1836.)

Pontefract Horticultural Society.—Aug. 4. The show of fruits and vegetables was good; but comparatively few fine flowers were exhibited. Mr. Tinker and Mr. Jones were most successful with the dahlias, and Mr. Ely with the picotees and carnations; in which, in fact, he won every prize. (*Leeds Mercury*, Aug. 13.)

Sheffield Horticultural Society.— May 4. The show of specimens of orchideous and stove plants from Wentworth House, which was extremely numerous, choice, and rare, attracted universal attention; and, at some periods, there was a complete crowd to witness their beauty. From Welbeck, also, there were several choice hardy shrubs, as well as some choice plants, from the gardens of George Younge, Esq., of Sheaf House; S. Shore, Esq., of Meersbrook; and other gentlemen in the neighbourhood of Sheffield. A choice display of ripe grapes was shown from the Duke of Portland: a coiled one in a pot, loaded with fruit, attracted general attention. A truly grand specimen of the palm-tree, from the Sheffield Botanic Gardens, was much noticed. The green-house plants from the town and neighbourhood were numerous. The show of auriculas, polyanthuses, and hyacinths, was not only numerous, but, in point of quality, very superior. The show of the tribe of *Cáctus* was, likewise, extensive, rare, and beautiful. The bouquets were numerous and attractive, and drew forth the admiration of the numerous visiters. In every description of vegetables, the display was far more numerous and excellent than could have been anticipated. The apples and pears excited wonder as to the means of their preservation. Mr. Milan took the first prize for asparagus; and Mr. A. Hall the prize for British plants, as well as several others. Messrs. Crowder had awarded to them the following prizes: — The best and second best Camél*l*ia japónica; the best hardy herbaceous plant; the second best display of cut flowers; the best exotic fruit; and the best collection of roses. On the whole, the present exhibition exceeded whatever might have been anticipated, whether as regards the quality and extent of the numerous specimens, or the attendance of visiters, which, in point of numbers and respectability, was unexampled in the annals of the Sheffield Society. (*Doncaster, &c., Gazette*, May 6.)

June 22. This exhibition was of first-rate character; the plants, fruits, and vegetables being of the finest quality, and the display of ranunculuses exceeding that of any former year. The most successful exhibiters were G. Younge, Esq.; Earl Fitzwilliam, the Earl of Surrey, Mr. Mearns, and

Mr. Machin. Mr. Driver, Mr. Hawkesworth, Mr. Archer, and Mr. Green won most of the prizes for ranunculuses. (*Sheffield Mercury*, June 29.)

Sept. 14. *and* 15. This show took place in the Sheffield Botanic Garden, and was decidedly the grandest provincial horticultural show that has ever taken place in England. A marquee, 111 ft. in length, and 16 ft. in width, was erected for the dahlias; and one, 96 ft. long, for the fruit and vegetables; while a portion of the green-house, 90 ft. long by 24 wide, was set apart for the plants. Above 150 master-gardeners were present, and a still greater number of journeymen and apprentices; while the number of amateurs was not less than 5000 or 6000. The prizes consisted principally of valuable articles of plate; to give an idea of which, we need only state that there was one cup of 15*l.* value, five of 10*l.* each, two of 7*l.* each, and eight of 5*l.* each; besides a great number of silver snuff-boxes, and other similar articles. Mr. Widnall was the winner of the largest cup; and his dahlias, particularly one called Dodd's Mary, were universally admired. Mr. Levich's ranked next; and both his flowers and those of Mr. Widnall, though they had travelled so far, were as perfect (not a petal being injured) as though just gathered. Very few seedlings were exhibited. In the fruit department Mr. Paxton obtained a prize "for a black St. Peter's grape, growing in a tub 18 in. square. The shoot might be about 15 ft. in length, with the extremity bent back, and tied to the stem a little above the pot. The number of bunches we counted was twenty-four, and so regularly distributed over the vine as to present an appearance almost mechanical." (*Floricultural Magazine*, May 1. p. 118.) Four fruits of Averrhòa *Carambòla* were sent by Mr. P. N. Don, gardener to J. Bateman, Esq., Knypersley Hall. The size of the fruit was considerably larger than a hen's egg, with five deep angles, and of a whitish colour. Among the vegetables were some onions, exhibited by Mr. Bolton, near Manchester, measuring between 7 in. and 8 in. across. The best collection of stove plants was from Chatsworth; the best green-house and hardy plants were shown by Mr. Menzies of Halifax; and the best orchideous plants were exhibited by Mr. Cooper of Wentworth.

York Horticultural Society. — April 13. The show of stove and green-house plants was very rich and beautiful; but the florists' flowers were deficient, owing to the lateness of the season. The Rev. W. Hincks, one of the vice-presidents, took the chair at three o'clock. He said he had little to remark respecting the show. With respect to the florists' flowers, it would be observed by every one that, at the present season, they had not been successful in finding out the exact time of the flowers being in perfection. The peculiar character of the weather had been such as to retard their progress; and the hyacinths, which ought to have been at this time in full flower in the open air, were not yet ready; consequently they were dependent for those exhibited upon those brought forward in green-houses. The auriculas were, also, a full fortnight behind. From this cause they could not have the gratification they had expected; but still there were some specimens deserving of notice. In the other parts of the exhibition he was glad to say that the Society had been more successful. There were many very fine specimens; and the fruits and vegetables were as fine as the flowers were varied and gay. On the cottagers' table was a very fine cauliflower, produced by F. Eshelby of Holgate. He regretted that there was not more abundant competition in this class; but still such a specimen was highly satisfactory. Having gone through the prizes, he might notice several things in the room which were remarkable for their beauty and curiosity, besides those to which prizes had been awarded. There was a very good show of green-house plants, camellias, and forced shrubs. One plant, in particular, attracted his attention as a botanist, being of a most curious, uncommon, and valuable kind. It stood on the centre of the middle stage, and was from Mr. Oldfield: the Glýcine nígricans. The show of apples was also worthy of notice: from Lord Howden's there were nineteen different sorts, and about sixteen from Mr. Hatfield's, all in exceedingly good preservation. (*York Chronicle*, April 13.)

May 19. This was an excellent show. The green-house plants were remarkably fine, as were the tulips. The broccoli and rhubarb were of a superior description. The prize flowers and fruits were placed on a table fronting the chair; and two immense bouquets of hardy flowers were erected in front of the orchestra. The prize trays of pansies attracted extraordinary admiration; and it was with difficulty they could be approached, so great was the press around them. Thomas Price, Esq., took the chair, and, among other things, observed, that the judges regretted that a beautiful new species of the Passiflòra, from John Smith, Esq., of Grimstone, was too much blown to prevent them awarding to it a prize. They, however, requested him to call the attention of the company to it, and also to several other specimens of the same flower from that gentleman. [We should be glad to know the name of this new passion-flower.] The judges also directed the attention of the meeting to a tray, from Mr. Fox of Bramham, consisting of twenty-four seedling mimuluses, a flower which had recently been much cultivated: the centre flower was one of the most perfect of its kind. There was a new seedling petunia, a box of seedling pansies, and two seedling calceolarias, from the same gentleman. He was requested to call attention to a dish of black Frontignac grapes, from Mrs. Hornor. He could himself bear testimony to the excellent management of the grapery at the Grange, having recently gone over it; also to a specimen of Wistària sinénsis, from the green-house of Alderman Hearon. (*Yorkshire Gazette*, May 21.)

Oct. 6. This was the closing exhibition for the season, and, perhaps, the most successful one. The cut flowers were much admired, and in the greatest profusion. Messrs. Backhouse, the eminent nurserymen of York, received a silver medal for the bouquets furnished by them. Among the numerous articles worthy of attention were two plates of grapes, raised without fire; also an elegant basket of roses, from Lady Howden; and some fine specimens of the Passiflòra from J. Smith, Esq., of Grimston. On the raised centre table were placed the stove, green-house, and hardy plants; and, considering the season of the year, these were very showy, many of them being in flower. On the left were placed the dahlias, which looked tolerably well. On the right were fruits and vegetables; these were truly excellent, and afforded one of the best possible proofs of the value of these societies, by improving those useful and every-day products of nature. Two splendid bouquets, in pyramidal form, garnished the orchestra; near which were some stately stove-plants from the hot-houses of Mr. Smith. In front of the gallery were placed the words "York Horticultural Society," formed of flowers; the first word in dahlias, the second in French marygolds, and the last in China asters: the effect was very beautiful, and reflected credit on the ingenuity and good taste of Mr. Foster, gardener to Lord Downe, by whom it was executed. We also noticed a tray of pansies, which looked very beautiful at this period of the year. (*York Herald*, Oct. 8.)

WALES.

Anglesey Horticultural Society.—July 13. The show-room was most tastefully set out with garlands and festoons of flowers, and which gave to the whole a most beautiful appearance: for this the Society was mainly indebted to Mr. Shaw, gardener to Lady Williams, of the Friars. The fruits, flowers, plants, shrubs, vegetables, &c., were arranged in admirable order: the confusion attendant on many of these exhibitions was totally avoided. The cucumbers, melons, grapes, peaches, stove plants, specimens of heath, green-house plants, pansies, and vegetables, were peculiarly fine. There were some splendid grapes and melons from Kinmel Park, the seat of Lord Dinorben; not brought for competition, but merely for exhibition, which attracted universal attention: the growth of them was highly creditable to Mr. Forrest. The numerous fashionable parties which crowded round the table evinced the interest taken in this Society; and we trust it will go on increasing in pro-

sperity and utility. The most successful competitors were, Mr. Vair, gardener to Mr. Meyrick; Mr. Scott, to Sir R. Bulkeley; Mr. Shaw, to Lady Williams; Mr. Ross, to Mr. Pennant; and Mr. Bostyne, to the Bishop of Bangor. We must not omit to mention that Mrs. Fuller, to whom this Society mainly owes its existence, with her usual liberality, gave orders that fifty poor cottagers should be regaled with a good dinner and *curw da* (old ale) at her expense. (*Caernarvon and Denbigh Herald*, July 16.)

CHANNEL ISLANDS.

Guernsey Horticultural Society. — May. The show of plants and flowers was very splendid. The vegetables, considering the unpropitious winter, together with the bleak and cold spring, were in excellent condition, and afforded the most satisfactory proof of the care and diligence of our cottagers, among whom the sum of 7*l.* 12*s.* 6*d.* was distributed as prizes. Among the vegetables we noticed some very fine cucumbers, asparagus, kidney potatoes, and carrots, exhibited by Mr. Samuel Harris, of the Royal Yacht Club Hotel. Among members' prizes were three beautiful silver medals, of the size of the Banksian, being the first the Society have given. The intention to do so was announced some months back; and the increased size of the same varieties of flowers, and the superior varieties brought forward for competition to any we have before seen, clearly shows how much the medals have stimulated the exhibitors. One was awarded to William Brock, Esq., of Belmont, for an exhibition of calceolarias, in splendid flower, nearly all seedlings. Among the most remarkable plants exhibited were, from Mrs. Bourne, 20 pots of schizanthus, in high perfection, the plants being from 2 ft. to 3 ft. high, and covered with blossom; a stand of 150 blossoms of heartsease, of remarkable size and beauty. From Harry Dobrée, jun. Esq., a collection of 30 specimens of bulbous plants in pots, in flower; some very good lettuces; a very beautiful display of cut camellias, principally the double white, all grown in the open air; some fine plates of dessert and kitchen apples, in excellent order; and a few specimens of the Travers apple, two years old, perfectly sound. Mr. Dobrée's seedling ranunculus also obtained a prize. Mr. Cockburn's heaths were as fine as usual; and to the six selected for competition, a prize was very deservedly awarded. This gentleman's Calceolària péndula, which obtained the first prize for named varieties, was conspicuous for its beauty, even amongst the vast and splendid collection of these elegant plants which were exhibited by various members of the Society. (*The Courant*, May 12.)

Botanic Garden in Guernsey. — Proposals have been made for establishing a botanic garden in Guernsey; for which purpose the island appears admirably adapted, from the mildness of its climate. (See *Guernsey Star*, May 4.)

Jersey Agricultural and Horticultural Society. — July 20. Pine-apples, melons, grapes, figs, strawberries, cherries, &c. &c., were mingled with dahlias, roses, jessamine, carnations, and numerous other flowers of great fragrance and loveliness. [They would have had more effect if exhibited separately.] The dahlias of Mr. B. Saunders were, for early flowers, decidedly of good promise; and three dahlias exhibited by Mr. Dupré, to which the first prize was awarded, were of extraordinary merit for July blooms. The fruits exhibited deserve particular notice. Nor were the more solid, though less striking, productions of the kitchen-garden forgotten: potatoes, cabbages, artichokes, and many other esculents, were exhibited, of enormous dimensions. It is with real pleasure we notice the products exhibited by the cottagers. The vegetables sent by these competitors rivalled those of the best cultivated gardens; and their fruits were also of a very fine order. After the exhibition, the company, to the number of 200, partook of a handsome *déjeûner*, and the *fête* ended with a ball. (*Jersey Times*, July 22.)

Oct. 5. The room was tastefully and appropriately decorated with a great profusion of wreaths and festoons of mingled flowers and foliage; and the entrance was embellished with a lofty arch of sylvan architecture. The stands

were ranged all round the room, and displayed an astonishing variety of fruits, flowers, and vegetables; while one immense table, or series of tables, occupied the centre of the room in its whole length, and contained the contributions of the cottagers, the richness and variety of which excited universal admiration. Among the flowers, we cannot help particularising the splendid show of dahlias, by Messrs. Langelier and Saunders; those of the former being spread out to the greatest advantage, and displaying upwards of 100 varieties; and those of the latter being wrought into the letters "W. R.," and the crown, which occupied the upper end of the room; and in the centre of the immense apartment, a conspicuous object of admiration, a large anchor, the appropriate symbol of the prosperity of Jersey. Among the fruits we noticed 50 Chaumontelle pears, weighing 34 lb.; 12 bergamottes de Pentecôte, 12 beurrés d'Aremberg, and 12 crassanes, averaging in weight 6 lb. each set; and 12 Duchesse d'Angoulême pears, weighing 10 lb. 12 oz. (*Jersey Times*, Oct. 7.) If the excellence of every sort of pear grown in the climate of Jersey and Guernsey were generally known, we are sure there would be an extraordinary demand for them in the metropolis, and in other large towns.

SCOTLAND.

Caledonian Horticultural Society's Exhibition.—June 2. This was an exhibition and grand promenade at the Horticultural Society's Garden at Inverleith. The fine weather, and the attractions of this floral display, drew together a numerous assemblage of fashionables, little short of a thousand. The exhibition tents were tastefully fitted up, and thronged with eager admirers of the fine exotic plants, azaleas, tulips, pansies, ranunculuses, &c., sent in by the several competitors. Several extra prizes were awarded on this occasion; particularly for a very rich collection of 100 seedling calceolarias, raised from seed saved last autumn, to Messrs. Dickson and Co., Leith Walk; also for a fine collection of stage and seedling calceolarias, raised by Mr. J. Kellie, foreman at the nursery of Mr. James Dickson, Inverleith; for a most beautiful collection of peonies, including several rare varieties, to Mr. Alexander Forrester, Carlowrie; and many others. Apples and pears, in a state of high preservation, were received from Mr. Brewster, at Balcarras; Mr. Denneston of Oakmount; Col. Hardie, at Castle Semple; and Mr. Sharp, at Pitfour. The greatest novelty in the culinary department was a basket of tubers of *O'*xalis crenàta, presented by Mr. Macnaughton, gardener to Col. Wauchope, of Edmonstone. They were of the usual size, yet produced during the present year, by keeping the plants in sand, under the stage of a warm green-house. — *P. N.*

Clackmannanshire Horticultural Society.—April 30. The room was tastefully adorned with wreaths of evergreens and flowers from Shawpark, and from the botanic garden at Dollar. The articles for exhibition sent from all quarters were much more numerous than those for competition. There were exhibited by Dr. Walker, Woodcot, near Dollar, a number of very beautiful hyacinths, kept in the open borders these several (some of them for ten) years, without any protection. [We should be glad to have a short journal of the treatment of these hyacinths during the whole time, including their names, and the depth at which they were planted, &c.] A. J. Bonar, Esq., of Aloa Glass-works, exhibited six double hyacinths, six auriculas (two white, two grey, and two green-edged), three polyanthuses, two primroses, and one polyanthus narcissus; all of which, particularly the hyacinths, were of great beauty, and might have obtained first prizes, had they been for competition. Mr. Mitchell, Alloa, had an extensive collection of the various sorts of Xeránthemum and *G*naphàlium (now *E*lichrỳsum), lately from the Cape, which were much admired for the splendour of their colours. William Clark, Esq., Greenfield, exhibited a very fine tree carnation in flower, polyanthuses, primroses, and auriculas; one of the last from the open border, with 25 pips. By Mr. Finlayson, Kincardine, some very fine specimens of double wallflower were shown. A beautiful antique terra cotta vase, filled with flowers and

evergreens, was presented to the Society by Alexander Bald, Esq., of the Alloa brick and tile-works, and was universally admired for its elegance of design and beauty of workmanship. We understand this vase was modelled under the eye of Mr. Bald, by Thomas Hill, a very ingenious young man now in his employment. (*Stirling Journal*, May 20.)

June 30. The meeting on this occasion was held in two rooms. The upper room contained exclusively articles for exhibition, and the lower one those for competition. Both rooms were very tastefully adorned with evergreens and festoons of flowers; a plentiful supply of materials for that purpose having been kindly sent from Dunmore Garden, Dollar Botanic Garden, Carsebridge Garden, from Mr. Williamson's garden, and many others. There was an unusually numerous assemblage of the members and their families, as well as of visiters from the surrounding country; all of whom appeared highly gratified by the exhibition. The number of hot-house and green-house plants brought forward, both for competition and exhibition, was much greater than on any former occasion. Mr. Lightbody, the celebrated florist in Falkirk, was so obliging as to send for exhibition a collection of his very superb ranunculuses, which were universally admired, being the finest ever seen here. From Kennet Garden were sent for exhibition four very large and well-preserved pound pears, numerous splendid flowers, both tender and hardy; five varieties of moss roses, and an elegant new variety of *Antirrhinum* [? name], raised at Kennet in 1834. A magnificent bouquet filled the beautiful terra cotta vase presented to the Society by Mr. Bald at the last meeting; and Mr. Gardiner of the Alloa Pottery exhibited a number of beautiful ornamental flower-pots, with saucers, of various patterns and different sizes, which were very much admired, being specimens of such as he now has on sale. (*Ibid.*, July 8.)

Dumfriesshire. — *Dumfries and Galloway Horticultural Society. — July* 2. Among the articles exhibited were 32 seedling ranunculuses, raised by Mr. Kelloch, gardener to W. Younger, Esq., of Craigielands; who also sent Mr. Younger's crest in flowers. (*Dumfries Courier*, July 6.)

Sept. 22. There was a very fine display of fruits, vegetables, and autumnal flowers, which were all so excellent, that the judges were three times unable to decide between them. Respecting the present state of the Society, the editor of the *Dumfries Courier* observes, — "Our own conviction decidedly is, that the Society is improving more and more under the joint, spirited, and judicious management of our townsmen, Major Adair, and Mr. Johnstone. Not to speak of the merits of such men as Webster of Munshes, M'Gillivray of Closeburn Hall, Hannay of Drumlanrig, honest John Learmont, and other 'good men and true,' who have long carried the Society upon their backs. Mr. Kellock seems to be a host within himself; although he is, no doubt, much indebted to a most liberal master, who not only gives him time to cultivate the finest floral treasures and fruits, but encourages his ingenuity in the various devices that tell so wonderfully on the Dumfries exhibitions. The Indian pagoda, or Temple of Juggernaut (what the framer called it we do not know), was admired by hundreds as a surpassing specimen of floral architecture; and nearly equal praise should be awarded to the mimetic fancy cottage which gained the first prize. But there were two others which excited very general delight; and either, we must say, on a somewhat larger scale, would content us for life." Mr. Grierson of Baitford exhibited some fine German asters, and also 21 stalks of Annat barley, from one seed, got from Mr. Lawson, nursery and seedsman, Hunter Square, Edinburgh: each head bore about 35 grains. Some very large Portugal onions were shown by Mr. Norris, fruiterer, Dumfries. Among the articles which gained prizes were — models of moss-houses: first prize by Mr. Kellock; second prize by Mr. J. Johnston, Conheath. Ground plan of garden and shrubbery, &c., by Mr. W. Dargavel, gardener at Dumcrief. (*Ibid.*, Sept. 28.)

* *Galloway Union Horticultural Society. — Sept.* 14. This exhibition was held in the Town Hall, Newton Stewart, and was most respectably and

numerously attended. A most splendid collection of green-house plants, consisting of ericas, fuchsias, and many other varieties, was presented from the garden of Mr. Stewart of Cairnsmore, which added, in a high degree, to the ornament of the room, and the pleasure and admiration of the spectators. A beautiful specimen of the *Yúcca* gloriòsa, in full flower, a magnificent coxcomb, and several other rare plants, were presented from the garden of Sir David Maxwell, Bart., of Cardoness. Mr. Kellock, gardener to William Younger, Esq., of Craigielands, forwarded to the secretary a fine collection of dahlias, pansies, &c., which attracted great admiration; but not being named, and only intended by Mr. Kellock as a complimentary ornament to the show, they could not enter into competition. The garden of Kenmure Castle likewise poured forth its wonders in the shape of four huge stalks of celery, of this year's growth, any one of which could have satisfied a dozen lovers of that delicious edible. About forty new members enrolled themselves at this meeting, which seemed to give to all present the greatest satisfaction. (*Dumfries Courier*, Sept. 21.)

Edinburghshire. — *The Mid-Lothian Horticultural Society. — Sept.* 13. The exhibition was an excellent one, and extremely well attended. Among the prizes was one for retarded gooseberries, and another for retarded currants, both gained by Mr. James Goodall, gardener to the Marquess of Lothian, Newbattle Abbey. Messrs. Ballantyne and Son, nursery and seedsmen, Dalkeith, having kindly placed at the disposal of this Society two handsome silver medals, as a first and second prize, to be awarded to the two apprentices or journeymen gardeners, employed under any member or members of this Society, who will produce the largest and best collection of named specimens of British and exotic plants, gathered and dried in flower, since Jan. 18. 1836, the first medal was gained by James Keddie, journeyman gardener, Melville Castle. The herbarium contained 1476 different specimens, beautifully dried, and accurately named. The second medal was gained by John Murray, journeyman gardener, Moredun: the number of specimens were 1529, and well preserved. A third collection was sent by Alex. D. Pentland, journeyman gardener, Penicuick House, arranged according to the natural arrangement of plants. They were excellently dried, but were short in numbers, there being only 931 specimens. The committee voted an extra premium for the trouble taken in their arrangement. [Independently of the circumstance of these young men coming from the place where we were brought up, we should be glad, on account of their merits, to reckon them among the number of our correspondents.] (*Edinburgh Evening Courant*, Sept. 26.)

Fifeshire.—*St. Andrew's Horticultural and Floricultural Society.—July* 13. At no former meeting has a more numerous assemblage of ladies and gentlemen of the city and neighbourhood appeared. The principal object of attraction was the show of grapes, which were excellent; and we will venture to assert that the muscat of Alexandria, from Sir David Erskine's, cannot be equalled in Fifeshire. The other varieties were also very fine; and to those interested in the cultivation of grapes, we say, "Spare neither fire, air, water, knife, nor scissors." The show of cucumbers was also very fine, some of them measuring 2 ft. long, quite young and green. Strawberries were particularly fine and large; so was the show of florists' pinks, mimuluses, pansies, &c.; and the culinary vegetables at once showed the excellence of their culture. Mr. Smith, gardener at the Priory, presented to the Society a bunch of grizzly Frontignac grapes, being one of four produced from a scion of two buds engrafted on the black Hamburgh, in the month of March last year, along with a communication stating the manner in which this operation was performed, which, we understand, is quite a novelty in vine culture. [This communication, which we have received from our esteemed correspondent, will appear in an early Number.] The judges awarded an extra prize to Mr. Smith for this communication and production. (*Fife Herald*, July 21.)

Sept. 28. The lateness of the season, and the almost continual wet and

cold weather, had tended materially to mar the appearance of the flowers; but there were, notwithstanding, a good show of dahlias, presenting a rich variety of colour of almost every hue and shade. The grapes were the most extensive and most inviting feature of the competition, and attracted great attention. Melons, peaches, nectarines, apricots, and plums, were also displayed in great profusion. The very handsome and ingenious manner in which the bouquets and designs in flowers were got up, excited general admiration. The design from Strathtyrum, representing the eastern gable of the ruin of the Cathedral of St. Andrew's, was ingeniously executed, and attracted a good deal of notice. There were presented from the green-house of John Small, Esq., of the Priory, four splendid bunches of black Hamburgh grapes, grown without fire-heat, partly on the spur, and partly on the new system of training: the judges awarded an extra prize to Mr. Smith for this production. From George Paterson, Esq. of Cunnoquhie, some beautiful Antwerp apples, Washington plums, and apples of 1835. From Andrew Bousie, Esq., some very large nonsuch apples. From Gibliston, some beautiful seedling dahlias. From Strathtyrum, a fine camellia, and other green-house plants. A bough of red currants, from St. Leonard's, and some huge parsnips, for which an extra prize was awarded to Mr. Young. From Dr. Cook, an immense white stone turnip. From Mr. Robertson, gardener, St. Andrew's, a fine specimen of Antwerp raspberries. From Mr. Erskine, gardener, St. Andrew's, some extra large horn carrots, measuring 5½ in. in diameter. (*Ibid.*, Oct. 6.)

Collinsburgh Horticultural Society. — Sept. 27. From the extensive and varied show of fruits and flowers produced, it may be said this Society offers fair to rival any of the sister associations recently formed in the county. There was an unusual number of prizes distributed. After those commonly given, the practical gardeners connected with the Society, in pursuance of that feeling of emulation which animates their own exertions, offered premiums to the amateurs, all of which were awarded. The following were sent only for exhibition: — From Balcarres Gardens, two beautiful and rare specimens of Fúchs*ia*; seed cucumber, 2½ ft. long; and a tastefully arranged bouquet. From Gibliston, one dozen of very fine seedling dahlias, amongst which was "Flora Macdonald," very much admired. From Craufurd Priory, a large and fine collection of seedling calceolarias. From Mr. Ronald, Kirkaldy, savoy, measuring 4 ft. 9 in. in diameter, and three samples of potatoes; one the original Tartar potato, the seed of which was imported from Ireland by the late Major Lumsdaine, of Lathallan; the others the American early and red; the first planted March 1. last, and dug in June; and the latter planted in the same ground July 11., and lifted Sept. 26., being two crops within six months. The Tartar, on trial, was found to be an excellent eating potato. (*Ibid.*)

Cupar Horticultural Society. — June. Among the articles sent we observed, from Mr. Watson Tarvit, a dish of pears, in a good state of preservation; specimens of *Pæòn*ia *Moútan* Bánks*ia*, Cratæ'gus *O*xyacántha coccínea supérba; and a collection of border flowers. From Mr. Ewing's nursery, Cupar, a very fine collection of about 60 named tulips, and a spike of Cheiránthus mutábile (changeable flowering wallflower). From Mr. Thomson, tailor, Cupar, a collection of 70 varieties of ranunculuses. From Mr. Temple, Falkland, some very rare and beautiful green-house plants. (*Ibid.*, June 9.)

Dunfermline Horticultural Society.—July 12. There was an excellent show of grapes, peaches, cherries, and other fruits; and the exhibition was rendered still more attractive by the addition of many rarities in the floral kingdom. Among these were an antirrhinum from Pitliver Garden; helianthemums from Mr. Macara, druggist; seedling mimuluses from Fordel Gardens; a collection of beautiful pinks from Mr. Robert Kilgour, Kirkaldy; a specimen of Brugmáns*ia* suavèolens, and a number of large and beautiful oranges, from Torry garden. Mr. Sang of Kirkaldy also exhibited a collection of rare and beautiful flowers. (*Ibid.*, July 21.)

Forfarshire. — * *Arbroath Horticultural Society. — Sept.* 28. The fruits and flowers were very superior, and there were a great number of visiters. The dahlias, from Messrs. Henderson's nursery, Brechin, attracted particular attention. (*Montrose Review*, Oct. 1.)

Dundee Florist Society.—Oct. 5. It consisted chiefly of dahlias, which were very fine and numerous. Considering the lateness of the season, and the unfavourable state of the weather for some time past, it was surprising to see the number and beauty of the flowers produced; which showed the great attention now paid to the pleasing study of floriculture. The articles not for competition were, dahlias, from the Rev. Mr. Horsley, and Mr. Rowan, Perth Road; Mr. Clark, Westfield Cottage; and Mr. Angus, Hawkhill; a fine variety of French marygolds, from Mr. Tait, Thain's Park; and some beautiful annuals, dahlias, violets, and calceolarias, from the Blackness Crescent Nursery. (*Dundee Advertiser*, Oct. 14.)

**Forfar Horticultural Society.—Sept.* 21. Although the Society is yet in its infancy, the show of flowers, fruits, and vegetables, was of a kind which those who have been in the habit of attending similar meetings stated they had never seen surpassed. From the numerous attendance from all quarters, we are glad to think that there is no doubt of this Society being permanently established, as the proceedings of Wednesday seemed to excite the best wishes, not only of the ladies of Forfar and the amateurs, but to raise the emulation of the practical horticulturists, many of whom attended from all quarters of the district. The judges had considerable difficulty in awarding the prizes, from the excellence of many of the articles sent for competition. (*Montrose Review*, Oct. 1.)

Montrose Horticultural Society. — May 4. The show of flowers was uncommonly fine. The auriculas were such as to command the admiration of the most strict connoisseurs. In hyacinths and polyanthuses, the display was also rich. The bouquets from the green-house were very tastefully arranged, and presented a combination of beautiful plants. In the fruit and vegetable department, the table presented a very imposing appearance. One dish, in particular, marked from Dun, contained a variety of, we believe, sixteen or eighteen apples, as finely kept as we remember to have seen. Some potatoes, grown in moss [we suppose live moss], were a novelty in their way, and showed what might be done in this manner: these last were from George Ramsay, Esq., Craig, and James Wright, Usan. (*Ibid.*, May 6.)

July 20. There was a very rich display of flowers; and the fruit, both in quantity and quality, was superior to the exhibition at any of the Society's former shows. One bunch of very ripe black grapes, from Dun, was much admired: it weighed upwards of 2 lb. To particularise the flowers would be tedious. Some fuchsias, from Mr. William Beattie's collection, were much admired. We were also highly pleased with a display of dahlias and pinks from Messrs. Henderson, Brechin, amongst which one pink, in particular, was much noticed, as being very uncommon. A very excellent bouquet from a cottage-garden was shown, in which we observed a more varied display of plants than we were prepared for: some very superior vegetables were also entered in competition for the cottage prizes. (*Ibid.*, July 22.)

Sept. 7. The carnations brought forward were excellent; the dahlias, as was anticipated from the late stormy weather, were not equal to last year's show, except those from Den Nursery, Brechin, which, though not so large as in former seasons, were truly beautiful; and the table was adorned by a profusion of fuchsias, &c., and a fine plant of Campánula pyramidàlis, from the Rev. John Dodgson's collection. Among the prizes was one for the best wine made from the indigenous fruits of Scotland, gained by Mr. Beattie. Premiums were offered by the president, Patrick Chalmers, Esq., M.P., to operatives or cottagers in the district, for the cleanest, neatest, and best-kept garden and walks; and the first was gained by James Robb, Tayock Bridge. The extra prize to operatives or cottagers, for the greatest variety of apples, pears, &c., given by Messrs. Dickson and Turnbull, Perth, was also gained by James Robb. (*Ibid.*, Sept. 9.)

Sept. 28. This was the extra, or dahlia, show of the Society. Notwithstanding the cold and ungenial weather this season, there was a much finer display of this flower than what we could have expected: in fact, the varieties were far more numerous than at the corresponding show of last year; evincing that the spirit of emulation has not slumbered in this quarter. As usual, the rich collection of this flower, from Henderson's Nursery, Brechin, added greatly to the display. We noticed a very beautiful dark seedling dahlia, raised by R. Trail, which gained an extra prize: it was afterwards named the "Duke of Montrose." The most successful competitors in this Society, for the season, were George Ramsay, Esq., Craig, and Mr. James Reid, Old Montrose. (*Montrose Review*, Oct. 1.)

Lanarkshire. — *Glasgow Horticultural Society.* — *June* 15. The immense variety, but minute beauties, of the pansies brought forward on this occasion by fourteen competitors, attracted the attention of all; and, when the room was thrown open to the public, much anxiety was manifested to get a peep at the prize pan; but, we regret to say, as usual on such occasions, the most favourable situations for viewing their beauties were occupied, during most of the time the exhibition remained open, by the practical members and their friends, to the almost total exclusion of the fair visiters. Now, we do not in the least wish to quarrel with this praiseworthy curiosity on the part of either amateur or practical horticulturists; but we must enter our protest against this practice in the public exhibition room. We would therefore seriously advise all competitors, in future, to bring duplicates of the articles competed for; and, after the judges have given their decision, let them retire to the Society's committee-room, or to any of the other apartments attached to the place of meeting, and then and there discuss, to their heart's content, the respective merit or demerit of the particular articles under review. This disinterested advice they should henceforth act up to, if they do not wish to see the gradual falling away of the number of visiters, and, consequently, a gradual diminution in the value of the prizes given, the fund for which purpose arising, in a great measure, from them as the price of admission. We cannot conclude our remarks without adverting to the very splendid display of upwards of sixty fully expanded blossoms of that beautiful flower, the Cèreus speciosíssimus, from Woodhall, which occupied a great portion of the fruit table; nor of expressing our unqualified regret at the accident which occurred in the transfer of several very rare and showy exotics and greenhouse plants from the Botanic Garden; thus counteracting the generous zeal of its curator, Mr. Murray, in adorning the room, and making the exhibition more complete. In consequence of a very general dissatisfaction having been expressed with the decision on the shrubby calceolarias, it was considered expedient, in order to maintain the harmony of the Society, to refer the matter to the united judgments of the whole number of flower judges present, to decide, first, as to whether a revision of the judgment should take place; and, secondly, to declare to whom the first prize ought to have been adjudged. This arrangement having been concurred in by the original section of judges, it was, first, unanimously agreed that a revision should take place; and, secondly, it was decided, by a majority of four to two, that Mr. Turnbull, of Bothwell Castle, was entitled to receive the first prize. Among the fruit, the first prize was adjudged to Mr. James Hardie, for some finely preserved apples (Ribston pippin). Second, to Mr. George Shiells; cherries, from an open flued wall: 76 lb. have been gathered, from one tree, since May 10., and about 30 lb. remain. Among the flowers there was a cream-coloured broom, found in Bute, from Killencourt; 28 named sorts of ranunculuses, and numerous other flowers, from Hamilton Palace; 270 varieties of heartsease, from Keir; 12 varieties of seedling pelargoniums, from Gilmore Hill; and a grafted pelargonium, and other flowering plants, from Woodlands. Mr. Green, of Sheffield, produced to the meeting one of his double-action garden-pumps, for which he has taken out a patent. (*The Constitutional*, June 18.)

Stirlingshire. — *Auchenbowie and Plean Horticultural Society.—Sept.* 17.

Among the prizes we observed two or three were for articles not generally included in prize lists. One was for gardens most tastefully laid out, and neatly kept: first prize gained by W. Stevenson. Another was for ornamental bouquets of wild flowers, gained by W. Taylor. Another for the best-arranged flower clump: first, Wm. Stevenson. Another for the best general crop of vegetables, as seen in the gardens, during the season: first, Wm. Gillespie, sen. An extra premium had been offered to the member that gained the greatest number of first prizes during the year. Four members, namely, William Pollock, David Ker, John Miller, and Alexander Cowan, were found to have gained an equal number—five each. The value of the premium offered was divided among them. The Highland and Agricultural Society of Scotland having offered two of their cottage medals, to be awarded for the two best-kept cottages and gardens, it was announced that John Miller, carter, and Archibald Neilson, wright, both in Auchenbowie, would be reported by the committee as the most meritorious of the competitors. Besides the articles entered for competition, a good many others were exhibited, chiefly in the floral department. Mr. Ritchie, Denny, presented some choice specimens of dahlias, asters, chrysanthemums, &c. The room was also graced by two large and splendid bouquets; one from Auchenbowie Garden, the other from West Plean Garden. The latter was in the form of a dome, resting on four columns, in the centre of which a *jet d'eau*, fed from a concealed reservoir, continued to play during the whole time of the exhibition. It formed the great object of attraction. It had the charm of mystery for many, and the recommendation of novelty for all. (*Stirling Journal*, Sept. 2.)

Stirlingshire Horticultural Society.—July 5. Owing to the unfavourable state of the weather, the exhibition was rather meagre; but numerous prizes were distributed. Among the articles not sent for competition were, from Deanston House, 12 seedling mimuluses, and new annuals; from Blairdrummond, a collection of herbaceous flowers, roses, seedling violas, and a brace of Niven's long green cucumber, each 22 in. long; from Craigforth, apples preserved in peat moss, roses, and other flowering plants; from Ochtertyre, a potted flower plant of striped antirrhinum; from Mr. Lightbody, Falkirk, 25 varieties of seedling ranunculuses, considered by florists of great merit; from Drummonds' nursery and museum, an assortment of flowered specimens, and garden urns and vases. (*Id.*, July 8.)

Sept. 20.—The flower department comprised much that is rare and splendid; the dahlias and German asters, especially, were uncommonly fine, and much admired. The fruits and vegetables, although in variety and quantity not deficient, were, as might have been expected from the absence of genial weather, considerably behind as to quality. The ornamental bouquets of flowers were got up with great taste; and that produced from Wester Plean, with its water fount in operation, seemed to attract special notice. The rustic chairs, produced by the tasteful veteran from Sauchie, were masterly done specimens. Among the journeymen or apprentices' prizes was one for the model of a cottage, which was gained by Thomas Macfarlane, journeyman at Blairdrummond Garden. It is matter of regret that there was no competition in this interesting department. The directors, we have no doubt, will next year offer encouragement for similar structures. The specimen produced by Macfarlane is highly creditable. Among the plants exhibited, not for prizes, were, from Ardoch House, 12 named phloxes, and a collection of new and superior herbaceous plants; from Cardross, 20 varieties seedling carnations, and 20 varieties seedling picotee ditto; from Deanston, dahlias, &c., and a convenient flower-stand, with tubes to contain water; from Blairdrummond, 48 varieties of named apples and pears; also, Alsike clover, and *Vícia villòsa*, with minute explanatory remarks; from Coldoch, dahlias, &c., and apples, crop 1835 and 1836; from Major Baird, of Park, seedling carnations, and other flowers; apples and pears, and fruited branches of Siberian crab: from Mr. John Christie, Causewayhead, specimens of *Aloýsia citriodòra*, from a plant 10 ft. high, and which has stood in the open air five years, the three last of which

it had no protection during winter; from John Cowan, workman, Sauchie, two rustic garden chairs, of very superior design and workmanship; from Messrs. Eagle and Henderson, nursery and seedsmen, Edinburgh, an extensive and first-rate collection of dahlias and French marygolds; from Mr. Thos. Handayside, seedsman and florist, Musselburgh, an extensive and first-rate collection of dahlias, and German, French, and Chinese asters; from Drummonds' nursery and museum, a collection of flowers and shrubs, Alsike clover, garden vases and ornamental pots, &c. (*Stirling Journal*, Sept. 23.)

IRELAND.

Belfast Horticultural Society. — In consequence of some political differences, a division has taken place among the members of this Society; part of whom have withdrawn from it, and united themselves under the name of the Ulster Horticultural Society. The original Society, however, still remains in a very flourishing condition, as will be seen from the following extract from a letter of Mr. Niven, curator of the Glasnevin Botanic Garden, near Dublin: — "Never was I more gratified than at the last show of the Belfast Horticultural Society. Rapid indeed must have been its progress, when I consider that only seven short years have gone by since it first originated: now it stands proudly forward; and, if not the *first*, is at least the *second*, in point of excellence, in the land. With nothing was I more pleased, than with the admirable arrangement for adjudication. Every thing was complete. *Not a person but the judges was permitted to enter the rooms whilst the adjudication was going on.* The classification of the various groups of plants, flowers, and vegetables, was highly creditable to the worthy gentleman, the treasurer of the Society, who bestowed so much attention to this, as well as to the tasteful decoration of the rooms." Mr. Niven adds, "It is pleasant to look around us, and consider how many of these useful societies are starting up. A few years ago, and the Horticultural Society of Ireland stood single, alone, without a competitor, without a rival. Stimulated by all that is passing around, it will go forward with increased vigour and energy; and I sincerely hope we shall live to see the day when, not only every *provincial town*, but when every *county town*, in Ireland, will have its horticultural society and its agricultural museum." (*Northern Whig*, Oct.)

July 1. — The number of visiters exceeded 1000. The tender heaths, from Mr. Andrews's, were remarkably beautiful. The calceolarias and fuchsias, from the same gardens, were most splendid. Mr. Andrews also contributed some very fine green-house plants, and a number of other valuable flowers. Mr. Langtry, as usual, carried off the first prizes in pelargoniums. A very fine seedling deservedly attracted much attention; and his gardener, William M'Kay, received great praise for producing so beautiful a plant, and one perfectly original in form and colour. Mr. Andrews's pelargoniums were, also, remarkably fine; and, only that some of his best received an accidental injury, he would have stood well for the first prize. The finest tulips were those of Mr. Henry Davis, who also received a prize for a specimen of his new variegated entire-leaved ash, figured in a former page. The most remarkable fruits were, a pine, from Lord Bangor; and a dish of ripe cherries, from Mr. John Thomson's of Low Wood. Mr. Campbell, curator to the Botanic Garden, sent in a number of very uncommon and valuable plants; but they were not for competition. (*Ibid.*, June 6.)

Sept. 16. As a farther testimony in behalf of the Belfast Horticultural Society, we may quote the following remarks from the editor of the *Northern Whig*: — "The gentlemen who have the direction of this most excellent institution wisely regulate the principle of their rules so as to embrace the actual produce of the cottager, the farmer, and the gentleman; prudently arranging the articles to be competed for in such judicious classification as that the rich cannot, by adventitious circumstances, beat down the poor; but that each meets his fellow in fair competition; and he who is best entitled to the reward bears off the premium." Among the plants which obtained premiums, we would particularly notice an exceedingly fine specimen of Fúchs*ia* recurvi-

flòra, exhibited by Mr. M. Andrews, the flower of which, including the foot-stalk, was about 6 in. long. This fine species was raised from seed by Mr. Niven of the Royal Dublin Society's Gardens, Glasnevin, and given out by him about two years ago. There was also exhibited by Mr. Andrews a Fúchs*ia* ovàta, in good flower, of a beautiful blue colour, and differing very much from any other of the same family that we are acquainted with: it is uncommonly difficult to flower. We were much struck by the Italian rye-grass, sent in by Mr. Higginson; and a species of turnip, called the Hungarian, and which is said to be well adapted for keeping. We also noticed, from Hugh M'Calmont, Esq., Abbeylands, some very large citrons and shaddocks; and from Mrs. Turnly, Rockport, a splendid carnation, about 9 in. in circumference. Besides these, a rich assortment of cut flowers, and various stove and green-house plants, were sent in by Mr. Campbell from the Botanic Garden. A very splendid seedling dahlia was sent in by Mr. Finlay, called "The Northern Whig," which attracted particular attention. It was grown from seed, this year, by Mr. George M'Cullogh of Nurseryville, Comber, a scientific gentleman, who greatly excels in this and the other branches of his profession. This dahlia is so perfectly beautiful, that twenty guineas were offered for the root, by a person present at the show. (*Northern Whig*, Sept. 20.)

Ulster Horticultural Society.— Spring Show.— May 11. Among the flowers, we observed six double hyacinths, Robert Langry, Esq., Fortwilliam; and six hyacinths, two years in Ireland, shown by Mr. Middlemas, forest gardener to Earl O'Neill. (*Ibid.*, May 5.)

Sept. 9. Among the prizes, was one given for the Portuguese cabbage (Cove tronchuda), and another for the best specimens of agricultural produce, consisting of four varieties of potato, turnips (Dale's hybrid), field bean, to Mr. Black, land steward to Sir Robert Bateson, Belvoir Park. The Botanic Garden (Mr. J. Campbell, curator) furnished a great variety of beautiful specimens; among others, several magnificent fuchsias, a sago palm, and a bouquet composed of the rarest and finest flowers. Among the objects of greatest attraction at the show, were two vines, growing in pots, covered with fruit; one of them having fourteen bunches of purple grapes, the production of Mr. Scott, gardener to the Marquess of Donegal, at Ormeau. (*Belfast Commercial Chronicle*, Sept. 12.)

Kilkenny Horticultural Society.— Sept. 1. Some very fine fruit and beautiful flowers were exhibited; among which we noticed a collection of 100 native plants, by Mr. Emslie, gardener to F. Kavanagh, Esq. Two prizes were given for paintings of flowers. The prize-tickets were distributed to the different candidates by the Countess of Desart, who was highly gratified with the excellent specimens of vegetables exhibited by the market-gardeners. (*Kilkenny Moderator*, Sept. 7.)

Cork Horticultural Society. — Sept. 14. *and* 15. Among the prizes was one to Denis Sullivan, gardener to Paul Maylor, Esq., for best six apples named; collection of peas, berries, and ornamental seed-vessels; climbing plants, arboricultural specimens, cabbage, Jerusalem artichokes, sea-kale, and extra for collection of potatoes named; and, in botany, for best hortus siccus of native phenogamous plants, and best hortus siccus of ferns. One to —— M'Dermott, gardener to Lord Carbery, for best figs and pine-apple, and extra for apples of 1835, white grapes, and coffee. One to Denis Murry, gardener to W. H. Greene, Esq., for second-best carrots; and, in botany, for best collection of native plants, and hortus siccus of mosses. Notice was given that gardeners, applying for their prizes, will be required to produce their employers' certificates, that the specimens grew on their grounds, or were in their possession two months previous to the exhibition. (*Constitutional*, Oct. 1.; and *Southern Reporter*, Oct. 1.)

Waterford Horticultural Society. — Aug. 10. This show was rendered unusually brilliant by the presence of the Lord Lieutenant and his suite. The fruit and flowers were remarkably fine, and gave great satisfaction. (*Waterford Mirror*, Aug. 13.)

* *First Exhibition of the Newry, Armagh, and Dundalk Horticultural Society.* — *Oct.* 4. The collection of fruits, flowers, and vegetables was large and diversified; and evinces a great progress in horticultural science among the people of the surrounding districts. Cherries, black and ripe; gooseberries, fresh and red; currants, grapes, and oranges; were there in abundance and perfection. The show of flowers was strikingly beautiful. It is utterly impossible for us to enter into a more detailed description; but we sincerely congratulate the founders of this useful Society, and the public in general, on the admirable exhibition which we have just witnessed. It promises well for the future character and operations of the body. (*Newry Examiner*, Oct. 5.)

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

We have long had a mass of most valuable matter, collected from various journals, which belongs to this head, and which we take the opportunity afforded by a double number to introduce; strongly recommending the different paragraphs to the study of the young gardener.

MORAL IMPROVEMENT OF GARDENERS.

School Education. — Though we wish to occupy our pages with this subject as little as possible, yet we are desirous of keeping its importance continually before the young gardener. We cannot therefore pass over an admirable paper on the subject, which has been published by the celebrated astronomer, Herschel, at the Cape of Good Hope, and which will be found in the *Philosophical Magazine* for May, p. 432—438. Some of our readers will recollect an extract which we gave, in 1832, from a pamphlet by the same philosopher, published at Windsor in that year. Sir John Herschel is one of the few profoundly learned and scientific men in this country, who have had the courage to come forward in favour of the high education of the great mass of the people, from the very lowest upwards. For a thousand persons that would approve of bestowing a certain quantity of education on the people, so as to render them better servants and subjects, there is not, perhaps, ten that would approve of giving them as much more as they had a capacity of receiving, so as to admit of their reaching the highest rank in science. Till this is done, however, it is evident that there must be in science an artificial aristocracy, which is inconsistent with perfect liberty and political equality.

Sir John Herschel's observations, though they have reference to a scheme of instruction at the Cape of Good Hope, are, in many particulars, equally applicable to parochial schools in Britain, if these were once established on a proper footing.

"A good practical system of public education," Sir John says, "ought to convey much positive knowledge, with as little attention to mere systems and forms as is consistent with avoiding solecisms. This principle, carried into detail, would allow much less weight to the study of languages, especially of dead languages, than is usually considered its due. . . . . While, on the other hand, it would attach great importance to all those branches of practical and theoretical knowledge, the possession of which goes far to constitute an idea of a well-informed gentleman; as, for example, a knowledge of the nature and constitution of the world we inhabit; its animal, vegetable, and mineral productions, and the system of the universe, and its natural and political subdivisions; and last, and most important of all, the nature and propensities of man himself, as developed in the history of nations, and the biography of individuals; the constitutions of human society, including our responsibilities to individuals, and to the social body of which we are members; in a word, as extensive knowledge as can be grasped, and conveyed in an elementary course, of the actual system and laws of nature, both physical and moral.

"Again, in a country where free institutions prevail, and where public opinion is of consequence (especially when the government of the country lends its aid and sanction to it), every man ought at least so far to prepare himself as to place him on his guard against those obvious and popular fallacies which lie across the threshold of this, as well as of every other subject, with which human reason has any thing to do. Every man is called upon to obey the laws; and therefore it cannot be superfluous that some portion of every man's education should consist in informing him what they are. On these grounds, it would seem to me that some knowledge of the principles of political economy, of jurisprudence, of trade and manufactures, is essentially involved in the notion of a sound education. A moderate acquaintance, also, with certain of the useful arts, such as practical mechanics or engineering, agriculture, draughtsmanship, is of obvious utility in every station of life; while, in a commercial country, the only remedy for that proverbial short-sightedness to their best ultimate interest, which is the misfortune, rather than the fault, of every mercantile community upon earth, seems to be, to inculcate, as a part of education, those broad principles of free interchange and reciprocal profit, and public justice, on which the whole edifice of permanently successful enterprise must be based.

"The exercise and developement of our reasoning faculties is another grand object of education; and this is usually considered, and in a certain sense justly, as most likely to be attained by a judicious course of mathematical instruction; while it stands, if not opposed to, at least in no natural connexion with, the formal and conventional departments of knowledge (such as grammar, the so-called Aristotelian logic). It must be recollected, however, that there are minds which, though not devoid of reasoning powers, yet manifest a decided inaptitude for mathematical studies; which are *estimative*, not *calculating;* and which are more impressed by analogies, and by apparent preponderance of general evidence in argument, than by mathematical demonstration, where all the argument is on one side, and no show of reason can be exhibited on the other. The mathematician listens only to one side of a question, for this plain reason, that no strictly mathematical question *has* more than one side capable of being maintained otherwise than by simple assertion; while all the great questions which arise in busy life, and agitate the world, are stoutly disputed, and often with a show of reason on both sides, which leaves the shrewdest at a loss for a decision." (p. 433.)

Effects of Education on Society. — Society, such as it is at present, will not long continue to exist. As instruction descends to the lower classes, these will discover the secret cancer which has been corroding social order ever since the beginning of the world; a complaint which is the cause of all popular discontents and commotions. The too great inequality of conditions and fortunes has been able to uphold itself so long as it was hidden, on the one hand by ignorance, on the other by the factitious organisation of the city; but no sooner is this inequality generally perceived, than a mortal blow is given to it. Enforce again, if you can, the aristocratic fictions. Strive to persuade the poor man, when he has learned to read — the poor man, who is daily prompted by the press, from time to time, from village to village, — strive to persuade this poor man, possessing the same knowledge and understanding as yourself, that he ought to submit to all privations, whilst such a one, his neighbour, possesses, without labour, a thousand times as much as he needs: your efforts will be useless. Expect not of the multitude virtues that are beyond nature. The material developement of society will advance the developement of mind. When steam communication shall be brought to perfection; when, jointly with the telegraph and railroads, it shall have annihilated distance; not merchandise alone, but ideas also, will travel from one extremity of the globe to the other with the rapidity of lightning. When the fiscal and commercial barriers between different states shall be abolished, as they already are between the provinces of one and the same state; when wages, which is but a prolonged slavery, shall have emancipated themselves

with the assistance of the equality established between the producer and the consumer; when the different countries, adopting each other's manners, forsaking national prejudices, the old ideas of supremacy or conquest, shall tend to a unity of nations; by what means will you make society turn back to worn-out principles? Any power overthrown, not by accident, but by time, by a change gradually effected in convictions or ideas, is never reestablished: in vain you would strive to raise it under another name, to regenerate it under a new form; it cannot adjust its dislocated limbs in the dust in which it lies, an object of insult or of derision. (*Sketches of English Literature*, &c., as quoted in the *Literary Gazette*, July 23.)

The Present has no Enemy like the Past. — The picturesque is the sole relic of the feudal age worth preserving. There never was a period whose influence has been more injurious to human interests generally. The feudal was based on the principle of force; and oppression and weakness formed a mistaken compact under the high-sounding names of loyalty and fidelity. These two words have done more to retard the course of improvement, than 200 years have done to forward it. (*Berkeley Castle*, as quoted in the *Literary Gazette*, July 23.)

Cruelty to Animals. — Wherever the intellectual and moral faculties of the species have fair play, the abstract pleasure in giving pain is subdued and counteracted; and we destroy no further than is necessary to our own existence and safety. It is, therefore, *in the culture of these higher faculties only that the true remedy can be found.* The fashion of the day is to make men gentle and humane, as some well-disposed but weak-minded people would make them religious, by enforced observances and the penalties of an act of parliament. But there is no legislating man out of his disposition; and if those who have the power of making laws will not fulfil their primary duty as legislators, and take care that the people have a moral education and a moral existence, all legislation on the subject of humanity is worse than useless; it is mischievous, There is no possible means of humanising the lower classes, but by first improving their condition. To make them compassionate, we must first permit them to enjoy, and not condemn them to a life of unmitigated labour and privation: they must have time and motives for exercising their nobler qualities; and these they would have, even the humblest among them, if early taught, by precept and example, how to economise their time, and husband their poor resources. But, till this is done, legislative humanity is a jest, and a bitter one; and the readings and the teachings of the humanitarians, mere voices crying in the wilderness. (Notice of Egerton Smith's *Elysium of Animals*, in the *Athenæum* for July 23.)

SCIENCE OF GARDENING.

British Association for the Improvement of Science. — We recommend such of our readers as have an opportunity of perusing the *Mechanic's Magazine*, the *Literary Gazette*, or the *Athenæum*, to read with attention the accounts there given of the wonderful discoveries that have been made or anticipated in the different departments of science. Some of them are foreign, certainly, to gardening; but still we would recommend the young gardener to become acquainted with them, for the sake of expanding his mind. We shall just shortly hint at a few of these: — The idea of certain astronomers, and, among others, of Herschel, that the nebulæ in the milky way are supposed to be a sort of spawn (as a gardener would say) of future planets; that the metals in metallic veins are created by electricity and magnetism; that any temperature may be produced on the surface of the earth by drawing heat from the interior, which is supposed to be a mass of liquid fire; that precious stones of every description may be created by chemical and magnetical influence, &c.; that the cow-fish (*Manita* fluviátilis), which lives partly in water and partly on land, "might become the universal food of mankind," and be found a good substitute for turtle, &c.

On the Action of Light upon Plants, and of Plants upon the Atmosphere.

(From a Paper by Dr. Daubeny.) — "The objects of the experimental enquiries, of which the author gives an account in this paper, were, in the first place, to ascertain the extent of the influence of solar light in causing the leaves of plants to emit oxygen gas, and to decompose carbonic acid, when the plants were either immersed in water, or surrounded by atmospheric air. The plants subjected to the former mode of trial were *Brássica* oleràcea, Salicórnia herbàcea, *Fùcus* digitàtus, *Tussilàgo* hýbrida, Cochleària Armoràcea, *Méntha* víridis, *Rhèum* Rhapónticum, *Allium* ursìnum, and several species of *Gramíneæ*. Geraniums were the only plants subjected to experiment while surrounded with atmospheric air. Comparative trials were made of the action on these plants of various kinds of coloured light, transmitted through tinted glass, of which the relative calorific, illuminating, and chemical powers had been previously ascertained; and the results of all the experiments are recorded in tables; but no general conclusion is deduced from them by the author. He next describes a few experiments which he made on beans, with a view to ascertain the influence of light on the secretion of the green matter of the leaves, or rather to determine whether the change of colour in the chromule is to be ascribed to this agent. The third object of his enquiries was the source of the irritability of the Mimòsa pudìca, from which it appeared that light of a certain intensity is necessary for the maintenance of the healthy functions of this plant; and that, when subjected to the action of the less luminous rays, notwithstanding their chemical influence, the plant lost its irritability quite as soon as when the light was altogether excluded. He then examines the action of light in causing exhalation of moisture from the leaves; selecting dahlias, Heliánthus ánnuus, Sagittària sagittifòlia, and the vine. From the general tenor of the results of these and the preceding experiments, he is inclined to infer that both the exhalation and the absorption of moisture in plants, as far as they depend on the influence of light, are affected in the greatest degree by the most luminous rays; that all the functions of vegetable economy, which are owing to the presence of this agent, follow, in this respect, the same law; and that in the vegetable, as well as in the animal kingdom, light acts in the character of a specific stimulus. The author found that the most intense artificial light that he could obtain from incandescent lime produced no sensible effect on plants.

"The latter part of the paper is occupied by details of the experiments which the author made with a view to ascertain the action of plants upon the atmosphere, and more especially to determine the proportion that exists between the effects attributable to their action during the night and during the day; and also the proportion between the carbonic acid absorbed, and the oxygen evolved. His experiments appear to show that at least 18 per cent of oxygen may be added to the air confined in a jar by the influence of a plant contained within it. He also infers that the stage of vegetable life at which the function of purifying the air ceases, is that in which leaves cease to exist. The author shows that this function is performed both in dicotyledonous and in monocotyledonous plants; in evergreens as well as in those that are deciduous; in terrestrial and in aquatic plants; in the green parts of esculents as well as in ordinary leaves; in algæ and in ferns as well as in phanerogamous families. Professor Marcet has shown that it does not take place in *Fúngi*." (*London and Edinburgh Philosophical Magazine*, May, 1836, p. 415, 416.)

On the Colours of Flowers. — A curious essay on this subject, entitled *Die Farben der Blüthen*, was published last year at Bonn, by Dr. Macquart, from which we insert the following abstract of the results obtained: — 1. All flower-leaves are originally green in the bud. 2. *Chlorophyll* (the green leaf) contains no nitrogen. 3. All the tints of flowers are produced by two colouring matters. 4. These colouring matters are produced by the action of the living principle upon *Chlorophyll*. 5. When water, or its elements, are removed from *Chloryphyll*, *Anthokyan* (dark blue flower) is formed. 6. *Anthokyan* is the colouring matter in blue, violet, and red flowers. 7. By the

addition of water, *Anthoxanthin* (yellow flower) is formed from *Chlorophyll.* 8. *Anthoxanthin* is the colouring matter of yellow flowers. 9. Besides these two colouring matters, we find in white, blue, red, and violet flowers a flower-resin, which may be regarded as the transition between *Chlorophyll* and *Anthokyan.* 10. There is also a slightly coloured extractive matter in white and yellow flowers, which is to be considered as the colourless sap of the cells. It is remarkable for its extreme sensibility in regard to alkalies, which colour it yellow. 11. The form of the cells has no influence on the production of a certain colour. 12. Orange-yellow flowers contain both colouring matters, *Anthoxanthin* and *Anthokyan,* which is reddened by acids. 13. Brown flowers contain *Chlorophyll* and *Anthokyan,* that is reddened by acids. 14. Flowers which contain both colouring matters produce *Anthokyan* in the epidermis and the upper layers of the cells, but *Anthoxanthin* in the interior of the cells. 15. *Anthokyan* is also the colouring matter of the other red leaf-like organs; but is, in such cases, covered by a colourless epidermis. 16. A black colouring matter does not exist in leaf-like organs; plants concentrate so much blue, violet, or green tint, that it seems to us a black. 17. The alteration of the colour of flowers must be observed with reference to the different periods of the life of the plants. 18. Yellow proceeds directly from green. 19. After the period of fructification, yellow passes frequently to the opposite range of colours. 20. All buds of red and blue flowers pass from green through white to red. 21. White is the transition-step to blue. 22. Blue flowers are red in bud, because they have not begun to respire. 23. Some blue flowers become red, and others white, after the period of flowering. 24. The blue colour subsequently acquired by many red flowers may be explained in two modes. (*Edinburgh New Philosophical Journal*, p. 430. April, 1836.)

On the selecting Power of the Roots of Plants. — A great many experiments, which appear to have been conducted with an extraordinary degree of nicety and accuracy, have been made, in order to determine the extent of this power, by Dr. Daubeny, the Professor of Botany and Chemistry in the University of Oxford.

The subject was taken up by Dr. Daubeny, in consequence of its being recommended for consideration by the British Association for the Advancement of Science, during their meeting at York in 1831; and also because this eminent chemist had been previously engaged in enquiries of the same nature. The result serves to confirm the conclusions deduced by the younger Saussure from his experiments on vegetation; viz. that plants have a power of selecting the liquids absorbed by their spongioles, with, however, a certain modification to be noticed.

"In the experiments that were made by Braconnot, Schrader, and others, with a similar intent to my own, the plants operated upon, in order that all external sources for the supply of earthy matter might be cut off, were made to vegetate either in washed sand, in sulphur, in pounded glass, in small shot, or in certain metallic oxides. It occurred to me, however, that, without placing them under circumstances so unnatural, and consequently so unfavourable to growth, the same end would be fulfilled if the seeds were sown in some earth, which, though foreign to their constitution, agreed, nevertheless, more nearly in mechanical properties with those contained in the soil in which they were wont to grow. It was with this intent that I was originally led to select, as a soil for my plants, the sulphate of strontian (which is obtained in abundance near Bristol) reduced to fine powder; and having found that the ashes of plants which had been reared in this matrix seemed to contain no trace of the earth, I was led, in the next place, to try whether this might be owing merely to the insolubility of the substance in question; for which reason I varied the experiment, by watering my plants with a weak solution of nitrate of strontian. It will appear, from the subsequent details, that, in either form of the experiment, lime, and not strontites, was the earth that presented itself; but as, in proportion to the care that had been taken to exclude any external source of supply of earthy matter, the

quantity obtained from the ashes grew less and less, it would be rash to infer, from the small excess of lime which was detected, any power belonging to the plant of forming it, when not supplied from without. Should it, however, appear that a vegetable, which, though not perhaps in full vigour, was at least in a growing and healthy condition, remained in contact with strontian, both in the state of sulphate, and likewise in that of nitrate dissolved in water, for months together, without absorbing any portion; and that, although in want of earthy matter, as its laxity of fibre evidently betrayed; the conclusion would seem to follow, that plants have, to a certain extent, the power, as living agents, of rejecting such substances as, without being poisonous, are unusual to them, and probably unfitted for their economy and structure. Omitting some previous experiments, of which I have preserved no correct notes, I will, in the first instance, refer to one made in 1827, in which grasses and trefoils of various kinds, which had been watered from time to time with a solution of nitrate of strontian, were found, on examination, to possess no trace of this earth. In the above instance, however, as the plants had grown in common garden mould, all that could be inferred was, that, when lime and strontian are both presented in a state of solution to their roots, they select the former, and reject the latter. In 1829, the seeds of various plants, such as the garden radish (*Ráphanus satìvus*), the cabbage (*Brássica oleràcea*), the garden bean (*Vìcia Fàba*), hemp (*Cánnabis sativa*), &c., were sown in soils containing various proportions of sulphate of strontian, with or without manure, and, amongst the rest, one in which no other ingredient except this earth was present in any quantity. The plants grew up; and when they had arrived at maturity were collected, burnt, and their ashes examined. No strontian, however, could be detected in any one of them; not even in that where the matrix consisted almost wholly of the earth in question. In 1831, the experiments were conducted with rather more attention to accuracy. 1124 grains of scarlet kidneybeans (*Phasèolus multiflòrus*) were sown in a box containing about 290 lb. of powdered sulphate of strontian, which has been ascertained to be free from alkaline matter, but to contain 2 per cent of carbonate of lime, and about ½ per cent of alumina. The box was placed in an open situation, exposed to sun and rain; and when the plants reared from these seeds had come to maturity, they were cut down and burnt. An account was then taken of the weight of the ashes remaining after the combustion had been completed, and of the fixed principles obtained from them; first, by lixiviation in water; secondly, by digestion in nitric acid; and, thirdly, by treating the remainder with an alkaline carbonate, and then again with the same acid as before. A similar process was gone through with the same quantity of the kidneybeans as that of which the plants examined had been the produce." (*Edinburgh New Philosophical Journal*, p. 164.)

After relating a number of experiments, and giving tabular views of their results, Dr. Daubeny continues: —

"I fear the conclusions that may be legitimately deduced from the above experiments will hardly be deemed of sufficient novelty and importance to repay the labour and time they have cost me; since, in so far as the main point is concerned, they serve only to confirm, in an indirect manner, the conclusion which both analogy and experiment concur in establishing; namely, that if plants do, in some cases, obtain fixed principles, which cannot be traced to any external source, yet the quantity of such substances which enters into their system is always less in proportion to the pains taken to cut off a supply. Hence the inference would seem to be, that the indications of a contrary description, that sometimes present themselves, are fallacious, resulting from the many imperceptible channels by which earthy and alkaline matters may obtain admission to the juices of a plant. Had I not, very early in the course of these experiments, been led to despair of excluding the minute but continual supplies which are probably brought by the very air and water which come into contact with the absorbing surfaces of every vegetable, especially in the centre of a large town, I should not

have remained satisfied without purifying the sulphate of strontian in which the seeds were sown, from the other earths with which I found it to be mixed. But the labour of getting rid of these ingredients seemed to be uncalled for with reference to the objects to which I found it necessary to confine my enquiries; since, even had I employed the earth in a state of perfect purity, and detected an excess of lime in the plants reared in it beyond that contained in their seeds, still I should not have been justified in inferring the actual generation of earthy matter, any more than I have felt myself to be from the similar result I obtained when flowers of sulphur were the matrix in which the plants had vegetated. The faculty, however, possessed by them of rejecting strontian, even when presented to the absorbing surfaces of their roots in a state of solution, would seem sufficiently substantiated; and an analogous circumstance may be cited in the animal kingdom, if I can rely upon an experiment which I made several years ago, — that of confining some hens of the guineafowl, during the breeding season, in a place where they could obtain no other earth except some powdered sulphate of strontian, which they appeared to devour greedily. Yet only a minute trace of this earth was discoverable in the shells of their eggs, of which those laid during the first part of their confinement retained their natural hardness; but those of later production were as soft as if the birds had been entirely debarred from every kind of earthy matter. It may be asked, whether the strontian is taken first into the system, and afterwards excreted from it, or whether the spongioles of the roots refuse it admission? The latter supposition seems the more probable one; since, if we adopt the former, we ought to be able always to find traces of the earth diffused throughout the vegetable tissue; and I may relate an experiment of my own, which seems to confirm it, undertaken after the plan of those by means of which the ingenious M. Macaire of Geneva established his important doctrine with respect to the excretory function discharged by the roots of plants. A small pelargonium was taken out of its pot, and its roots divided into two nearly equal bundles; one of which had its extremities immersed in a glass containing a weak solution of nitrate of strontian, the other in one containing pure distilled water. After a week had elapsed, the water contained in the second glass was tested; but no strontian could be discovered in it, though a single grain in one pint of water would have been readily detected by my method. Hence it would seem that the strontian is not excreted by the roots. Yet this power of rejecting the earth in question, if possessed by the plant, must be held compatible with that of absorbing the water containing it, with which its roots are in contact. I took out of the ground a small lilac (*Syringa* vulgaris), and introduced its roots into a glass globe containing seven pints of a weak solution of nitrate of strontian. In about a fortnight the quantity was reduced to three pints — the remainder having, for the most part, been absorbed by the roots; for evaporation was prevented by covering the surface of the water with a stratum of olive oil, and the mouth of the vessel with a cork. Unluckily, the original quantity of salt had not been estimated; but it was found that what remained in the water, at the close of the experiment, yielded 69·4 grains of sulphate of strontian, equivalent to 39·2 grains of the earth. The four pints of water, therefore, consumed, if they had passed through the organs of the vegetable charged with their original quantity of nitrate of strontian, would have carried into its circulation 22·4 grains of this earth; and, as the water was absorbed at the average rate of about 4½ ounces per diem, it follows that more than 1½ grain would have been carried daily through the substance of the plant, supposing the salt to have been taken up in the same ratio as the water. Now, on burning the plant, and examining its ashes, a trace of strontian certainly was detected; but its whole amount did not reach the one fifth of a grain, that is, 2 per cent of the whole quantity of earthy matter present; my analysis indicating, of lime, 7·30 grains; strontian, 0·18; total quantity of earth, 7·48.

"The conclusion to which I have been led by the foregoing experiments may

appear, at first sight, inconsistent with those deduced by M. De Saussure, in his elaborate work on vegetation before referred to; in which he has shown that some poisonous substances, such, for example, as salts of copper, are freely absorbed by the roots of vegetables, and retained, in considerable quantities in their tissue. But it will be recollected that this philosopher himself accounts for the circumstance by the disorganisation which such bodies, by their presence, occasion in the fibres of the roots. I have myself found that, when a pelargonium had a portion of its roots immersed in a solution of bichromate of potass, a trace of this salt was conveyed into a second glass containing distilled water, which had no connexion with the former except through the medium of a parcel of the roots which dipped into it. Nor was this owing to capillary attraction; for the same effect did not take place in another experiment, in which the roots were detached from the body of the plant, and therefore acted as dead matter; and, moreover, the salt was detected by appropriate tests applied to the stems and leaves. In this instance, then, the substance was seen to circulate through the whole texture of the vegetable, and ultimately to be excreted by its roots: and a similar result was obtained in the case of another plant, in which a solution of protosulphate of iron had been dissolved in the water in contact with its extremities. That is to say, the salt was detected, by ferro-cyanate of potass, in many parts of the stem and branches; but it did not reach above a certain point, nor was it excreted by the roots; this difference arising from the absorption of oxygen by the salt, which, being thereby converted into a persulphate, became insoluble in the juices of the plant, and consequently clogged up the canals by which the sap is conveyed.

"But, in all these instances, the poisonous quality of the substance was evinced by the more or less rapid decay of the plant that had imbibed it; whereas, where nitrate of strontian was employed, the functions of life appeared to go on, for a considerable time, without material obstruction.

"Upon the whole, then, I see nothing, so fas as experiments have yet gone, to invalidate the conclusion, to which the preceding facts appear to lead, that the roots of plants do, to a certain extent at least, possess a power of selection; and that the earthy constituents, which form the basis of their solid parts, are determined, as to *quality*, by some primary law of nature, although their amount may depend upon the more or less abundant supply of the principles presented to them from without." (p. 176.)

The Effects of Arsenic on Vegetation. — Dr. Daubeny communicated to the British Association at Bristol, "the partial results which he had obtained from a series of experiments he was carrying on at Oxford, respecting the effects which arsenic produces on vegetation. He was led to undertake these experiments, from having received a communication from Mr. Davies Gilbert, in which he stated, that there was a district in Cornwall, where the soil contained a large portion of arsenic; and that no plants could grow in it, except some of the Leguminòsæ. By analysis, this soil yielded him about 50 per cent of arsenic, in the form of a sulphuret; the rest being composed principally of sulphuret of iron, and a little silica. He had already ascertained that a little of the sulphuret, mixed in soils, produced no injurious effect on *Sinàpis álba*, barley, or beans; and that they flowered and seeded freely when grown in it. Although the want of solubility in the sulphuret might be assigned as a reason for its inactivity, yet it was certainly taken up by water in small quantities, and imbibed by the roots of plants. Upon watering them with a solution of arsenious acid, he found that they would bear it in larger proportions than was presupposed. The injurious effect of arsenious acid on vegetation, in the neighbourhood of the copper works of Bristol and Swansea, was noticed by Mr. Rootsey; and Mr. Stevens mentioned the circumstance of the trout, in some streams of Cornwall, having been destroyed by the opening of some new mines in their neighbourhood, from which arsenical compounds were discharged, though the vegetation did not appear to be injured by them; and it was further stated, that horses were

considerably injured, and rendered subject to a remarkable disease, by the effects of arsenical compounds in the same district. (*Edinb. New Phil. Journ.*, vol. xxi. Oct. 1836, p. 333. and 334.)

Electric Property of Plants. — The electric property of some plants, such as the calendula, nasturtium, and other yellow-petaled flowers, has been long noticed; and Darwin has particularly illustrated it in his *Loves of the Plants*.

> " Round her fair form the electric lustre plays,
> And cold she moves amid the lambent blaze."

But an additional fact of a curious kind has been added to it by Dr. Walsh, during his residence at Constantinople. Every month in the year is distinguished by some natural phenomenon, which he describes; but that of May is most curious and interesting. " About the 20th of the month, a sudden illumination bursts out from the bottom of the gardens as soon as it begins to grow dark, and the whole of the walks between the trees are glittering with many lights. This arises from the fire-flies, which fill the air in vast numbers. The light which issues from these flies is exceedingly beautiful: it is very bright, but of a character so mild and bland, that it is grateful to look upon. The female is without wings, and is often detected under a leaf by the glittering beaux that are hovering round her. They seem also to be invited by the blossoms of the nasturtium and the œnothera. The yellow petals of those flowers emit faint flashes of light in the evening, as has been elsewhere remarked, and those insects are apparently attracted by the congenial blaze of this ' electric lustre.' They continue to illuminate the twilight air in this way with their beautiful scintillations till the end of June, when they all disappear." (*Narrative of a Residence at Constantinople.*)

Accelerating the Growth of Seeds by Scalding. — Cobbett, in treating of the locust, says, that he was recommended by an American gentleman (Judge Mitchell of Long Island) to boil the seeds previously to sowing them. (See *Art. Brit.*, p. 624.) And the idea is not so ridiculous as might at first sight be imagined. The subject was noticed by Professor Henslow, at the meeting of the British Association at Bristol; and the following is an extract from a communication by the professor to the *Magazine of Natural History*, vol. ix. p. 477.: —

" Sir John Herschel lately sent some seeds of an acacia from the Cape of Good Hope, to Captain Smith of Bedford, with directions that they should be scalded, in order to secure their germination. Captain Smith having presented me with a dozen of these, I subjected them to the following experiments: — Two were placed in boiling water, and left to soak for an hour, until the water had become cool; two were kept at the boiling temperature for 1½ minute; two for 3 minutes; two for 6 minutes; and one for 15 minutes. Some of these were sown immediately, under a hand-glass, in the open border; and the rest were kept for 3 or 4 days, and then sown in a hot-bed. The following are the results obtained:—

Under the hand-glass, —

1, boiled for 1½ minute, failed.
1 - 3 minutes, came up in 14 days.
1 - 6 - - - 13 days.
1, not steeped at all, did not germinate.

In the hot-bed, —

1, boiled for 1½ minute, came up in 8 days.
1 - 3 minutes - - 7 days.
1 - 6 - - - - 7 days.
1 - 15 - - - - 13 days.
2, in boiling water, left to cool - 9 days.
2, not steeped - - - 21 days.

We cannot draw any decided inference from the single seed, which was boiled

for 15 minutes, having been more retarded than the rest, as it might have been a bad specimen; but it seems very clear, that the heat to which these seeds were exposed must have acted as a decided stimulus to their germination; whilst it is a very singular fact, that they should not have been completely destroyed by it. Had I supposed it probable that a seed, which was boiled for 15 minutes, would have germinated, I should have boiled some of the others still longer, in order to ascertain the extreme limit to which such severe treatment might be carried without destroying the vital principle."— *Cambridge*, July 8, 1836.

In pursuance of this subject, at the Bristol meeting, "Mr. Hope mentioned a practice, common in some parts of Spain, of baking corn to a certain extent, by exposing it to a temperature of 150°, or upwards, for the purpose of destroying an insect by which it was liable to be attacked. Dr. Richardson mentioned, that the seeds sold in China for the European market were previously boiled, for the purpose of destroying their vitality, as the jealousy of that people made them anxious to prevent their exportation in a state fitted for germination. Upon sowing these seeds, he had, nevertheless, observed some few of them were still capable of vegetating." (*Edin. New Phil. Journ.*, vol. xxi. Oct. 1836, p. 333.)

Artesian Wells. — M. Mulot, who has the management of the process now in operation at the Barrière de Grenelle, near Paris, for forming artesian wells, has already penetrated 1088 ft. without finding water. His contract is to bore as low as 1200 ft.; and if no water is found at this depth, the engineer is ready to make a new contract with the city of Paris, to go to the enormous depth of 2000 ft.; such a depth has never yet been sounded on the surface of the globe. (*Athenæum*, 1836, p. 740.) If the depth of 2000 ft. can be attained, at any thing like a moderate expense, it is probable that a still greater depth is practicable; and if so, water may probably be found in every spot on the face of the earth. The fertility of the most arid deserts would thus be secured, and the whole world rendered one fertile garden. The next step would be to call down fire from the clouds, in the form of electricity, so as to facilitate the operations of cooking, and the driving of machinery.

Heating by Hot Water drawn up from the Bowels of the Earth. — It seems to be now proved beyond dispute, that the temperature of the earth increases from the surface downwards; and consequently, at a certain depth, the heat of water must be at the boiling point; and at a still greater depth, all materials whatever must be in a fluid state. At the meeting of the Bristol Association in August, 1836, Professor Stevelly suggested the idea of bringing up hot water from the bowels of the earth to its surface; and heating houses, manufactories, &c., with it, so as to keep them at a given temperature, in the same manner as is done with the apparatus by water artificially heated. (*Lit. Gaz.*, Sept. 3. 1836, p. 551.) As, at a certain depth, the water must be at such a degree of temperature, as when allowed to expand, it will instantly become high-pressure steam, it seems not altogether impossible that our stationary steam engines may be supplied with that material without the use of fuel; and hence those who look forward with fear to the period when the coal mines will be exhausted, may derive some small degree of consolation. At all events, it seems not unreasonable to suppose that, if a bore or artesian well is carried so deep as to penetrate into a stratum of water at a sufficient temperature to expand itself into steam, there will be no difficulty in the water ascending to the surface. If ever so complete a command of water should be obtained by man, in every part of the world, except, of course, the frozen zone, the climate and culture of the whole would be altered: and who can tell what may be the ultimate result of the operations of man, in one way or another, chemically, electrically, and mechanically, upon the globe?

The Structure of Pit Coal. — The following extracts, taken from a notice, in the *Philosophical Magazine*, of an Essay entitled "Observations on Coal," by W. Hutton, Esq., F. G. S., may not be uninteresting to the readers of this

Magazine; especially as it relates to an article so indispensable to the garden and of the nature of which so little is generally known.

"On examining with the microscope one of the slices of coal in which Mr. Witham lately discovered a distinct vegetable texture, the attention of the author was excited by the remarkable appearance of several cells in that part of the coal where the texture of the original plant could not be distinguished. Tempted to extend the enquiry, he procured an extensive series of slices, taken from the several varieties of coal found at Newcastle, and the contiguous district. The coal of the Newcastle district is considered by the author to be of three kinds. The first, which is the greatest in quantity, and the best in quality, is the rich caking coal so generally esteemed; the second is the cannel, or Parrot coal (splent coal of the miners); and the third, the slate coal of Jameson, consists of the two former arranged in thin alternate layers, and has, consequently, a slaty structure. In the varieties of coal, even in samples taken indiscriminately, more or less of the vegetable texture may always be discovered; thus affording the fullest evidence, if any such proof were wanting, of the vegetable origin of coal. Each of these three kinds of coal, besides the fine distinct reticulations of the original vegetable texture, exhibits other cells, which are filled with a light wine-yellow-coloured matter, apparently of a bituminous nature, and which is so volatile as to be entirely expelled by heat before any change is effected in the other constituents of the coal. The number and appearance of cells vary with each variety of coal. In caking coal, the cells are comparatively few, and those which do exist are highly elongated. Their original form the author believes to have been circular; and he attributes their present form to the distention of gas confined in a somewhat yielding material, subject to perpendicular pressure. In the finest portions of this coal, where the crystalline structure, as indicated by the rhomboidal form of its fragments, is most developed, the cells are completely obliterated. In such parts the texture is uniform and compact: the crystalline arrangement indicates a more perfect union of the constituents, and a more entire destruction of the original texture of the plant. The slate coal, or the third variety above mentioned, contains two kinds of cells, both of which are filled with yellow bituminous matter. One kind is that already noticed in caking coal; while the other kind of cells constitutes groups of smaller cells of an elongated circular figure. In those varieties which go under the name of cannel, Parrot, or splent coal, the crystalline structure, so conspicuous in fine caking coal, is wholly wanting; the first kind of cells are rarely seen; and the whole surface displays an almost uniform series of the second class of cells, filled with bituminous matter, and separated from each other by their fibrous divisions."

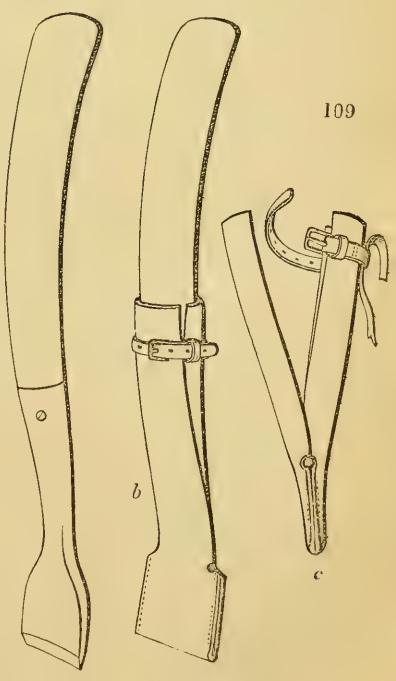
In speculating on the origin of cells in cannel coal, the author "considers it highly probable that they are derived from the reticular texture of the parent plant, rounded and confused by the enormous pressure to which the vegetable matter has been subjected." The author next states that, "though the crystalline and uncrystalline, or, in other terms, perfectly and imperfectly developed, varieties of coal generally occur in distinct strata, yet it is easy to find specimens which, in the compass of a single square inch, contain both varieties. From this fact, as also from the exact similarity of position which they occupy in the mine, the differences in different varieties of coal are ascribed to original difference in the plants from which they were derived."

Might not the volatile bituminous matter contained in the cells, which is said to be "entirely expelled by heat before any change is effected in the constituents of the coal," and which, consequently, carries off heat, instead supplying it, be ignited, and thereby made to produce heat, by means of of Witty's patent furnace. If this could be accomplished, it is probable that the cannel and slate coal, which appear to contain as much of this bituminous matter as the best, or caking, coal, might be equally available for gar-

dening purposes, although their cost is, I believe, only about half that of the latter. — *J. B. W.*

Earwigs. — The part of the plant these insects attack is the nectary; and if they can get at it by no other means, they at once proceed to eat their way through the calyx. A piece of sponge, dipped in oil, and tied round the bottom of the stick and flower-stem, is said to be a preventive. (Smith's *Florist's Magazine*, p. 85., art. *Picotees.*)

The Wireworm, which is said to be the larva of a species of click-beetles (the Hemirhìpus lineàtus or obscùrus, or both), is another formidable insect. "Entomologists say that they remain in the larva state for five years, during which time they feed upon the roots of vegetables. They work below the surface of the soil, which makes it the more difficult to destroy them. They invariably attack the pink and the carnation at the bottom of the stem, near the root, and make holes through it in every direction; while the only indication of their presence is the entire destruction of the plant. The larva is, in general, found in the loam; therefore great care should be taken, in sweetening that soil, not to allow one to escape when it is turned over; and their colour being a light brown, makes the finding of them more difficult. They are about 1¼ in. long, with a dark-coloured head, with jointed feet placed near the head. The best way to get rid of them is to bury slices of potatoes, turnips, carrots, beet, cabbage-stumps, or young lettuce plants, about 1 in. below the surface, and mark the place with a stick: these baits must be examined *every day*, and all that are found on them destroyed. This was the plan adopted by Sir Joseph Banks; and no better is now known. The grub is also a great enemy of the carnation. It is almost always found in pasture loam, and it lies concealed just below the surface of the earth; but it will ascend the stem of the plants, says Mr. Hogg, during the night, and consume part of the petals, eating holes in the pod; and then it will descend and bury itself for the day near the foot of the stem. When the blossom is in a dying state, it will often secrete itself in the seed-vessel, and devour the whole interior." (Smith's *Florist's Mag.*, p. 86., art. *Picotees.*)



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FLORICULTURE.

A Botanist's Spud. — Botanists are often in want of an implement to get up the root of a plant, when it may be very inconvenient to encumber themselves with any ordinary gardening tool for that purpose. In this case a pocket spud (*fig.* 109.) may afford a useful substitute. The leathern case, it need hardly be said, is for the better security of the tool in conveyance. The strap is affixed to the under part of the case by two sets of stitches, so as to admit of a string or riband being "reeved" through, in order that the spud may be tied to the button-hole, or worn round the waist, &c., if such method be

preferred to carrying it in the pocket. Of course, this little tool may be made of any dimensions, to suit the fancy of the botanist. — *W. T. B. Allesley, August* 5. 1836.

In *fig.* 109. *a* represents the spud without the case; *b*, the spud in its case; and *c*, the case open, to show the make and manner of it.

To preserve Botanical Specimens, Insects, &c., it is only necessary to wash them over with the essential oil of cloves; or, indeed, with any essential oil whatever. (*Dr. Macartney, at the Bristol Association, August*, 1836, as given in *Literary Gazette*, Sept. 3.) Succulent plants may be preserved by enveloping them in a coat of plaster of Paris. (*Id.*, as given in *Athenæum*, Sept. 3. p. 625.)

Tigrídia Pavónia. — In looking in Gerard's *Herbal*, I accidentally turned to p. 122. fig. 2., *Tigridis flos*, which he supposes was a feigned figure sent him of a plant unknown; and I never knew any with a root as there figured; but I am disposed to think it was intended for Tigrídia Pavónia. I have never seen, or heard before, of De Bry's *Florilegium*; but, as Gerard says it is there figured "much better and more elegant," if any among your numerous readers should have that work, they may find it correspond with the plant much better than his figure does; and it may be a pleasing satisfaction to some of them to know that such a plant was in cultivation above 200 years ago, a native of Mexico, perhaps then a newly discovered world. If you think this observation worth the public attention, your inserting it in your Magazine will gratify the wish of — *Thomas Hawkins. Tirley, Gloucestershire, Oct.* 17. 1836.

ARBORICULTURE.

Age of Yew Trees. — At the Bristol Association, in August, 1836, Mr. Bowman read a paper on the mode of ascertaining the age of yew trees, by counting the rings and lines of the trunk; and instanced several experiments which he had made. The mean average of the number of lines that a yew tree increased in a year was 2, or 44 to the inch; and the result of his experiments went to prove that De Candolle was wrong in his experiments in this respect; that he made the old trees too young, and the young ones too old. With respect to the growth of yews in churchyards, many reasons had been assigned for it; but it occurred to him that the longevity, the indigenous nature of the tree, and its being an emblem of immortality, led our forefathers to deck the place of the dead with it, in lieu of the cypress. This was one of the many customs which were engrafted on Christianity at its introduction. —Mr. Rootsey, in allusion to what had been said with regard to the growth of yews in churchyards, remarked that the Scotch, Welch, and Latin signification for a church, was a large circular structure, or what we now call a churchyard; and therefore it was highly probable there were many yew trees in existence of higher antiquity than the buildings they surrounded. — Professor Henslow said he had come to the conclusion, that one third of the age of De Candolle's oldest trees ought to be struck off; but in the other particular he did not agree with Mr. Bowman. — None of the speakers alluded to the supposition that the cultivation of yew trees was encouraged by our feudal rulers, to whom the wood was so essential in forming bows for their vassals and retainers. (*Literary Gazette*, Sept. 3.) An elaborate paper on the yew, by Mr. Bowman, accompanied by engravings, will appear in the *Magazine of Natural History* for January next.

Grafting the Céltis on the common Thorn. — However unnatural this union may appear, there is a *Céltis australis* at Purser's Cross, which is doubtless so grafted. It was pointed out by Lord Ravensworth's gardener to Mr. Scott (formerly gardener to Dr. Neill), in 1834, who saw a thorn sucker growing on the stock. We have not seen these suckers ourselves; but we perceive nothing in the bark of the stock, which is not above 6 in. high, which would justify us in saying that it is not a thorn. We should be glad if any of our readers would try some scions of any species of *Céltis* on any species of

Cratæ'gus next spring, and let us know the result. The *Céltis* at Purser's Cross is upwards of 50 years old, and nearly 30 ft. high. — *Cond.*

Xanthorrhœ'a arbòrea, the Grass Tree. — In Vol. XI. p. 338—342., some account of the esculents and fruits of Van Diemen's Land is given by Mr. James Backhouse, of the York Nursery, in which this singular tree is mentioned. Mr. Backhouse's article has appeared in the *Van Diemen's Land Almanack*, from which it has been quoted at length into the *Companion to the Botanical Magazine*, No. xiv. p. 38—41.; and the following very interesting note added to the part relating to the Xanthorrhœ'a: —"A portion of the noble stem of this plant, which forms so striking a feature in one of the plates in Flinders's *Voyage to Australia*, was sent from Australia to the Mauritius, and thence, after some delay, to us (Sir W. J. Hooker) in Scotland. It was placed in our private collection; and, after a lapse of nearly, if not quite, three years from the time of its being severed from the parent tree, it shot out a beautiful tuft of leaves from the extremity; but, though every means was taken to encourage the continued vegetation of the plant, the leaves soon perished. It was after this period, that, being placed in the same museum, an entomologist was gratified by this stem giving birth (at different times, and during a space of two years) to several living specimens of a rare beetle, apparently a new Cerámbyx, of a beautiful chestnut colour, about 2 in. in length, exclusive of the antennæ, with which several cabinets have been supplied. The same insect has also been taken in New Holland by Dr. Logan. (*Companion to Botanical Magazine*, vol. ii. p. 40.)

AGRICULTURE.

The most extraordinary Agricultural Improvement of modern Times, is the system of thorough draining and subsoil ploughing of Mr. Smith, of Deanston in Stirlingshire, noticed at length in Vol. IX. p. 448. In Mr. Shaw Lefevre's *Report to the Agricultural Committee*, this system is mentioned as capable of reclaiming every acre of cold, wet land in the country, and raising it, in a short time, to a par with the very best soils. According to Mr. Lefevre's idea, if this system were applied, whether with or without a corn law, the produce of Britain would become so abundant that there would be no danger of prices rising for half a century to come. Mr. Lefevre counsels the British agriculturist to accede to a total repeal of the corn laws, and to stand on the field of free competition with all the world; trusting to his improved skill and improved modes, to his capital, and to the aptitude of the soils of his country for improvement, to enable him to do so.

Acceleration of the Growth of Wheat. — At the meeting of the British Association held at Bristol in August, 1836, Mr. G. Webb Hall read a paper, the object of which was to show that "the occupation of the ground for wheat might be very materially abridged. At an average, this might be averaged at 10 months, though 12, and even 13, were not unusual; and 8 might be considered as the shortest period for the ordinary winter wheat. By a selection of particular seed, and a choice of peculiar situations, wheat sown early in March has been, on different occasions, ripened before the middle of August; a period scarcely exceeding five months. Mr. Hall considers it an unquestionable law of vegetation, that the offspring of a plant of early maturity, itself seeks to become so likewise, even when placed in unpropitious circumstances; and that it recedes with reluctance from the condition of its parent. Hence the seed of a crop which has been ripened in five months has a better prospect of producing another crop equally accelerated, than that from a crop which has been longer in ripening. He also asserted, that the acceleration of a crop was farther promoted by thick sowing, which likewise might be considered advantageous in checking and stopping the mildew. — Dr. Richardson referred to the remarks of Humboldt, that in South America the wheat crop was ripened in 90 days from the period of sowing; and stated that about Hudson's Bay this period was only 70 days. He suggested the probable advantage that might arise from importing seed from the

latter country, for the purpose of furthering Mr. Hall's views; but this gentleman stated that he found that seed imported from a distance (and he had tried some from Italy) was liable to become diseased." (*Edinburgh New Philosophical Journal*, Oct. 1836.)

Art. II. *Foreign Notices.*

FRANCE.

Paris, Rue des Vignes, No. 5. à Chaillot, May 8. 1836. — I received your letter of the 9th April; and, in reply, forward you some account of the salisburia which I sent to M. Gaussin, at Bourdigny. It was raised from a cutting taken from a plant in the garden of the Chevalier Jansen, an English gentleman. This garden is now the Jardin Marbœuf. The tree was known, when I came to Paris in 1777, under the name of *Arbre de quarante E'cus*, as I was told; Mr. Jansen, who was very curious in plants, and who planted those gardens, having bought the plant at that price. As I was acquainted with that gentleman, I procured cuttings from the plant from him, which I reared. The Abbé Nolin was at that time the director of the nurseries of the King of France. He received many plants and seeds from the missionaries in China, several of which I remember to have seen, which are now lost. The Abbé would not give any of the plants which he received, either to the Jardin des Plantes, or to that of Trianon, which was a botanic garden under Louis XV., and conducted by Richard; but, as I was in good friendship with all the three, I frequently saw what they had. The Abbé Nolin, being a native of the south of France, had an establishment near Marseilles, or Toulon, where he sent many plants that he supposed would not bear the winter in Paris, and amongst others the gingko, of which I knew that he had some plants at that time. The plant which I sent to Bourdigny was raised, as I mentioned above, from a cutting of that of Mr. Jansen. The original tree in the Jardin Marbœuf was destroyed, some years ago, to give place to some buildings; and those who cut down the tree for fire-wood neither knew nor cared whether it had borne fruit or not. Most of the trees that I planted at Monceau and Bagatelle were destroyed, when I left Paris, during the revolution of 1792; and, as I was absent from Paris many years, I can get no information whether the salisburia, that was among those destroyed, had borne fruit or not; but I imagine that the salisburias still existing near Marseilles and Toulon were those sent from Paris by the Abbé Nolin. I saw lately, at the Jardin des Plantes, young plants raised from seeds of the salisburia, which came from near Toulon. — *Thomas Blaikie.*

Blàkea Garcínia.—As you wish to know some part of my life, I shall mention a curious circumstance that occurred to me in 1775. When I was rambling upon Mount Jura, I met one day a gentleman, who, like myself, was looking after plants. We soon got acquainted, and showed each other what we had discovered. We afterwards walked together to his little château, situated at the foot of the mountain; and he told me that his father, who was dead, had been a great botanist, a member of the Royal Society of London, and a correspondent of Linnæus. To convince me of this, and to show me that Linnæus had named a plant in his name (Garcínia), he opened the *Species Plantarum*, to show me Blàkea Garcínia, in Dodecándria Monogýnia; which made me laugh at the singularity in finding my name united with his. I told him, in a joke, I did not know we were such near relations; and when I showed my name joined to his for the same plant, he began exclaiming "*Diable!*" and asked me from what country I came. I told him from Scotland. He added another "Diable!" and said he had served in Russia with two of my countrymen, officers in the same service as himself. That one day, on an excursion, they were surrounded by a company of Tartars, and taken prisoners, and carried off into the interior of Tartary, he imagined towards China; when the two

Scotchmen, by speaking the Erse, or Celtic, to the Tartars, made themselves perfectly understood, this people speaking nearly the same language as themselves. They were treated with the greatest kindness, and conducted back to the army in the most friendly manner: and from this circumstance the Tartars became friends to the Russians. From this he concluded that the Celtic language must have been the original language of all the northern part of the globe; and that these unconquered people had retired, and preserved their original language in Tartary, as the others had on the mountains of Scotland, Ireland, and Wales, and in some parts of the Basque Mountains, and in Breton. — *Thomas Blaikie.*

Sórbus. — A friend of mine, was publishing a *Botanical Glossary, or Etymological Dictionary of the Botanical Names in Linnæus;* and he frequently showed me the manuscript. He was at the word *Sórbus;* and I observed to him that the people of Scotland had a superstitious idea that this tree was a charm or preservative against witchcraft; and they had a proverb that says, —

"Roan tree and red threed
Puts the witches to their speed;"

when he replied, that a gentleman of his acquaintance, who had been long in the East Indies, and frequently associated with the natives, told him that the women in Hindostan had nearly the same superstitious opinions relative to red thread; and that they tied some red thread round their children's arms as a preservation against witchcraft, enchantment, or evil spirits; and that in Switzerland, the country people strew the berries of the sorbus over the graves from nearly the same idea. Now, how the same superstition could have spread from the East Indies to Switzerland and Scotland, I shall leave your learned doctors to decide: I only send you this for your amusement, and for the *Arboretum Britannicum*, if you think it worth inserting when you are treating on the mountain ash. — *Id.*

Paris, Aug. 10. 1836. — On visiting the Jardin des Plantes, I was surprised to find the extensive improvements that have taken place in the stoves and green-houses; but rather disappointed with the arrangement in the different compartments of the open garden, which seem in a state of comparative neglect to what they were when I last saw them, in 1827. To the hothouses have been added two palm-houses; the framework of iron, and the roofs glazed as well as the sides: they are about 40 ft. square in the ground plan, and finished with a domical roof. The effect is excellent. The palms are in boxes, which are placed in a sunk pit, the bottom of which pit can be lowered as the plants grow; so that their trunks may be 100 ft. in height, and yet their heads be at a sufficient distance from the glass, and quite near the eye of the spectator walking round the house. The stems, or trunks, being sunk in the pit, will suffer nothing from the want of light; and a circulation of air can readily be contrived by a shaft, which may also serve as a staircase to go down for the purposes of culture; also for the curiosity of walking in a palm grove. All that is necessary to be kept in view, in the case of such a plan as this, is to place palms which grow at the same rate, and attain the same height, together; so that the dwarf kinds and slow-growing sorts might not suffer by their proximity to the larger and more rapidly growing species. It must be obvious, that if, instead of sinking the pits as the palms grew, the side walls of the house were raised, exactly the same effect would be produced as far as respects the plants. The spectator, on entering the house, would find himself in a dark palm grove; and by ascending a staircase and walking round a gallery at the top of the wall (which gallery would have to be raised as the plants were raised), the foliage of the plants would be seen from above. If palms were classed and cultivated in this way, a palm-house, both in the first cost and after-management, would cost less than any other description of plant-house, with the single exception of the article of fuel. The side walls of the house might be of brick or stone, built hollow, to increase its non-conducting power; and the roof of iron, glazed, and fixed; the openings for

air being made at the tops of the side walls. The palms might be planted, each in a square of soil, separated by thin brick walls; so that the roots of one sort might not interfere in the slightest degree with those of another. The side walls might require to be raised 1 ft. every three years; and as, by the time these got to be as high as 30 ft. or 40 ft. they might be considered unsightly, they could, when first built, be planted with ivy, or Magnòl*ia* grandiflòra, or the common holly, outside, the growth of which would keep pace with the rising of the walls; or the palm-house might be placed in a grove of slow-growing evergreens, such as hollies, which would completely conceal the blank walls on every side. In short, there is much yet to be done in Britain in the way of palm culture: and when it is borne in mind that these plants, in common with all the Monocotyledòneæ, only require perpendicular light; that they require no shifting or pruning; no nicety in regard to either air or water; that they are little subject to the attacks of insects of any kind; that they only require an abundant supply of heat; that this heat can hardly escape any where but from the roof, and that even this might be covered, during nights in winter, with canvass, matting, or boards; — I say, when we consider all these things, a palm-house will appear to be one of the most simple and easily managed description of tropical gardens. But you shall hear more from me on this subject by and by. In the mean time, I have sent you the new catalogue of the garden, and a lithographic view of the hot-houses, &c. — *J. C. D.*

M. Soulange-Bodin was some time ago appointed Vice-Secretary to *La Société Royale et Centrale d'Agriculture;* and, on the 10th of April last, I had the pleasure of hearing him read a very elegant discourse, which was highly applauded by the members present, and has since been published in a cheap monthly agricultural journal, called *L'Agronome.* In taking a general review of the present state of agriculture in France, M. Soulange-Bodin notices the great increase of the culture of the potato; and he considers the beet as a source of incalculable riches, not only for France, but for Europe in general. Of course, the value of the beet depends mainly on the sugar which can be procured from it, but not altogether; for the beet is much better adapted as a green crop for feeding cattle in a warm climate, than either the turnip or the potato. The culture of the silkworm, and that of the Saxon merinos, occupy a good deal, also, of public attention; and, lastly, the culture of the forests. MM. Vilmorin, Michaux, Jaume St. Hilaire, Mirbel and Loiseleur Deslongchamps, are represented as continually urging the great importance of introducing all kinds of foreign trees among the indigenous ones in the native forests. Great attention, it appears, is being paid to the study of the insects which attack trees; and Michaux is stated to have made some valuable discoveries on the subject: but I refer you to *L'Agronome.* — *Id.*

HOLLAND.

Leyden, October 12. 1836. — In answer to your letter of September 29., I have the pleasure to give you the requested information concerning the ornus; to which I add the portraits of that and three other trees in the garden of our university, in the hope that they will be acceptable to you.

The *Fráxinus O'rnus* (*O'*rnus europæ'a), called "the tree of Boerhaave," because it was grafted, in the time of that celebrated professor, on *F.* excélsior, still exists, but is in a state of great decay. The trunk is almost hollow, and rotten on one side, where it is nearly covered with fungous productions. Being afraid that the stem might be blown down and broken by a strong wind, we have been obliged to cut off many large branches of the head, and support the trunk by props. Perhaps the decayed state of the tree is partly caused by its having been transplanted about twenty years ago, when a new arrangement of the garden took place. About the mid-height of the stem, and on its healthy side, there is a large spherical wen, or solid excrescence, the circumference of which is 1·37 mètres=4½ ft. The following dimensions are taken in French metrical measures, which can easily be reduced into English :—

I. *Fráxinus O'rnus* L. Total height 9 mèt.=29 ft.; height of the trunk 3·9 mèt. =12 ft.; circumference of the trunk 1·37 mèt.=4½ ft. The lower branches near the ground are young plants of the same *O'rnus*, grafted on branches which issued from the stock of *F.* excélsior. They were grafted last year.

II. *A'cer monspessulànum.* Total height 9·43 mèt.=31 ft.; height of the trunk 2 mèt.=6½ ft.; circumference of the trunk 3·21 mèt.=10 ft.; diameter of the head 7·60 mèt.=25 ft.

III. *Salisbùria adiantifòlia* (*Gíngko* bíloba). Height 12·62 mèt.=41 ft.; circumference of the trunk 1·31 mèt.=4½ ft.

IV. *Lonícera alpígena* Linn. Total height 4·22 mèt.=13½ ft.; height of the trunk 1·30 mèt.=4½ ft.; circumference of the trunk 0·99 mèt.=3 ft.; diameter of the head 3·82 mèt.=11 ft.

V. *Robínia glutinòsa* L. Total height 12 mèt.=39 ft.; height of the trunk 2·14 mèt.=7 ft.; circumference of the trunk 1·35 mèt.=4½ ft.; diameter of the head 9·34 mèt.=30 ft.

The *A'cer monspessulànum* and the Lonícera were planted on the spot where they stand, at the time that Linnæus was here, when the garden was arranged by him and Professor A. Van Royen, according to his sexual system. — *C. G. C. Reinwardt, Professor of Chemistry and Botany at Leyden.*

N.B. The Lonícera has lost its leaves at the present time. A young plant, however, has issued from a large fissure in the trunk, which sprang from seed that had fallen into that cavity. The branches of this very old tree are fastened together by iron hoops.

GERMANY.

The English Garden at Munich. — I send you a copy of the plans of the English garden at Munich, as recently altered, embellished with six lithographic prints. I hope you will be pleased with the views of that part of the garden where the round temple is; which, when you were here, was not begun. The temple, and the monument within it, are now finished. The design is by the senator Count Klenze, our first architect; and it is built of white sandstone, in the style of the ancient Greek buildings. It is ornamented with encaustic paintings; a style of ornamenting buildings which is here called lithochromic. Although these paintings are flat, and without that light and shade which architectural ornaments usually possess, they have a splendid effect in the sunshine. If the colours could but always remain as lively and striking as they are at present, they would be invaluable! Count Klenze, who intends to go soon to London, has, by this first example of lithochromic, not only obtained himself a celebrity here for the renewal of this art, but I may say, perhaps, throughout all Europe. — *Sckell, Court Garden Director. Munich, June* 24. 1836.

SPAIN.

Gibraltar, May 20. 1836. — I have taken in the *Arboretum Britannicum*, and have also persuaded our Library to take it too; for I have a good deal of love for botany and trees, and have the same feeling respecting them as my ancestors had. I have a large garden here; and I am trying to acclimatise the tropical fruits, as well as our own gooseberries, currants, and raspberries; which are now fruiting abundantly with me, though it is the first year of the trial. I have a banana with a raspberry bush under it, both in fruit! So much for the climate of Gibraltar. — *Basil R. Heron.*

NORTH AMERICA.

Quércus álba. — A white oak tree, on the land of Mr. Grove, near Roxbury, Lettenkenny township, Franklin county, Pennsylvania, being felled and cut up, produced the following quantity of wood; viz. 1400 shingles, 200 felloes; two saw logs, one 14 ft., the other of 16 ft. long; one house log, 22 ft. long; four rail cuts, making 60 rails (each 8 ft. long); and two cords of wood. *J. M. Philadelphia, Sept.* 17. 1836.

Plátanus occidentàlis. — Near Howel's Ferry, S. C., on Broad River, on the

York side, stands a buttonwood tree (*Plátanus occidentàlis*), which, for its great size and capacity, surpasses, perhaps, any one in the United States. It is 72 ft. in circumference, with a hollow 16 ft. in diameter, and has held within that space seven men on horseback. Tradition reports it gave shelter and afforded protection to many families during the lowering days of the American revolution. (*Yorkville Pioneer.*) — *J. M. Philadelphia, Sept.* 17. 1836.

Endicot Pear Tree. — The *Salem* (Massachusetts) *Gazette* mentions that the famous pear tree, planted by Governor Endicot in 1628, on his farm in Danvers, has borne this season (1831) three bushels of pears. The species is the Bon Chrétien. — *Id.*

Large Pears. — At the time I was taking in my pears, I weighed six, and their weight was 9 lb. The largest weighed 25¼ oz.; measuring 13½ in. in circumference, and 16¾ in. lengthwise. Two of the pears are deposited in the office of the *Free Press* (Philadelphia) for inspection.—*Job Roberts. Whitpain Township, Montgomery County, Pennsylvania, Oct.* 1831.

[Mr. Roberts is an excellent farmer, and a highly respectable member of the Society of Friends. I saw the two pears in the *Free Press* office. — *J. M. Philadelphia, Sept.* 17. 1836.]

Large Virginian Apple Tree. — *Romney, Virginia, Oct.* 24. 1835. We are indebted to a highly respectable gentleman of Hardy county for the following facts relative to a mammoth apple tree on the farm of Captain Daniel M'Neill of that county. Our informant says that he took the dimensions of this tree carefully, and accurately; and found it to be 45 ft. in height, and 55 ft. in breadth; circumference of the trunk 9 ft. 4 in. About 7 ft. from the root, there are eleven branches, the average size of which are 3 ft. 10 in. in circumference. But the most remarkable fact about this tree is the quantity of fruit it bore the present year; 180 bushels of apples having been taken from it thus autumn. Four or five bushels of such as were bruised, and partially and entirely rotten, were left under the tree; and a good deal of its fruit must have been taken away by different persons through the summer and autumn: so that the real quantity it bore must have been very near, if not quite, 200 bushels. The apples are very large. It stands near the south branch, on very rich soil. I have been informed that it did not bear any fruit until after it was twenty years old. It grew spontaneously where it now stands, and, although forty years old, still continues to grow. — *J. M. Philadelphia, Jan.* 6. 1836.

The Maclùra thrives in Mrs. M'Mahon's garden wonderfully, and last year her trees produced nearly three bushels of fruit. She gave me one apple to send to you; and she has many trees to sell at 2 dollars each. The last winter, which has been the coldest since the British artillery and troops crossed from New York to Jersey, in the winter of 1779–80, was a hard one for the poor deer, the hunters making great destruction among them in the interior, by pursuing them on the frozen snow. — *J. M. Philadelphia, April* 27. 1836.

The Tea Plant is said to have been successfully cultivated in the Ohio state. A Mr. John Platt announces that he has succeeded in growing, drying, and preparing tea equal in quality to the imported "young hyson." He offers to give seed and instructions to those who wish to become growers; and he states that he is led to do this solely from a wish to benefit the country in which he has passed the greater part of his life. He is now fourscore years of age. (*Morn. Chron.*, July 21.) In Legarre's *Southern Agriculturist for the United States*, published in 1828, are the following observations: — "On enquiry, I find that the tea tree grows perfectly well in the open air near Charleston, where it has been raised for the last 15 years at M. Noisette's nursery. Tea, as exported from China, would cost too much in the preparation; for each leaf goes through a particular process there. But, as this is probably done with a view of economising room, and preserving its freshness in the long sea voyage to which it is exposed, we might, in raising it as a crop, use it and export it, at least northwardly, dried in the same manner as senna or hops. (*South. Agri.*, &c., vol. i. p. 18.)

Art. III. *Domestic Notices.*

ENGLAND.

An Insect on the Leaves of Pear Trees at Kinmel Park. — I have had the opinions of Mr. Westwood and Mr. Children on this insect; the former of whom thinks that little or no injury will be caused by it, because a portion of the green leaf is left to perform the functions of nature, viz. the elaboration of the sap. I am sorry to differ from Mr. Westwood on the subject, though I readily admit his profound acquaintance with entomology; and I mean to pay particular attention to the progress of the insect next spring. Under the brown blotches on the leaves have existed caterpillars; but of the parents of these I know little, except that some of our pear trees have been almost destroyed by them. The best remedy I have found to be painting the wood over with coal-tar, which can be had very cheap from any of the gas-works. No insect will approach tar of any kind; and I am convinced that the insect spoken of deposits its eggs on the leaves early in spring; and that the larva is matured, in the course of summer, in the pulp of the leaf under the epidermis. — *Thos. Forrest. Kinmel Park, Oct.* 17. 1836.

Vitality of Seeds. — It will be in the recollection of our readers, that, in October, 1834, we published some interesting details of the opening of a British tumulus, near Maiden Castle, by Mr. Maclean, who found therein a human skeleton, and a portion of the contents of the stomach, containing a mass of small seeds, which neither the operation of the gastric juices, nor the lapse of probably twenty centuries, had sufficed to destroy. Many of these seeds have been subjected to various careful experiments, to ascertain whether the vital principle was extinct; and we have the satisfaction of announcing that Professor Lindley has happily succeeded in producing plants from several of these seeds. These plants have confirmed the opinion expressed by the learned Professor, on a first inspection of the seeds, that they were those of the *Rubus idæus*, the common raspberry. The plants are now very vigorous, have produced much fine fruit this season, and form an object of the greatest curiosity and attraction to horticulturists. This highly interesting circumstance proves the raspberry to be an indigenous plant in this country, growing at a very early period, and then constituting an article of food. (*Dorset Chronicle*, as quoted in the *Bath Journal* of Sept. 12. 1836.) We have seen the raspberry plant alluded to in the Horticultural Society's Garden. The facts are extremely interesting; and we hope Dr. Lindley will compare this case with others of the kind upon record, and favour the world with a memoir on the subject. — *Cond.*

The London Botanical Society. — On September 12., a meeting of gentlemen attached to the science of botany, and belonging chiefly to King's College, and to St. Bartholomew's, Guy's, St. Thomas's, and other of the metropolitan hospitals, took place at the Crown and Anchor Tavern, Strand, for the purpose of establishing a society for advancing the interests of botanical science, by the formation of an herbarium for reference, and for exchanging specimens with other societies, or with individual collectors; also by the formation of a library and museum, by the reading of original and other papers, and by all other means which may promote the advancement of systematic botany. Dr. M'Intyre was unanimously called to the chair. Several preparatory meetings, it appeared, had already taken place, and the countenance and support of Dr. Lindley, and several other eminent botanists, had been promised to the infant society. The chairman, in stating its object (as narrated above), pointed out several other scientific institutions for the promotion of natural history; such as the Linnæan, &c., from which various others had emanated, viz. the Zoological, and the Entomological Societies, &c. As yet, however, no society existed in the metropolis of a strictly botanical character. Being much attached to the study of practical botany, he could, of his own knowledge, speak of the ample field in this country, and even surrounding the metropolis, which presented itself; and the treasures of which were still un-

explored. Much confusion, it was well known, also existed as regarded the nomenclature of plants, which it would be one of the objects of the Botanical Society of London to simplify. The chairman then adduced a recent instance, which came under his observation, where common plants were designated by different names in different counties; so that farmers and gardeners were unable to identify them by the names given in the botanical dictionaries. A list of donations to the library and the herbarium were then announced. The secretary read a draught of the rules for the government of the Institution, which appeared to be modelled after those of similar bodies, and which were generally agreed to; after which the meeting adjourned. (*The Times*, Oct. 14. 1836.)

Proposed Botanic Gardens in Leeds.—A writer, addressing the editors of the *Leeds Mercury*, thus proceeds: — "Allow me, through the medium of your paper, to entreat Mr. Eddison and his colleagues not to slacken their zeal respecting the establishment of botanical and zoological gardens in this town, because the chairman of the Leeds Horticultural Society was pleased to express a fear that, 'while Leeds clung to its smoke, instead of burning it, the attempt to establish a botanical garden (except at too great a distance) would necessarily fail;" for I can assure them that there is more than one very eligible site, which is equal, if not superior, to that at Sheffield, and at no greater distance from the town; and which (I dare say you are aware) is generally allowed to be without fault. Leeds, I believe, established the first Horticultural Society, which flourished for some time; but, I am sorry to say, — nay, being so closely connected with the people of Leeds, I am ashamed to say, — that all taste for public horticultural recreation has, of late years, become almost extinct. A little spark, however, again presents itself, which, I trust, Leeds, with its energy and its wealth, will speedily fan into a flame. Let us be jealous of Sheffield, Birmingham, Manchester, Liverpool, and many other towns, not less smoky than our own; and, seeing the zeal and interest which they have displayed in promoting recreations so rational, so healthy, and so delightful, let us be determined that a stone shall not remain undisturbed, in order that Leeds may again stand unrivalled in a cause of all others the most interesting. — *G. A. Leeds, Oct.* 10. 1836." (*Leeds Mercury*, Oct. 15.)

The Colchester Botanic Garden. — This garden is bounded on two sides by the ancient city wall, and contains eight acres of good light rich earth. The views are extensive and very picturesque. The principal entrance is from the street called East Hill, leading to Walton, Harwich, and Ipswich. The entrance is by a narrow walk, seemingly not more than 8 ft. wide, until you reach the inner gate, when you enter upon a very fine broad walk 12 ft. or 14 ft. wide, straight, and nearly a quarter of a mile long, having an old laurel hedge on each side, with a flower border, generally gay, in front of it; and next the walk, on the right hand, by the entrance, stands Mr. Preston's (the curator) lodge, something like a Scotch bothy, covered with ivy. (I am sorry there is not a better house). There are two small houses, one a stove, the other a green-house. The collection of plants in both houses is only kept for sale; at any rate, they are sold without any reserve: and, indeed, this should not be called a botanic garden, there being no collection nor arrangement worth looking at; and they cultivate vegetables which are regularly hawked about. Fruit trees and other shrubs and plants are also sold. The garden is an excellent promenade for the citizens, who must subscribe a yearly sum, or they cannot be admitted. Strangers may be admitted by paying one shilling. — *J. Watts. Colchester, Aug.* 1836.

Zoological Gardens. — One is about to be laid out at Cheltenham, by Mr. Forrest, the author of the design for the Bristol Zoological Gardens. Another is in contemplation at Manchester, respecting which Mr. Forrest has also been consulted. One is talked of for Leamington, one for Bath, and one at Birmingham. The Cheltenham Zoological Garden is to contain 16 acres; and these are situated adjoining a public garden, containing upwards of 100 acres. The Bristol Zoological Garden contains 12 acres, and is situated adjoining Durnham Downs, on which several plantations have been made. Those

who have observed the great interest which we have taken in the subject of public gardens since the commencement of the *Gardener's Magazine*, will be able to form some idea of the very high gratification which it is to us to see that they are becoming, in so short a time, so general. — *Cond.*

The Sheffield Floricultural and Horticultural Exhibition, which was held on the 14th and 15th of September, in the Sheffield Botanic Gardens, was attended by upwards of 11,000 persons, including many commercial and professional gardeners from almost every part of the island. A great many prizes were awarded, the highest of which appears to have been a 15*l.* cup, to Mr. Widnall, for the best stand of 50 blooms of dahlias. In this stand was included a new flower, called Dodd's Mary, which seems to have been allowed by all the florists present to be the finest dahlia known. We shall enter more into detail respecting this show in our annual summary of the provincial societies, and the reader will find a copious account in the *Floricultural Magazine* for October. We may observe respecting this Magazine generally, that it is by far the best of the provincial magazines which has yet appeared. There is no attempt in it to palm off quotations from us, or from the *Horticultural Transactions*, as original communications; such, for example, as we find in the last number of Harrison's *Floricultural Cabinet*, where one correspondent, who signs himself W. Hurst, takes the greater part of a page verbatim from the *Gardener's Magazine*, and gives it as his own, with the sole addition of "I will continue the subject at some future time. W. Hurst." To which the editor adds, as a postscript, "We shall be glad of any observations on the subject from Mr. Hurst."! — *Id.*

The Pomological Rivals of Lancaster. — At the Lancaster autumnal show of flowers and fruits, which took place Sept. 27., "the two great 'pomological' rivals, the Rev. T. Macketh and Mr. M. Saul, exhibited, as usual, a great number of the varieties of the apple; the former having at the present show seventy-eight, and the latter upwards of sixty, different sorts. Two cast-iron garden-chairs, from the foundry of Messrs. Whewell, after a novel and tasteful design by Mr. Saul, were also exhibited, and excited much attention.— (*Kendal Mercury*, Oct. 1. 1836.)

The Kensington Nursery, lately occupied by Wm. Malcolm and Co., has been taken by Mr. Forrest, the landscape-gardener, who is about to erect a splendid new range of glass, and plant single specimens of all the more interesting and valuable hardy trees and shrubs; in short, a select arboretum and fruticetum. We have long recommended this step to the principal London nurserymen, and more especially to the late, and present, Mr. Lee; being persuaded that, while it would greatly improve the public taste with regard to trees and shrubs, it would contribute to their own benefit in a commercial point of view. — *Cond.*

A half-hardy Arboretum is now forming by Mr. Curtis of the Glazenwood Nursery, in a small wood, in which the young oak timber is about 30 ft. or 40 ft. high. The kinds planted are chiefly of the more hardy Australian genera, such as Eucalyptus, Acacia, Leptospermum, Metrosideros, &c.; and the object is to ascertain how far these trees and shrubs will endure our climate under favourable circumstances. — *S. C. Glazenwood, Essex, Oct. 7.* 1836.

Miller's Nursery, Bristol. — A gentleman, a member of the British Association for the Advancement of Science, a botanist, with a considerable degree of horticultural knowledge, and who has seen many of the nurseries on the Continent, assures us that, in point of display, of general arrangement, and of high order and keeping, Miller's Nursery exceeds all others which he has seen. As a nursery for a stranger to walk in, he considers it the first in Britain, and, perhaps, in Europe. The members of the British Association held a walking conversazione in it, and were very highly gratified. — *Cond.*

Wheeler's Nursery, Warminster, now occupied by the grandson, we believe, of the author of Wheeler's *Gardener's Dictionary* (published about the middle of the last century), has been recently enlarged, by the purchase of some additional acres; and glass to a very considerable extent has been

erected. Here, as in other parts of Britain, country gentlemen are beginning to discover that it is always for their interest to purchase from local nurserymen, when the articles procured are true to their names. Hence the retail business of the London trade is now comparatively local, and their trade price business is, chiefly, to supply novelties to the country nurserymen, and to foreigners. — *Cond.*

Wasps in Warwickshire. — We have had no wasps this summer till after September had commenced, and then they were not numerous. I believe a scarcity of these insects has been remarked this year by others, in many different parts of the country. I expected it would have been a great year for them, for there was no lack of what we suppose to be breeders in the spring; and, early in the summer, we found no less than three embryo nests in moving one heap of litter in my fold-yard. — *W. T. Bree. Allesley Rectory, near Coventry, Oct.* 1. 1836.

Rooks and Walnuts. — The rooks have begun to be very busy among my walnuts. Strolling to-day up my shady walk, where the elm trees grow in which the rooks build, I observed many walnuts strewed on the path. The rooks were making a strange clamour, and cawing over my head; and I was witness to their letting fall several walnuts in my path way. I take it they lose, in this way, a good many of the walnuts they take, and they do not seem to be in the habit of retrieving them. — *Id.*

The comparative Protection afforded to Arboriculture and Horticulture by the English Law. — In England, the cutting of a tree, a sapling or a shrub in a rich man's park, to the extent of twenty shillings, subjects an Englishman to the punishment of a felon — to transportation; but an injury to any root or plant in a garden, though to the same amount, is imprisonment, or payment for the injury, and a fine of 20*l.* only. The park and the tree belong to the rich man — the garden and the root to the poor man. A rich oppressor may now, in England, by law, destroy a poor man's garden, and every root, and pay the amount, and 20*l.*; and, if a poor man were in return to injure the oppressor's tree, sapling, or shrub in a park (we quote the words of the act), he is banished his country for seven years, nominally, but (as every poor man knows), in effect, for life. At the very same moment, were the two men, the rich man and the poor man, to be tried on the same day, at the same assizes, for the same offence, in the presence of their respective neighbours and friends, this, by law, would be the different results to those two Englishmen: the rich man, paying 20*l.* and the damage done to the garden, would sit down on the same bench with his brother squires; whilst, by those same squires, the poor man would be transported as a felon. We refer to the 7 & 8 Geo. IV. c. 30. s. 19., and to the 21st section of the same act. (*Morn. Chron.*, June 20. 1836.)

Grafting the Oak. — I have scions of the cork oak, doing quite well on the common oak; and also, standard high, on the Turkey oak. They were put on in April last, in the whip or splice manner, and are now making vigorous shoots: they appear likely to form fine heads. — *John Cato. Heanton Satchville Gardens, Okehampton, Devon, Sept.* 26, 1836.

Grafting the Cydònia japónica *and the* Cratæ'gus Pyracántha *on the common Hawthorn.* — This I have also done, last spring, the grafts being made at the height of 6 ft., 7 ft., and 8 ft. from the ground. They promise to make curious little trees. — *Id.*

Grafting the Zelkoua, or Plánera Richárdii, on the common Elm.—This is done in the French nurseries; and the first year's shoots are said to be from 6 ft. to 9 ft. long. The zelkoua is a most valuable tree, and there are large specimens of it at Syon and Kew; but it is rare generally. This is much to be lamented, as the value of this tree for timber is very great. It is a native of Mount Caucasus, where, and in France, it grows to the height of 60 ft. or 70 ft., or more, in about fifty years; and a tree of that size is generally 30 ft. in the bole, before it ramifies; the branches, though numerous, being very slender in proportion to the size of the tree. The trunk is nearly of the same circumference throughout its whole length; and the sap-wood is very elastic, and

resembles that of the ash; but the heart-wood is so extremely hard, that it is difficult to drive a nail into it; and it never becomes worm-eaten. Its foliage, at a little distance, strongly resembles that of the elm; but the leaves are only singly dentated, while those of every kind of elm have always their deep indentations accompanied by smaller ones. The tree, in a living state, is never attacked by insects, either in its leaves or wood. It is much to be wished that nurserymen would propagate this tree by grafting, so that gentlemen might have an opportunity, at a reasonable expense, of introducing it into useful plantations. The only plants for sale in the neighbourhood of London, that we know of, are at Messrs. Loddiges'. Abundance of scions for grafting may be had from the young tree in the Horticultural Society's Garden. The description, history, uses, &c. of the tree, with a botanical specimen, a portrait of the young tree in the Horticultural Society's Garden, of the old tree at Syon, and of a celebrated tree at Podenas, in France, are given in our *Arboretum et Fruticetum Britannicum*. — *Cond.*

Fráxinus americàna juglandifòlia is here a lofty tree, ripening its seeds yearly, from which a great many young plants have been raised, and distributed in the woods. — *Thomas Davidson. Stackpole Court Gardens, near Pembroke, Oct.* 4. 1836. The walnut-leaved ash is one of the finest varieties of the American kinds of this genus. Its leaves are as smooth as those of the walnut, though much larger, and of an intensely deep green; and, in the neighbourhood of London, they remain longer on the tree than those of any other ash, American or European. There is a noble tree of this sort in the grounds of Pope's Villa, at Twickenham, of which we have had a beautiful portrait drawn for our *Arboretum*. — *Id.*

*Edwárds*ia *microphýlla* thrives in the open garden, as a standard, flowering beautifully, and ripening seeds. — *Thomas Davidson. Stackpole Court Gardens, Oct.* 4. 1836.

The Lemon, against a wall on an east aspect, without any protection whatever, bears an abundant crop of good and useful fruit every year. — *Id.*

The whorl-leaved Elm. — I have seen in Mr. Masters's nursery, Canterbury, a very remarkable specimen of this tree, as well as of another kind of elm raised from seed. I would recommend you to apply to Mr. Masters for some particulars respecting it, as that gentleman was out on a journey when I called on the 28th instant. — *J. B. H. London, Sept.* 30. 1836. We return our best thanks to our correspondent. We have written to Mr. Masters, who has given us some particulars, and kindly promised to send us some drawings of this and other trees. — *Cond.*

A*`bies Douglàs*ii at Scoresby, near York, the seat of John Wood, Esq., measured, in October last, 19 ft. 4 in. high, after having been planted only seven years. The trunk, at 2 ft. from the ground, girts 15 in. — *G. G. London, Oct.* 13. 1836.

Drawings of Trees for the Arboretum Britannicum. — We have been highly gratified of late by some drawings which have been voluntarily sent us from different parts of the country, and from the Continent, for the *Arboretum et Fruticetum Britannicum*. As we have limited ourselves to giving portraits of trees, whether of ten years' growth or full grown, standing within ten miles of London, we cannot, consistently with our plan, and with the limit which we have assigned to the work (that of six volumes 8vo), introduce these trees at present; but we contemplate giving them in an appendix, which, however, will form no part of the work, and need not be purchased by those persons who possess it, unless they choose. Among the drawings sent us are the following: — From Kopenzel, near Vienna, a tulip tree, which crowns the summit of a little hill, and is a very remarkable specimen. From the Botanic Garden at Leyden, Salisbùr*ia* *a*diantifòlia, 41 ft. high; *A`*cer monspessulànum, 31 ft. high; Lonícer*a* alpígena, 13 ft. high; and *O`*rnus europæ*`*a, 29 ft. high. These drawings are most beautiful and characteristic; and, though they are not drawn to a scale, yet, as the dimensions aregiven in detail, we can readily have them reduced. The de-

tails respecting these trees will be found in Professor Reinwardt's letter, inserted under Holland (p. 692.). From different parts of England we have received drawings: of an elm at Mongewell, by Mr. Jukes; one at Rotherwas, near Hereford, by Mr. Hay Brown, gardener, Stoke Edith Park; a cedar, at Foxley, planted by the late Sir Uvedale Price; the weeping oak at Moccas Court, mentioned p. 368., drawn, at our request, by Mr. G. R. Lewis, now residing for a few weeks at Hereford; the American lime, at White Knights, which we sent down an artist to draw; beeches and ashes from Elgin, drawn by Mr. Stevens there, and forwarded by J. M'Leod, Esq.; a cedar and a Scotch elm, from the estate of Gray, drawn by Mr. J. Robertson; elms, beeches, *P*látanus, *I*lex, and a sweet chestnut, from Salterbridge, Cappoquin, Ireland, sent by J. H. Alcock, Esq. To these trees, others might be added, which are now being drawn for us in different parts of the country, some of them at our own expense, and others at the expense of contributors. We take this mode of returning our best thanks to all the parties who have been so kind as to render us so important a service as to send us these drawings; and to solicit drawings of remarkable specimens from every part of the country at home, and from climates analogous to that of Britain in every part of the world. There are many remarkable trees in France, Germany, and Italy, that we should like much to get drawings of. The *C*éltis austràlis, at Monza, and a very old tree of the same species near Aix, just occur to us. We have sent instructions to a friend to procure us a drawing of the lime tree at Neustadt, in Wirtemberg, and written to Dr. Mease respecting a very beautiful Maclùra, in M'Mahon's Nursery, at Philadelphia. — *Cond.*

Napoleon's Willow. — Being anxious to procure some information as to this tree for our *Arboretum Britannicum*, we sent a letter to the *Morning Chronicle*, which appeared in that Journal on Sept. 5. 1836. We received a great many letters on the subject; some dried specimens; a number of drawings and engravings, either lent or given; and one living plant. The result of the whole, as far as it is worth making public, is as follows: — No species of willow is indigenous in St. Helena; but about 1810, or before, when General Beatson was governor there, he, being fond of planting, had a great many forest trees and shrubs introduced from Britain; and though, as appears by the *St. Helena Gazette*, for 1811–12, he had the greatest difficulty in preserving his plantations from the numerous goats which abounded in the island, yet several of the trees survived, and attained a timber-like size. Among these was the tree of *S*àlix babylónica, which has since been called Napoleon's Willow. This tree grew among other trees, on the side of a valley near a spring; and, having attracted the notice of Napoleon, he had a seat placed under it, and used to go and sit there very frequently, and have water brought to him from an adjoining spring.

About the time of Napoleon's death, in 1821, a storm, it is said, shattered the willow in pieces; and, after the interment of the emperor, Madame Bertrand planted several cuttings of this tree on the outside of the railing which surrounds the grave; and placed within it, on the stone, several flower-pots with "heartsease" and "forget-me-not." In 1828, we are informed, these trees were found in a dying state; and twenty-eight young ones were, in consequence, placed near the tomb, which was at that time surrounded with a profusion of scarlet-blossomed pelargoniums. A correspondent, who was in St. Helena in 1834, says one of the willows was in a flourishing condition; but another, who was there in 1835, describes it as going fast to decay, owing to the number of pieces carried away by visitors. In what year a cutting from this willow was brought to England for the first time we have not been able to ascertain; but it appears to us that it may probably have been in the year 1823, and that one of the oldest plants is that in the garden of the Roebuck tavern on Richmond Hill. This tree bears a white marble tablet, with the following inscription: —

"This Willow, which was taken from the Tomb of Buonaparte in St. Helena, in the year 1823, was presented by General Walker, Governor of

the island, and successor to Sir Hudson Lowe, to John Townsend Farquar, Esq., Governor of the Mauritius, who brought it to England."

The landlord of the inn, Mr. Hare, informs us that the plant was sent over, in a tub, to a friend of his at Twickenham, and presented to that friend for the purpose of being planted in his garden; but that he, being a professional man, was afraid his doing so might be considered as indicative of his political opinions; and this, in Twickenham, would have been ruinous, as that village is noted for its attachment to the Bourbons; the present king of France having resided there for many years when he was Duke of Orleans, and been highly popular.

There is a handsome small tree of Napoleon's willow in the Horticultural Society's Garden; one at Kew; several at Messrs. Loddiges'; some in the Twickenham Botanic Garden; one in the garden of Captain Stevens, Beaumont Square, Mile End; one in the garden of Mr. Knight, at Canonbury Place, Islington, brought over in 1824; one in the garden of No. 2. Lee Place, Lewisham, Kent; one in the garden of No. 1. Porchester Terrace; one in the garden of Elm Grove, Kensington Gravel Pits; one, a very flourishing and large tree, in the garden of Mrs. Lawrence, Drayton Green; one at Clayton Priory, near Brighton; several at Chatsworth; and there are various others in the neighbourhood of London, and in different parts of the country.

To show the uncertain result which often attends enquiries of this kind, one gentleman refers us to a garden where we may see two plants, seedlings from the St. Helena tree, which, he says, show it to be a "silk-cotton tree," and not a willow at all; and another sent us a drawing of a leaf of a plant said to be the St. Helena willow, which resembles Barringtò*nia* speciòsa.

Mr. Castles, the curator of the Botanic Garden, Twickenham, is of opinion that there are two kinds of weeping willow in this country; one of which, he thinks, may possibly be the male, and the other the female. One sort is of more vigorous growth than the other, and has the young shoots slightly tinged with red; and this, he says, is the same kind as that which was sent home from St. Helena. There are a number of plants of this kind in a brickfield close to the Lunatic Asylum at Hanwell; one at the Marsh Gate, Richmond, near the Poorhouse; and one at the Ferry, near Ham House. Mr. Castles's son, Mr. George Castles, says there are also some by the canal side, near Brentford. The difference between the two sorts has been pointed out to us by Mr. Castles: the one variety is evidently a more slender and paler-coloured plant than the other, with an angular twist in the shoots immediately above the axil of each leaf. Hence this, which is the most common sort, is probably the *S*àlix babylónica fœ́mina; and the Napoleon willow is either a variety of this, or the male plant. In the mean time, till this is determined, which Mr. Castles hopes to do next spring, Napoleon's willow may be designated *S*àlix babylónica var. Napole*ò*na.

Several views of Napoleon's tomb and the surrounding scenery have been published; some at St. Helena, and others in London. One of the most recent, and apparently the best, is after a drawing by Mrs. Hill Dickson, taken in 1833, and is published by D. Wollenholme, engraver, 22. Chad's Row, Gray's Inn Road. Mr. James Samuel Graham, late of the St. Helena artillery, who has been six years in the surveyor's department there, says that, while in the island, he has drawn the tree and the surrounding scenery many times for French visitors; and that he regrets to state, that out of all the sketches he has seen published, not one is correct.

After all this dry detail, the reader will, perhaps, not be sorry to peruse the following extracts, relating to the subject of Napoleon's willow, which have been sent us by our correspondent, Mr. J. H. Fennell, a zealous young naturalist, who is preparing for publication a work on historical and literary botany: —

"Lieutenant Langdon, who touched at St. Helena on Nov. 22. 1825, says

that seven weeping willows hang over Napoleon's grave, which is covered with a plain stone slab, surrounded by iron railings 5 ft. high, and inside of which some small flowers (the forget-me-not) were planted by Madame Bertrand; but they never grew. An old soldier, he adds, resides near, and has orders to prevent people from going inside, in consequence of some French officers, who had lately been ashore, having taken off several branches of the willows as mementos of their former sovereign.

"Captain Mundy, in his *Pen and Pencil Sketches of India* (1832), says Napoleon's 'tomb consists of a square stone, about 10 ft. by 7 ft., surrounded with a plain iron railing. *Four* or *five* weeping willows, their stems leaning towards the grave, hang their pensile branches over it. . . . The willows are decaying fast; and one of them rests upon the sharp spears of the railing, which are buried in its trunk, as though it were committing suicide for very grief. The foliage of the rest is thinned and disfigured by the frequent and almost excusable depredations of visitors. Fresh cuttings have, however, been planted by the governor; who intends, moreover, to set cypresses round the outer fence. Madame Bertrand's *immortelles* have proved, alas! mortal.'

"Webster, in his *Narrative of the Voyage of the Chanticleer* (1835), says, 'The immediate spot where lie Napoleon's remains is at once conspicuous from a *number* of *weeping willows*. . . . . His grave is in the centre of a grass-plot, 70 yards in circumference, enclosed by a neat circular fence. The common slabs from the kitchen hearth at Longwood form his grave-stone, and an iron palisade surrounds it. The weeping willows, reclining on the palisades, *droop* gracefully over the little enclosure; but the forget-me-not planted by Madame Bertrand has completely withered and disappeared — faithful emblem of all earthly things. . . . The willows are objects of peculiar regard. Whether it may proceed from the character of them, or the facility with which they can be obtained, I cannot say; but they are taken away piecemeal by every visitor, and are treasured like the relics of some holy shrine: and this eagerness to possess a slip of willow from the grave of Napoleon would long ago have annihilated them, had not great pains been taken to preserve them; for few formerly left it without a sprig or cutting.' The writer continues: 'Near the base of the hill forming the side of the valley, is a little fount of water: it is moss-grown, and beset with brake and fern. The valley is adorned with wild flowers, among which the roses and geraniums bloom throughout the year, and mingle their delicious perfume. This was Napoleon's favourite resort; it was here he used to delight in conversing with Madame Bertrand, or in listening to the gay prattle of her children, seated beneath the shade of these willows. The water of the brook was his favourite beverage: he used it daily; and, when unwell, was particularly solicitous to have it.'" — *James H. Fennell. London, Oct.* 1836.

Scarlet Cockscombs. — I have grown some, this season, of very large size. One comb measures 33½ in. in length from tip to tip, and 20 in. across. The plant is 2 ft. 2 in. high. — *James Alexander. Maeslaugh Castle Gardens, Oct.* 1836.

Ipomœa rùbro-cærùlea has been in flower for two months past in the conservatory here; and I can assure you that it is a most beautiful plant. When it first opens, there is very little red; but it dies off nearly all of that colour. The flowers, which are of a most beautiful blue, come out nearly a dozen at a time, and are from 3 in. to 4 in. over. The seed was sown in the stove, in February, and the plants were removed into the conservatory in May. It still continues to flower, and has done so since the end of June; but I am afraid the seed will not ripen. I have no doubt that it will root freely from cuttings. — *J. Watts. East Hill, Colchester, Aug.* 20. 1836. A plant, in the open air, ripened seeds with us at Bayswater in 1835. (See p. 214.)

The Seed-growers are now busy gathering in their harvest; and I believe they call this a good year. The quantity of seeds sown around here is surprising; some of the growers having four or five acres of nothing but annuals, which, last month, was a fine sight. I have seen several, which I never saw

before, that I consider new. They are Nemóphila aurìta, which ripens seeds in the open ground; Eùtoca víscida, *Mál*ope trífida álba, Leptosìphon densiflòrus, and several others. I have seen roods of Salpiglóssis and of Schizánthus pinnàtus, S. hùmilis, and a still more dwarf one, not above 6 in. high; but they have got no name for it yet. Collínsia bícolor, and Coreópsis atrosanguínea (Calliópsis bícolor var.), have been beautiful in several places. — *J. Watts, Gardener to G. Rowand, Esq., East Hill, Colchester, Essex, Aug.* 1836.

Lupìnus nànus. — I saw a bed of this interesting dwarf annual, more than a rood, last week, in full bloom, at Mr. Wm. Cant's, nurseryman and seedgrower, Colchester; who also had in a frame, from which he has saved seeds, a fine plant of Ipomœ'a bòna-nóx, which I believe to be rather scarce. — *Id.*

Blue Dahlias. — A very extensive and successful cultivator was asked the other day whether or not the dahlia fancy was nearly over. He replied, it was only beginning; for, said he, notwithstanding the vast numbers of magnificent varieties now in cultivation, they will soon give way to other variously tinted kinds, which will be every year raised from seed. All dahlia-growers are now endeavouring to raise a *blue* variety; an object which, according to Professor De Candolle, is never likely to be attained. Nothing can be more vague than our associations respecting colour, especially when we are speaking of flowers, whose tints are more generally intermediate or compound than primitive. Of deep *navy* blue, and various shades of a deeper tint, passing into violet, there certainly were many dahlias at the Sydney Gardens; but to the turquoise, or the blue of *lapis lazuli* (the colour to which we presume De Candolle alludes), there certainly was no approximation. (*Bath Journal*, Sept. 20. 1836.)

The Cape Shallot. — With this you will receive a few bulbs of a very distinct variety of shallot, which seems not to be known in the south. It grows much larger than the common sort; but I am not aware that its quality is superior: some call it the "Cape shallot." — *J. B. W. Kiplin, Catterick, Sept.* 15. 1836.

Scale on the Pine may be totally destroyed by a moist heat of 125° Fahr.; which, provided the plants are in a growing state, may be applied without the slightest injury to them. By these means, Mr. Spence (gardener to R. Durant, Esq., Putney Hill), who never plunges them in the bed, obtains very fine fruit; and the plants now under his care are all of them looking remarkably clean and healthy. — *W. H. B. Sept.* 27. 1836.

Budding the Vine I think of great importance, on account of its simplicity and certainty of success. It takes but a few minutes to insert the buds; and the operation can be performed alike upon vines in a hot-house that are to be forced early, and on plants growing against a wall in the open air. All that is requisite is to save the prunings of those vines which you intend to increase, and to keep them in a dormant state till the vines you intend to bud upon have made shoots 6 in. or 8 in. long. The buds will then grow freely, and will take on wood ten or twenty years old, equally well as they will on that which is only one or two years old. — *J. Spence, Gardener to R. Durant, Esq., Putney Hill, Oct.* 8. 1836.

Italian Melons. — Seeds of a number of sorts were sent us last spring, by our much-valued correspondent, Signor Manetti, of Monza. (See p. 159.) We distributed the seeds among such gardeners as undertook to send us a specimen of the fruit, and we have received two or three dozen of specimens; but, with the exception of one or two kinds, corresponding with our Cantaloups, their flavour was not remarkable. Some of them, indeed, of the smooth, green, white-fleshed varieties, are considered sweet or sugary melons on the Continent, and are not expected to have much flavour. Considerable allowance must also be made for the present very unfavourable season. The most successful grower of Sr. Manetti's melons was Mr. Mills, gardener to Mrs. Rothschild, Gunnersbury Park.

Persian Melons. — Some seeds of a Persian melon having been sent to us by C. M. Willich, Esq., we gave the seeds to Mr. Glendinning, on condition

of his sending us one of the fruit, which he did, and which proved of excellent flavour. — *Cond.*

The new Turkish Onion has attained, with me, a very large size. I exhibited three bulbs at the Hereford Horticultural Society's show, on September 22., which, when cleaned and deprived of their tops, weighed together 5 lb. 10 oz. The largest one, when newly gathered, weighed 2½ lb. They were spring sown; otherwise, if they had been sown in the autumn, I have no doubt but they would have been considerably larger, as they were not ripe when gathered. At the Hereford autumnal show in 1835, I received a prize for three onions of the Tripoli kind, the largest of which weighed 2 lb. 4 oz. — *James Alexander. Maeslaugh Castle Gardens, Oct.* 1836.

The Mercer Potato. — Some tubers of this potato have been sent us by the Earl of Mount Norris, of which His Lordship's gardener gives us the following account: — The end of the month of May last, 20 tubers of this excellent potato arrived in a box of plants from the Bartram Botanic Garden, Philadelphia. The tubers were planted whole, on a piece of ground 28 ft. by 3½ ft. wide. When taken up on October the 8th, the net produce in weight was 1 cwt. 20 lb. Taking into consideration the unfavourable weather of the past summer, the produce of this excellent new potato has a preference of from nine to ten in its superiority over all other sorts of potato in culture with us. Robert Carr, Esq., the proprietor of the Botanic Garden above mentioned, declares "this is the best potato known."—*Arley Garden, Oct.* 12. 1836.

We had some of the potatoes sent, cooked; they had a decidedly earthy flavour; and, though they might perhaps be as good as potatoes grown in kitchen-gardens generally are, and perhaps as prolific as any variety, yet, as an eating potato, this sort is, to our taste, far inferior to various kinds: for example, to those of a roundish shape and variegated with red or purple, which are sold in Covent Garden Market under the name of Scotch potatoes; or to the roundish pink-skinned potato called the Irish apple. — *Cond.*

The Steam-plough and the Scotch System of Husbandry. — At the fifth anniversary of the East Suffolk Agricultural Association, held at Wickham Market, Sept. 8., the most interesting remarks of the evening were the opinions advanced by the president, by Lord Henniker, and by Mr. Shawe, in favour of the new poor law, the steam-plough, and the Scotch system of husbandry. Lord Stradbroke enforced the necessity of improving the implements of agriculture; and pointed to the manufacturing districts for proof that the improvement of machinery brought an increase of wealth to the capitalist, and of comfort to the workman. The agriculturists must keep pace with the spirit of the age in doing their utmost to lessen the cost of cultivation. The steam-plough, of which his former mention had been received with incredulity, had actually been completed, and, with a little alteration, was likely to be brought into general use. He was convinced that means like these were the best that could be devised for the relief of the agriculturists, and by which they might hope to become once more an exporting, instead of an importing, nation. Lord Henniker said he hoped that a day of greater prosperity than they had yet seen was dawning on the farmer, and that his difficulties were nearly at an end. In corroboration of the president's statement as to the steam-plough, he had received a letter from a friend in Lincolnshire, who informed him that in his neighbourhood they had got one already, and that it would plough eight acres and harrow thirty in a day. Mr. Shawe thought that some time must elapse before the steam-plough would be brought into general use; and in the mean time, as it appeared by the evidence before the Agricultural Committee that the Scotch system of husbandry was much less costly than ours, he suggested that a deputation should be sent into Scotland to enquire whether any more economical method could be introduced here. (*Bury and Norwich Post*, Sept. 14.) We hope such a committee will be appointed: the farmers of England, not even the most intelligent of them, including what are called the gentlemen farmers, have not the least idea of what farming is in the best cultivated districts of Scotland,—for example, in East Lothian. The effects of the subsoil

plough, of Mr. Smith of Deanston, and of the reaping machine of this gentleman, and of the Rev. Mr. Bell, whose machine has been introduced into the United States of America, will astonish them. (See the *Constitutional and Perthshire Agricultural and General Advertiser*, Oct. 8.) This number of the *Constitutional* is almost entirely filled with agricultural matter, and is well worth purchasing by all agriculturists, for the information it contains on reaping-machines. — *Cond.*

Samples of Wheat, from the Spanish Main, in the Straw, were sent us, in August last, by the Earl of Mount Norris, from which it appears to be identical with the Victoria wheat, of which so much has been said in preceding volumes of this Magazine. Lord Mount Norris is of opinion that it will not answer for this country. M. Vilmorin, who sowed this variety last year, from seeds which, through the kindness of Lord Mount Norris, we were enabled to send him, is of opinion that the variety differs in nothing from the Victoria wheat. The ears of the samples sent us were small, and the straw both slender and short. — *Id.*

A Refinery of Sugar from the Beet-root is being erected at Thames Bank, Chelsea, which it is expected will be in operation in about six weeks. In the vicinity of the metropolis, during the past summer, a great many acres of land have been put into cultivation with the root, at Wandsworth and other places. The machinery will be principally on the plan of the vacuum pans; and a pure refined sugar will be produced from the juice by the first process of evaporation, after it has simply undergone the process of discolorisation. Another part of the premises is appropriated to the manufactory of coarse brown paper from the refuse, in which it is extensively used in France. In case the government do not interfere, and, by rendering the product exciseable, retard or prohibit its manufacture, several individuals have it in contemplation to establish refineries in different parts of the kingdom for purifying sugar, which may be produced, in agricultural districts, for domestic or individual use. A refinery has lately been established at Belfast, in the vicinity of which town upwards of 200 acres of land have been put in cultivation with the beet-root for the manufacture of sugar. (*Salisbury Herald*, Oct. 8.)

SCOTLAND.

The Botanical Society of Edinburgh was instituted on March 17. 1836; and we are happy to learn that it is in a highly prosperous state. Local branches of this Society have been established, or are about to be established, in different parts of the kingdom; and each local society will have a local secretary, who will correspond with the central secretary at Edinburgh. In this way a complete botanical police will be established all over the country, and the extinction of a plant in any particular habitat, or the appearance of a new habitat for any species, will be instantly recorded. The central secretary is W. H. Campbell, Esq., Brown Square, Edinburgh; the president for 1836 is Professor Graham; and the vice-presidents, Dr. Greville and Dr. Balfour; the foreign secretary, E. Forbes, Esq.; and the curator, E. M'Nab, Esq. Catalogues of the British Flora, printed under the direction of the Society, for the purpose of facilitating botanical correspondence, and distinguishing the plants found in the neighbourhood of Edinburgh, may be had of Maclachlan and Stewart, Edinburgh; Baldwin and Cradock, London; Hodges and Smith, Dublin; and James Brash and Co., Glasgow. — *W. C. Clapham Road, May* 26. 1836.

Subscriptions for a Monument to Douglas. — "At the last anniversary meeting of the Dumfries and Galloway Horticultural Society, a subscription was proposed, and cheerfully entered into, in aid of the fund for erecting a monument to the memory of the late Mr. David Douglas, botanist, in his native parish of Scone, in the county of Perth; a gentleman to whom the flora of his country is deeply indebted, and who actually became a martyr to his zeal for enlarging the boundaries of whatever is rural, lovely, and inviting. The sum collected and deposited in the hands of Major Adair was very handsome; but still, as many fast friends to such objects were unavoidably

absent, we feel a melancholy pleasure in stating that subscription papers lie with the secretary and treasurer of the Society, and that we trust many will embrace the opportunity of throwing a stone to the cairn of the introducer of the red-flowering currant, and many other welcome contributions to the gem [flower] borders and kitchen-gardens of Britain." (*Dumfries and Galloway Courier*, Oct. 4. 1836.)

Hints for the Improvement of Cottage Gardening in Scotland, in four printed pages, have just been distributed gratuitously by James Stewart Menteath, Esq., jun., of Closeburn Hall, dated April 27. 1836.

The Curatorship of the Caledonian Horticultural Society's Garden, Inverleith, which had been resigned by Mr. Barnett, is now, we understand, filled by Mr. J. M'Nab, son of the curator of the Edinburgh Botanic Garden; a young man who is a good botanist, and possesses a scientific knowledge of his art. Mr. James M'Nab has not only repeatedly visited the principal gardens in England, but has made an extensive tour in North America, whence he brought home several new plants, and numerous seeds. We are indebted to Mr. M'Nab, for several accurate drawings of trees for our *Arboretum Britannicum*. Our esteemed friend, Mr. Barnett has, we understand, taken Pocock's Nursery, Leith Walk, Edinburgh, in which new situation we most sincerely wish him success; and, in this wish, we are sure we shall be joined by every gardener who has had the advantage of his acquaintance. — *Cond.*

Leptospérmum. — Some species of this Australian genus appear to be as hardy as the common holly or box; not only having stood out in the London nurseries, but even in the open compartments of the nursery of Mr. Roy of Aberdeen. This genus will therefore probably afford some most valuable additions to our hardy evergreens. — *Id.*

A new seedling Strawberry, said to be of a very superior description, has been raised by Mr. James Wright, of Westfield, near Aberdeen. — *J. W. Aberdeen, Sept.* 27. 1836.

Art. IV. *Restrospective Criticism.*

Errata. — In p. 35. line 5. from bottom, for "Murth," read "Murtle." In p. 533. line 2. from bottom, for "accompanies," read "accompany." *Quércus Ilex*, Vol. XI. p. 359. last line of the page, for "Golden Grove," read "Stackpole Court." In p. 553., for "*Whim Castle*," read "*Oxenford Castle*."

Kensington Gardens. (p. 551.) — Your observations as to the exclusion of persons from Kensington Gardens I approve of most highly; so much the more so, indeed, because I myself, many years ago, had nearly got into trouble by my angry remonstrances with one of the door-keepers, because he insisted upon turning out of the Gardens, one Sunday, when they were much crowded, a very handsomely dressed man in the full Highland costume, who was quietly walking about. The fellow persisted in excluding him, not because he had behaved ill (for, by his own confession, his conduct was unexceptionable), but because he wore the Highland dress, and it was not that usually worn. I must own that I was very indignant at this conduct. — *J. T. B. Bedfordshire.*

Taking the Girt of Trees for the Arboretum et Fruticetum Britannicum. — I have complied with your directions in taking the circumference of the tree at 1 ft. from the ground; but I would beg leave to observe, that this gives no correct idea of the general size of the tree: I mean of old trees (oaks especially), on account of the large spurs generally to be found so near the ground. I think 3 ft. or 4 ft. high preferable. — *R. I. Woburn Park, Sept.* 1836.

We entirely agree with our correspondent, and with several others, who have written to us to the same effect; but, as our object, when we printed our Return Papers, was more to get the dimensions of young trees than of old ones, we considered 1 ft. preferable for them; and we were afraid of creating confusion, by directing the girt of full-grown trees to be taken at one place, and that of young trees at another. — *Cond.*

Destroying the Scale on the Pine-apple. (p. 495.) — About six weeks back, I sent a reply to Mr. Whiting's rejoinder to my paper on destroying the white scale; but, as that paper has never appeared, and as there is a second antagonist (Pro Bono Publico) in the field, I beg to offer a few remarks on his letter, which, with your permission, I should like to appear as a postscript to my former lucubration. [The letter, and the remarks, we considered alike unsuitable for this Magazine, and have thrown them aside accordingly.] . . . . I feel no hesitation in asserting that the scale can be destroyed by water in its most limpid state, though, I will admit, not without running some risk of injuring young fresh growing plants. It now only remains for me to add that I am the responsible author of all the letters that have appeared in this Magazine under the signature of L. O. L., and that any further remarks by Pro Bono Publico, or any other anonymous scribbler, will be considered by me as beneath contempt.—*W. P. Ayres, Sub-Gardener at His Grace the Duke of Devonshire's, Chiswick.*

Quércus Róbur sessiliflòra at Woburn Abbey. (p. 578.) — Mr. Forbes states that we have been misinformed as to this kind of oak not having been recognised in Woburn Park till last spring. He says, "I assure you the Duke of Bedford has been well aware that both species were in the park for many years. His Grace gave me instructions to mark the species several years ago, and had even several of the trees cut down to ascertain the qualities of the wood. I can also assure you that both kinds were closely examined by Mr. Atkinson and myself in 1825." — *Woburn Abbey Gardens, Nov.* 2. 1836. When we visited Woburn Abbey, in September last, Mr. Forbes was in Scotland; and the trees were pointed out to us by Mr. Ireland, the Duke of Bedford's forester. We certainly think that Mr. Ireland stated to us that Quércus *R.* sessiliflòra was only discovered last spring, and marked, at that time, in consequence of the discovery; but in this we may be mistaken; and, at all events we embrace the earliest opportunity of laying the facts of the case before our readers. —*Cond.*

Oak Galls. (p. 498.) — Your correspondent R. L. of Surrey alludes to "long strings of berries, similar in a great degree, particularly in colour, to those of the pale red currant called the Champagne," being found on the oak. I beg to notice that this appearance often occurs, though more plentifully in some seasons than in others. It is one of the oak-gall insects which chooses the slender stalk of the catkin to lay its eggs in, rather than any other part of the tree. The gall insects are hymenopterous; that is, they have four membranous wings, and the tail of the female is armed with a sting. These flies compose the old genus Cynips, of which five or six species are well known in Britain. The first is *C. glechòmæ*, usually found in the tubercles on the leaves of the ground ivy; 2. *C. quércus gémmæ*, bred in the large imbricated galls on the extreme buds of oak trees; 3. *C. báccarum*, in the small tubercles on the under side of oak leaves: these are about the size of currants when full grown; 4. *C. quércus fòlii*, in the large tubercles (or apples, as they are called) on oak leaves; 5. *C. quércus petìoli*, bred in the tubercles on the petioles of oak leaves.

I am uncertain whether this last be, or be not, the same species which chooses the catkin for its nestling place; but I am inclined to think not, as I have often observed them distinct on the same branch. If the one noticed by R. L. be not already described and named, *C. quércus aménti* may serve as a distinction. I have bred all the flies from the different galls under close glasses; but, as it is many years since, I cannot speak with certainty whether the *C. quércus aménti* be a distinct species or not.

There is a remarkable fact accompanying the deposition of the eggs on the dangling stalk of the catkins. These male flowers are destined to wither and drop off as soon as their office of shedding the pollen is terminated; but if, before they have done so, they are seized, and appropriated by the fly, they become permanent, and remain so until the maggot within the gall ceases to feed. From this circumstance, it is evident that the flow of the sap is in pro-

portion to its consumption: that "bursting buds, lengthening shoots, expanding leaves, swelling fruit," or swelling galls, equally attract currents of sap, and in the last instance, even into a foreign channel; proving what Du Petit Thouars, and other botanists, have long ago advanced as their opinion; viz. that the growth of a tree is not caused by the motion of the sap, but the movement of the latter is caused by the distension of the various members. — *J. Main. Chelsea, Sept.* 26.

The Excrescences upon the Oaks mentioned by your Correspondent in p. 498. were very numerous here (North Riding of Yorkshire) this summer. Those which I observed, however, could not aptly be compared to strings of the Champagne currant; one, two, or three globular processes, considerably larger than the berry of a currant, being attached, at wide intervals, to a slender stalk 1 in. or 2 in. long. The globules were soft and spongy in texture, something like the cellular substance of an aloe leaf, but probably destitute of organisation; and every one which I examined had a little round hole in its side, communicating with a larger chamber in its interior, evidently once the habitation of an insect, which, after changing from the egg to the larva state, had eaten its way into the light. The strings appeared to me to be the stalks of the male flowers of the oak (which had remained attached to the branches after the flowers themselves had fallen off); and the "berry-like excrescences" were, no doubt, caused by the punctures of some insect for the purpose of depositing its eggs, in the same way as the excrescence called the "oak-apple" is produced. I observed many similar galls upon the midribs of the leaves; and some that I lately examined contained, in their interior cavities, each a diminutive, roundish, brown-coloured shell, the remains of an insect egg; and in one, which had not the usual little hole in its side, I found a small dead grub. Wasps feed upon the extravasated sap of the oak, as well as upon that of the elm: hornets are unknown here. — *J. B. W. Sept.* 15. 1836.

Cóssus Lignipérda Fabricius, *Zeuzèra æ'sculi* Latreille, *Dórcus parallelopípedus* Macleay, *and other Species of Insect treated of in* p. 463—471.: *corrective and additional Information on.* — A printer's proof of the treatise referred to was submitted to J. O. Westwood, Esq., secretary to the London Entomological Society, in the hope of obtaining of him the kind service of his correcting any errors that he might find included in it. The proof was not received back from him in time to infuse into the treatise the corrections and additions that he had made, and the chief of them are now presented: —

In p. 463. line 16., for "*Stephens*," read "*Macleay;*" in line 33., for "in some species," read "in a very few species;" in line 45., for "the species whose," read "the species Hippobósca *equìna*, whose."

P. 464., 465. *Cóssus* Lignipérda. In relation to the etymology of the word *Cóssus*, Mr. Westwood has stated that Linnæus called the insect *Phalæ'na* (*Bómbyx*) *Cóssus*, considering that its larva was the animal eaten by the Romans, under the name of cossus; but which others have supposed to be the larva of the stag beetle. — "Classification." *Cóssus* is of the family Hepiálidæ of Stephens. — "Egg." Each female has but one course of laying in its life.

P. 465. Mr. Westwood has been so kind as to supply, at my request, a drawing to represent (*fig.* 110.) the jaws, or mandibles, of the larva, with which it cuts its way through the wood: *a* is a mandible; *b* is marked as the labrum, or upper lip; *c* as the clypeus. The mandibles, in a living larva that I have seen since the matter in p. 465. was prepared, were formidable-looking instruments, and seemed as if each were a sort of chisel with a toothed edge: in the part receding from the edge it was obviously stout, and, so, looking strong.

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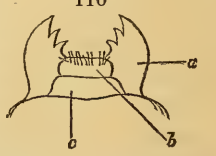

P. 466. in lines 23. and 24., for "the hinder edge of its abdominal segments bearing prickles directed backwards," read "the abdominal segments each bearing two rows of prickles directed backwards."

The following note is by Mr. Westwood, and relates to p. 465. and 466.: —

"*Note on Mr. Robertson's Account of the Goat Moth.* — I do not recollect to have seen it stated before, respecting this insect, that it forms an aperture and *tube opening into the cocoon*, although it, and many other wood-eating larvæ, secure their exit, when arrived at the imago state, by eating a passage to the outside of the tree (or nearly so in beetles, which are easily able to gnaw through the remainder). Some cocoons, as, for instance, that of the emperor moth, are internally provided with an apparatus of an elastic nature, which enables the imago to effect its escape without difficulty. Mr. Jesse has given a description and figure of this in his *Gleanings of Natural History*.

"It is the habit of many moths to deposit eggs although unimpregnated: these are unproductive, except in a few instances, where a single impregnation serves for several generations. Some curious facts on this subject, showing that this remarkable physiological peculiarity exists in other insects than the plant lice, where it has long been known, and where it extends to more than a dozen generations, are to be found in the most recent introductions to entomology.*

"Mr. Robertson contends for rationality in the proceedings of the larva; but he only shows that the larva adopted the ordinary habits of the species. All the phenomena of animal life must be attributed to instinct alone.

"The goat moth is found, also, in the larva state, at the roots of trees and plants, which it devours.

"The following passage from Haworth's rare *Lepidoptera Britannica* may also be cited: — 'Cóssus is one of the few lepidopterous insects which possess properties injurious to mankind during the larva state. They do considerable damage to young willow trees, by boring into their trunks in various directions, and feeding upon the wood and pith; often weakening the tree so much as to cause its easy overthrow from the first storm that attacks it afterwards. (See *W. Curtis* in *Linn. Trans.*, vol. i. p. 86.) Probably the best mode of preventing this mischief would be to search for and destroy the sluggish females at the end of June; which, from their large size, would be readily found sticking upon the tree near the infected parts. The larvæ of Pýrinus (or Zeuzèra æsculi), and those of several small sphinges (Ægèriæ), bore into the pith of various trees in a similar manner; but their inferior sizes, and rare occurrence, render them objects of little consequence in an economical point of view. But the larvæ of several internal feeding cerambyces make great havoc. See *Kirby* on Cerámbyx (Callídium) violàceus in *Linn. Trans.*, vol. v. p. 246., &c.

"It may also be added, and the fact will be serviceable in helping to discover the imago, for the purpose recommended by Mr. Haworth, that, previously to assuming the imago state, the chrysalis pushes itself nearly half out of the tree, through the passage it had previously formed; so that its exuviæ may be seen projecting in such situation, about half an inch of the abdominal portion alone remaining in the tree."

P. 467. line 1., for "male", read "female."—"Classification." The species is of the family Hepiálidæ of Stephens. — "Egg." After the word "August," add "introducing them into the crevices of the bark with the ovipositor; which instrument is represented in the figure above, and which is capable of being lengthened much more than there shown."

P. 468. "Pupa." In relation to the representing of the larva's spinning a thin web, Mr. Westwood has noted that Stephens has stated that it forms a cocoon of chips, as Cóssus Lignipérda does. In line 17., for "a row," read "two rows." Mr. Westwood greatly questions the capability of an insect, in the pupa state, "to push hard enough to break away the bark to a sufficient extent to admit the exit of itself in the imago state;" and he has noted on

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* See some instances noticed in the *Magazine of Natural History*, vol. viii. p. 557. — *J. D.*

this, and other matter connected with the same subject, in the same page and the next, as follows: — "I have no doubt that in these insects, as well as in *Cóssus*, the larva extends its burrow to the surface. The pupa has not power to force a passage through the bark, nor any apparatus for performing this. A little circumstance, told me by Mr. Stephens, may be here mentioned, which bears upon the question. He was endeavouring to rear (and, subsequently, reared) the larva of a *Sapérda Carchàrias* (one of the cerambycideous wood-feeders) in a tin bottle, with the mouth stopped with a cork. The larva, before assuming the pupa state, left the wood upon which it was feeding, ascended the side of the bottle, and gnawed a passage *nearly through* the cork; and then returned, and underwent its changes: so that, when it arrived at the beetle state, it had no difficulty in gnawing with its jaws through the slight barrier which remained, and escaping. But, in the two moths above described, the mouth is absolutely obsolete. Mr. Guilding's observation may be considered correct, by supposing the aperture of the burrow to be closed with a slight web of silk, or with fine sawdust, as the 'temporary door;' but, as the larva forms a strong cocoon, no door is needed, unless, as Mr. Robertson asserts, the cocoon opens into the passage, which I much doubt."

P. 468. In lines 36, 37., for "a row," read "two rows."

P. 469. In line 34., for "upper," read "front." In line 39., for "*Stephens*," read "*Macleay*."

P. 470. In line 2., for Mandibulàta, Pentámera, *Melolónthidæ Leach*," read "subclass, Mandibulàta *Clairville*; section, Pentámera *Latreille*; family, *Lucánidæ Leach*." — *J. D.*

The Portraiture and Biography of the Species of Insect most commonly observed by Persons engaged in Gardening of any kind, or in Farming.— I once felt a strong wish that an object about correspondent to the above title should be undertaken and prosecuted; and communicated a notice of it to the Rev. W. T. Bree, perhaps in the hope, and for the purpose, of inducing him to enter on it. His letter, received from him soon after, shows so well the case that I had thought, and still think, desirable to have altered, that I take the liberty to give it here: —

"Your plan of 'showing up,' in a separate treatise, or in a series of articles for the *Magazine of Natural History*, the several insects most injurious to our gardens, I highly approve of; but who is to 'bell the cat?' or, in plain words, who is to do the task as it should be done? Unfortunately, our great scientific entomologists know (and many of them care) but little about the habits and manners of the insects to which they give hard names, and which, with minute and laborious descriptions, they marshal into their systems; while, on the other hand, they who are most practically conversant with the out-of-doors operations of these little creatures are commonly too deficient in the science of entomology, to name and accurately describe the insects with which they may be acquainted. As for myself, though I may have some little acquaintance with each of these distinct branches of knowledge, I yet feel myself quite incompetent to perform such a task as you suggest. I really am ignorant of the different states of many of the rascals that commit depredations in my garden. I have lent my copy of the *Encyclopædia of Gardening* to a friend, and, therefore, have it not by me to refer to; but I know that it is not full, nor very accurate, on this subject. Rusticus of Godalming [see the *Entomological Magazine*] would be the man for your purpose; or, rather, he (or such a one), in *conjunction* with a more scientific entomologist. In forking over a flower-border this spring, I turned up a number of larvæ, of what I take to be Hepialus lupulinus. [See Wood's *Index*.] These larvæ are enclosed in a long sack, or tube, composed of a very slight web and earth, by means of which they ascend and descend. I cannot bring home to them any specific charge, but have no doubt they lived on the roots of my flowers (pæonies grow chiefly on the spot [see in

Vol. IX. p. 723.]); and whether they ever come above ground, by night, to feed, I know not: their empty chrysalises may be seen in numbers, just emerged above the surface. One of my greatest enemies is a tough dirt-coloured grub, as thick as a goose-quill, which destroys roots, especially the fleshy roots of the irises. I have no doubt it turns to some species of *Músca Lin.*; but I know not to which. Herewith I send you specimens of a minute coleopterous insect, which I do not recollect to have noticed before: it occurs copiously on stones under water in our brook here, adhering closely to the bottoms and sides of the stones. No doubt, the insect is common elsewhere: but what is its name?* Behold how ignorant I am of entomology! I really sometimes feel quite ashamed to think how eagerly we seek after rarities, while we pass by common every-day objects, of which we are yet very ignorant: δουλοι οντες των αει αταπων, ὑπεροπται δε των ειωθατων. (Slaves to strange things, contemners of things usual.)" [*In a Letter from the Rev. W. T. Bree, dated Allesley Rectory, August* 10. 1834.]—*J. D.*

The Poverty of the Jersey Gardens. — I quite agree with your correspondent W. S. (Vol. XII. p. 551.), in his feelings of disappointment at the poverty of the Jersey Gardens. Probably his opportunities of observation have much exceeded mine; but, certainly, what little I have seen fully bears out his assertions. The dearth of good flowers and shrubs which are tender in England, though hardy here, is very great. Myrtles, fuchsias, and pelargoniums are almost the only tender plants we see in the open ground, with the addition of Amarýllis *Belladónna.* I am really provoked to see how little the people here avail themselves of their advantages in point of climate. Most of the plants and shrubs of New Holland, the Cape, and the south of Europe would grow here, with little or no protection, during winter. I do not think gardening is properly attended to. There is a Horticultural Society; and it is to be regretted that it does not pay more attention to the introduction of plants which would grow in the open air. Many might be procured from the nursery of Mr. Saunders, who possesses a tolerably good collection, though not so rich as I had expected. This, however, I imagine, to arise from the little demand he finds for plants at all out of the common way. I should greatly like to reside here for some years, merely to try what could be grown in the open air. — *W. C. Jersey, Oct.* 20. 1836.

Errata. — In p. 587. line 27., it is stated that Josiah Pullen died in 1814: it should have been 1714. In the same page, the reference to the *Memorials of Oxford* should have been No. xxvii., instead of No. xxxiii.

Art. V. *Queries and Answers.*

The Black Grub on Turnips. — Are you, or any of your numerous correspondents, acquainted with the natural history of the small black grub which lately made such havock amongst the turnips? — *J. B. W. Sept.* 15. 1836.

Rabbits preferable to Pigs for making Manure. — I have these four years past kept several rabbits, in order to ascertain if they would not be more beneficial for a cottager to keep than pigs; but I always lose a great many of the young ones when they are about two months old; and I find it is a general complaint amongst all persons that keep them. If the young could be reared, I am satisfied that rabbits would be far more profitable than pigs, besides

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* The name of this insect was procured for Mr. Bree at the time; though we cannot now say with certainty what it was. We may state, however, that we shall be happy to procure the names of insects for gardeners or others, who will send them, accompanied by such information respecting them as they may possess. — *Cond.*

making a great quantity of valuable manure, and that out of the refuse of the garden, a great part of which pigs will not eat. I use no other manure than rabbits' dung, and the water which I collect in a cesspool from the drain of the house; and my garden produces good crops of all sorts of vegetables. I should be glad to know if any of your readers have tried rabbits in the same manner as I have done, and what has been the result. — *J. F. Drury. Churchlands, Cheshunt, Nov.* 19. 1836.

Do Sheep eat aromatic Plants? — In the *Gentleman's Magazine* for 1764 (vol. xxxiv. p. 270.), it is stated that the merinos of Spain "greedily devour henbane, hemlock, glaucium, and other nauseous weeds," and, at the same time, "reject the aromatic plants, such as Lavándula Stœ'chas, rosemary, thyme, &c., which cover the ground in abundance." How is this to be reconciled with the practice of sowing thyme in sheep pastures? — *John Wilson. Salisbury, Feb.* 1835.

Apse Court, near Walton on Thames. — Here there are 145 acres, 1 rood, 17 perches, enclosed by a brick wall covered with fruit trees, which, with a border round it, are let to a gardener; the land in the middle being occupied as fields. (*Manning and Bray's Surrey*, vol. ii. p. 755.) Does this garden still exist? — *T. W. Hampstead, Feb.* 1835.

A Garden in a Burial-Ground. — A garden is said to have been laid out in a burial-ground in Clerkenwell, in 1704, and filled with flowering shrubs, with the exception of a part, planted with garden-stuff, for the use of the occupier. (*Gentleman's Magazine*, vol. xxxiv. p. 245.) Can any of your readers inform me where this garden was situated, and whether it still exists? — *Henry W. Thompson, Jun. Aldersgate Street, Dec.* 1834.

Miller, Gardener to the Earl of Orford, at Chelsea. — In the *Gentleman's Magazine*, vol. xix., there is the confession of one John Vicars, a gardener; who, after serving his apprenticeship at Holklan, and afterwards working under Mr. Bridgman at Kensington Palace, "was employed in the Earl of Orford's gardens at Chelsea, under Mr. Miller, where he stayed one year; and afterwards worked at Robert Mann's, Esq., of Linton, near Maidstone," &c. Can any of your readers inform me if this Miller, gardener to the Earl of Orford some years previously to 1749, was the celebrated Philip Miller; and also where the Earl of Orford's gardens were situated? — *T. S. Feb.* 1834.

Walter Clarke, an ancient Florist, much favoured by the Earl and Countess of Harcourt, and who has a monument in the flower-garden of Newnham Courtney, is said to have been honoured with a poetical tribute by Horace Walpole. (*Beauties of England*, &c. *Oxfordshire*, p. 281.) Are there any of the descendants of this worthy man still alive? and, if there are, where and what are they? — *John Clarke. Godmanchester, Jan.* 2. 1835.

The Grapes at Kinmel Park. (p. 487.) — The statement of the correspondent of the *Caernarvon and Denbigh Herald* is correct about the length and breadth of the bunches of grapes that he saw growing at Kinmel Park. It may be necessary, however, for the information of J. H. R., to say that the grapes were of the kind called the white Nice; a variety which sometimes grows to an enormous size; and, when the shoulders are tied up, they will measure 2 ft., and often 3 ft. each way. The weight of those spoken of by the correspondent of the newspaper does not exceed 7½ lb. The black Hamburgh grapes with us this year have been particularly fine. We have cut several bunches weighing 4 lb. each, the berries of which measured from 3½ in. to 4¼ in. in circumference, and all well coloured. — *T. Forrest. Kinmel Park, Oct.* 17. 1836.

Large Black Hamburgh Grapes. — Mr. Wild, fruiterer, of Bury St. Edmunds, has had some extraordinary specimens of the black Hamburgh grape, produced, from a peculiar method of training, by Mr. John Fletcher, miller, of Eyke. The berries measured 4 in. in circumference, and some were even larger; and their flavour was remarkably fine. They were grown in a greenhouse, without artificial heat. (*Suffolk Chronicle*, Oct. 15. 1836.) We should

be glad if our correspondent, Mr. Turner, curator of the Bury St. Edmunds Botanic Garden, would send us some particulars of this mode of training, and the results. — *Cond.*

A new Seedling Vine. — The *Journal of Science and Art*, vol. xxvii. p. 229., contains the following notice: — "A seedling vine, raised by M. Van Mons, at Brussels, produces fruit as large as a green-gage plum, which, at the latest, ripens in the first fortnight of August, and never fails." I should be glad to know if this grape can be procured in England. — *J. B. W. Sept.* 15. 1836.

Destroying the Scale on the Pine-apple Plant. (p. 429.) — I have been much surprised at the treatment that your correspondent L. O. L. has received from his opponents on account of his easy and simple recipe for the cure of the white scale on the pine plant. Having myself witnessed the complete success of the remedy in this immediate neighbourhood, I have taken some pains to endeavour to set the public right as to the merit of the plan proposed. In the course of my enquiry, I have learned that L. O. L. is decidedly correct in his statements; and I have pleasure in answering the queries proposed in your last Number, in case L. O. L. should not think it worth his while to answer them. To the first, I reply that the pines of his friend in Bedfordshire were entirely clear of the white scale at the time he reported them to be so. To the second, they are clean now. To the third, L. O. L.'s friend requested him not to drag his name before the public, and he promised he would not; but I trust L. O. L. will not only give up his own name, but will persuade his friend in Bedfordshire to permit his name to appear also; as it can only reflect credit on both the parties.

Why a recipe so simple in its application, and so certain in its effect, should meet with such opposition, I am at a loss to conjecture. Whether its simplicity (being but a "dose of soap-suds"), which, in my estimation, is one of its merits, is the cause; or whether the opposition is made to the man, and not the measure, I must leave the public to decide. — *A Bedfordshire Subscriber. Sept.* 24. 1836.

Budding or Grafting the Walnut. — Can any of your readers inform me in what nurseries in England the walnut tree is budded or grafted? I am aware that imported trees, which have been worked, may be procured in several nurseries; but I wish to know whether working has been practised, and to what extent, in England. I am acquainted with Mr. Knight's paper on budding the walnut. — *T. B. London, Sept.* 1836.

The Olive Tree immersed in Water. — During how long would an olive tree, completely immersed in water, be able to retain its foliage? and would it do so for the space of 200 days? An answer, in an early Number, will greatly oblige your constant reader, — *Antiquitas. Camberwell, Oct.* 25. 1836.

Pinus Pinaster as Timber. — In answer to W. T. B. of Allesley (p. 498.) I beg to state that the wood of *Pinus Pinaster*, while in a growing state, may, I think, be estimated as almost valueless: but when it has arrived at maturity the case is very different; it being then hard and compact, and perhaps equally durable with the greater part of that class of pines, when grown in this country. This may, in some measure, account for the conflicting opinions which your correspondent has received on the subject. It may not be amiss to add that none of the pine tribe, if intended for use, should be suffered to die standing, which is frequently the case on some soils, where proper thinning has not been attended to. It is astonishing to observe, in this case, how soon the wood becomes deteriorated; and, on this account, it has always been my practice immediately to apply the axe to such trees as indicated a failure. — *T. Rutger. Park House, Teddington, Sept.* 5. 1836.

The Salisburia in the Botanic Garden at Utrecht, mentioned in certain French works as being, about the beginning of the present century, the highest tree of the kind in Europe, has long been in a stationary state in that garden. The age of the tree is supposed to be between 70 and 80 years. Its height is 33 ft., the diameter of the trunk 21 in., and that of the head 20 ft. — *R.*

Certain Trees in the Park at Blair Drummond, near Stirling. — Some of the trees at Blair Drummond are of large dimensions; their branches sweeping the ground; and, what is remarkable, they are never eaten by horses, sheep, or cattle. Can you inform me what species these trees are likely to be? The guide who showed me through the grounds said they were some kind of beech from America. — *J. Wilson. Greenhithe, Kent, Oct.* 2. 1836.

The beech is certainly not so readily eaten by horses or cattle as some other trees, and the hornbeam still less than the beech. However, we have written to Blair Drummond on the subject, and also to other places where we know the beech and the hornbeam abound. In the mean time we shall be glad if any of our readers, who are in possession of any facts as to trees suitable for park scenery, the leaves and branches of which are not liable to be eaten by cattle, will favour us with their experience on the subject. — *Cond.*

Malformations of Pears.—Having two jargonelle pear trees in my garden at Hoxton, which this year have borne several curious pears, I should feel obliged by being informed whether or not the case is uncommon, and how it is accounted for. — *Frederick Lush. Hoxton, Sept.* 1836.

The circumstance of malformations of pears occurring in very wet seasons is by no means uncommon; and several examples have been noticed in the previous volumes of this Magazine. *Fig.* 111. is a specimen of one which we gathered in 1828, in a garden near Woking. (See Vol. IV. p. 263.) To enable our correspondent to account for this *lusus naturæ*, or vegetable metamorphosis, we recommend him to consult Dr. Lindley's *Introduction to Botany*, 2d edit. 1 vol. 8vo, 1835; or it will be a good exercise for any of our young correspondents, who may be studying vegetable physiology, to write a short article on the subject. The materials they will find in the various elementary works of Dr. Lindley.

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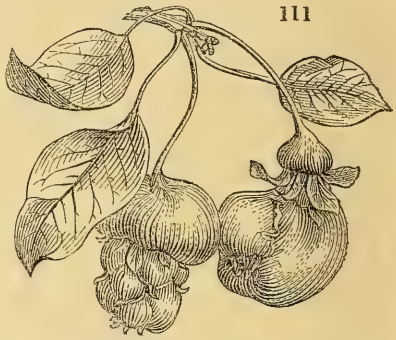

Johnson's Willow. (p. 310.) — Mr. Grigor, in his *Notices of Gardens, remarkable Trees, &c., in the Environs of Lichfield, Staffordshire*, alludes to a large and celebrated willow tree, which formerly stood near that city, and which was called "Johnson's Willow," "famous on account of its having been planted by Dr. Samuel Johnson." Now, that this tree was really planted by the doctor seems a matter of some doubt; for, in the *Gentleman's Magazine* for July, 1785 (seven months after the death of Dr. Johnson), there is a particular account of this willow tree, wherein it is stated that it had been generally supposed to have been planted by Dr. Samuel Johnson's father, but that the doctor never would admit the fact. It appears, however, to have been a favourite tree of the doctor's, and to have attracted his attention for many years: indeed, to use his own expression, it was the delight of his early and waning life; and it is said that he never failed to visit it whenever he went to Lichfield; and, during his visit to that city, in the year 1781, he desired Dr. Trevor Jones, a physician of that place, to give him an account of it, saying it was by much the largest tree of the kind he had ever seen or heard of, and therefore wished to give an account of it in the *Philosophical Transactions*, that its size might be recorded. Dr. Jones, in compliance with his request, furnished him with the particular dimensions of it, which were as follows: —

The trunk rose to the height of 12 ft. $8\frac{5}{10}$ in., and then divided into 15 large ascending branches, which, in very numerous and crowded subdivisions, spread at the top in a circular form, not unlike the appearance of a shady oak, in lining

a little towards the east. The circumference of the trunk at the bottom was 15 ft. $9\frac{5}{10}$ in.; in the middle, 11 ft. 10 in.; and at the top, immediately below the branches, 13 ft. The entire height of the tree was 49 ft.; and the circumference of the branches, at their extremities, upwards of 200 ft., overshadowing a plane not far short of 4000 ft. The surface of the trunk was very uneven, and the bark much furrowed. The tree had then (Nov. 29. 1781) a vigorous and increasing appearance. The most moderate reputation of its age was, at that time, near fourscore years; and some respectable authorities were strongly inclined to think that a century had passed over its head.

Dr. Jones informs us, in the same letter, that it stood nearly midway between the Minster and Stow Pools, in the boggy vale through which the Pipe Brook runs; and at the bottom of a gentle descent, which terminates, at a short distance, in a deep moor. A public footpath crossed the roots of the tree on the south-west side; and that, with the consolidation of the light spongy moor, might have been the reason that the inclination of the tree, from the force of the northerly and westerly winds, was less than usual in aquatic trees, especially those which have diffuse heads. It must have increased in size very considerably after the year 1781, when the dimensions of it, given above, were taken by Dr. Jones; as Dr. Withering informs us that he paid a visit to this far-famed willow (probably a short time prior to 1810); and that the magnitude of it was then truly surprising. He found the trunk, at 6 ft. above the ground, to measure 21 ft. in girt, and to extend 20 ft. in height, of that vast size, before dividing into enormous ramifications. The whole trunk, comprising about 130 solid feet of timber, was then perfectly sound, and the very extensive head showed unimpaired vigour. It was doomed, however, to continue in this flourishing state but a very short time longer; for we are informed that many of its branches, on that side of it fronting the city of Lichfield, were swept away in the violent storms of Saturday, Nov. 10. 1810; and that nearly half of what remained of it fell to the ground in August, 1815, "leaving little more than its stupendous trunk, its green coronal, and a few side boughs;" and these relics of the once famous and celebrated willow, which is said to have been "the ornament and glory of Stow Valley, the subject of every writer, the gratification of every naturalist, and the admiration of every traveller," were, Mr. Grigor tells us, blown down in 1829. It is gratifying to hear that an offset from the old tree has been planted on the same site, and that it is in a vigorous state of growth.

It seems to be not finally determined, at present, to what species of willow this tree really belonged. Some authors have stated it to have been the *S*àlix babylónica *L.*, or weeping willow. Dr. Jones thought it to be the *S*àlix viminàlis *L.* Sir J. E. Smith says it was *S*àlix Russellìana, "as he was assured by the Rev. Mr. Dickenson, who has mentioned it in his edition of Shaw's *History of Staffordshire* (p. 113.) by the name of *S.* frágilis:" and Mr. Grigor informs us that it appears to have been *S*àlix álba.

There are two engravings of this tree in the *Gentleman's Magazine* for 1785; one at p. 412., the other at p. 640. The first is not only a view of the tree, but also of the scenery which surrounds it, including a view of the Pipe Brook; the venerable church of St. Chadd, generally called Stow Church; and the house where Dr. Johnson spent much of his time when he visited Lichfield. The second is a south-west view of the tree only, taken by Mr. Stringer, July 20. 1785. Dr. Johnson died Dec. 13. 1784, aged seventy-five years. I send you a drawing, copied by Mr. Russell, from the latter engraving. — *William Baxter. Botanic Garden, Oxford, June* 29. 1836.

We are greatly obliged to Mr. Baxter for the above information, and for the copy of the portrait, which we shall, probably, have engraved for the *Arboretum Britannicum*. In the *Salictum Woburnense*, Johnson's Willow is said, on the authority of Sir J. E. Smith, the Duke of Bedford, and others, to be the *S*àlix Russellìana, which we have no doubt it is. There is a

splendid portrait of the tree, drawn and engraved by Mr. Burgess, which forms a frontispiece to the *Salictum;* and the appearance of this portrait, which has much more of the character of the beech than of a willow, induced us to request a friend, who was going down to Lichfield in September last, to make some enquiries respecting the tree; and to bring us, if possible, a sketch of the present appearance of the young plant. In consequence, we have received a sketch of the young tree in its present state; a lithograph of the old tree as it appeared before it was blown down; and, subsequently, the loan of an oil painting, referred to in the following letter, of the tree and the surrounding scenery as it appeared in 1816.

After the tree was blown down, in April, 1829, Mr. Holmes, a coachmaker residing in Lichfield, and the proprietor of the ground on which Johnson's Willow stood, regretting that there was no young tree to plant in its stead, recollected that, the year before, a large branch had been blown down, part of which had been used as pea-sticks in his garden; and examined these, to see if any of them had taken root. Finding that one had, he had it removed to the site of the old tree, and planted there in fresh soil; a band of music and a number of persons attending its removal, and a dinner being given afterwards by Mr. Holmes to his friends and the admirers of Johnson. The young tree is, at present, in a flourishing state, and, as Mr. Grigor states above, 20 ft. high. Our friend making but a very short stay at Lichfield, another, a resident near that city, made further enquiries, and sent us a letter, from which the following is an extract: —

"Saturday morning I walked to Lichfield, to get further information respecting the willow; and Mr. Profitt introduced me to Mr. Stringer, who made the drawings for the *Gentleman's Magazine*, and who is very fond of the arts. I find, also, that he made the drawings of the willow which were sent to the Duke of Bedford, through the medium of Lady Chetwynd, for His Grace's book. Mr. Stringer has drawings of the willow taken at various periods; and, from those collected and sent to the duke, the duke's artist compiled a tree; and, though the real tree was, at one period, very handsome, still it never was symmetrical: it always leaned to the east, and was much fuller on one side than the other. Mr. Stringer painted a small picture of it in 1816, which he will, as well as his sister, vouch for the correctness of. In 1825, some boys made a fire in the hollow of the tree; and Mr. Stringer, whose garden reaches near there, saw the fire, and sent some of his men to extinguish it; one of whom had his shirt quite burned off before the engine arrived. The fire so injured the tree, that it decayed rapidly afterwards; and, in a violent storm, on April 20. 1829, at three o'clock in the afternoon, it was blown down. From what I now learn, and judge from all the drawings I have seen, the published lithograph of the tree, which you have, was drawn when the tree lay on the ground; as Mr. Stringer has a sketch of it in its fallen state. I shall send you the little oil painting of the tree to-night. It can come back when you have done with it. Mr. Stringer will be happy to give any information in his power. Mr. Profitt enquired of the nurseryman here as to whether the plant is male or female. He is of opinion that it is the former, but he has never observed any blossoms on the tree; nor had Mr. Stringer. You will perceive, at once, that the duke's tree (of which Mr. Stringer showed me a copy, sent him by the duke) could not have resembled, in the least, the tree as it stood in 1828, it having been so much injured in 1825. — *A. D. H. Shenstone, near Lichfield, Sept.* 12. 1836."

Hybrids of the True Service. — Has any hybrid been yet produced between the true service and the mountain ash, or any other of the services?—*T. O. M.*

The Papaw Tree has flowered in the Chelsea Garden, in the open air, for some years; but our summers are too cold for it to produce fruit. (*Philip Miller*, in *Gentleman's Magazine*, vol. xxv., for 1755, p. 513.) Has any gardener proved this? I have always been in the habit of considering the papaw tree as a hot-house plant. — *A constant Reader. Feb.* 1835.

The Hydrangea, with blue and red Flowers on the same Plant. — In the *Encyclopædia of Gardening* (3d ed., p. 864.), it is mentioned that the ashes of spruce fir, alum-water, and other things, applied to the roots of Hydrángea Horténsia, produce blue flowers; and, also, that the earth, in particular situations, has the same effect. In favour of this, I may remark, that almost every hydrangea in Cornwall, on the moory earth so common there, has blue flowers. But I have noticed this year, in South Wales, and also in Jersey, that blue and red flowers frequently occur on the same plant, while, within a few yards, were bushes with flowers either entirely red, or entirely blue. In this case, it could not be the earth which produced the effect; and I know that no artificial means had been resorted to. Can any of your readers throw any light on the subject? — *W. C. Nov.* 8. 1836.

Acacias which throw up Suckers. — All the plants which I have of *Acàcia* dealbàta, and which I thought were killed down to the ground, have made fresh shoots from the stool, and are now very ornamental and bushy plants, averaging 5 ft. in height. I conceive, therefore, that this species of the *Acàcia* is highly deserving of cultivation, although occasionally subject to be cut down by the most severe of our winters. I have young plants from seed, ripened in the open air, which may perhaps prove, in some degree, more hardy than the original plant which came from Van Diemen's Land. A peat soil seems to suit them best. I am informed that many of the species of this genus throw up suckers from the root, and these must be very desirable kinds for planting in situations where they are liable (as they are with me) to be killed down to the ground in winter. I should therefore be very greatly obliged to you, or to any of your readers, and more especially to any such who may reside in Australia, if they would favour me, through your pages, with a list of the sucker-producing species. — *T. W. B. Surrey, Oct.* 1836.

Rósa *Hárd*ii is a hybrid raised at the Luxemburg, and is said to produce a profusion of small golden flowers with a purple eye. I have brought over a plant, and I should be glad to know if it is already in the country. — *J. W. D. Nov.* 13. 1836.

F*úngus meliténsis.* — It is well known that this fungus (which, by the by, is not a fungus, but a phænogamous plant) has long excited the attention of botanists. It grows upon an insulated rock off the Island of Gozo, near Malta, and its virtues were once so celebrated that the knights, after reserving a sufficient quantity for the use of their island, distributed the rest among the crowned heads of Europe, as the most valuable gift they could bestow. From the inaccessible place in which only it is found, very few have been tempted to visit its habitat. Dr. Walsh has done so, seen the plant *in situ*, and adds some curious particulars of its history, not noticed before. He crossed over to the stupendous rock on which it grows, by means of cables fastened to the opposite cliff (the only means of approach), and thus describes the place and plant: —

"The summit is an irregular plain, with an area of about half an acre in circumference, covered with a slight surface of mould, in which several marine plants were growing, particularly the Cheiránthus incànus, in great luxuriance and beauty. My guide, after some search, pointed out to me several plants of the fungus protruding themselves just above the soil. They were of a dark ferruginous red, and exactly resembled knobs of rusty iron driven into the ground. Beside them grew a large plant of the *A*triplex genus; and on pulling it up we found the fungus growing as a parasite on the fibres of its roots, and the rudiments of several young ones forming. Having permission to take up a few specimens, I prepared to do so, to the great horror of the man, who seemed to think it a kind of sacrilege committed by unhallowed hands." After stating the exaggerated accounts published of this vegetable, and the estimate in which its medical properties ought really to be held, he thus adds: — "But the circumstance which must always render it a great botanical curiosity, is its singular habitat, and the circumscribed limits of its vegetation.

I have been informed, and have reason to think, that the genuine plant exists no where but on the summit of the Hageria, and is limited to a sphere of a few yards in circumference. The stone of which the rock is composed is of a calcareous and peculiar quality. It is so porous, that it greedily imbibes moisture, particularly the acid of sea-water; so that a single drop falling on a block of the stone is diffused through it like water through a lump of sugar; and, in a given time, it breaks down and disolves in the same manner. The same process insulated the rock, and, as it is every day going on, will finally destroy it. Already the summit overhangs the base, which the acid of the sea-water is continually dissolving and undermining. At no distant period the whole will probably be precipitated, and bury in the deep its mysterious fungus, which will then become an extinct plant, there being no where else to be found a specimen of that curious vegetable, which, for several centuries, had excited the interest and admiration of all Europe." (*Narrative of a Residence at Constantinople.*)

Can any of your readers inform me in what work the best coloured figures of this singular fungus may be found; or where, or in what manner, I could procure a model of it coloured after nature? — *T. G. London, Sept.* 16. 1836.

Ornamental Hedges. — What plants are the most suitable for forming ornamental hedges, which shall, at the same time, be sufficient fences against sheep and cattle? I have tried sweet briar and hawthorn together; but, from the temporary duration of the former shrub, I find it soon dies off, and leaves a gap in the hedge. I have tried holly and hawthorn, and also the hawthorn and the privet; but, though both mixtures make most excellent hedges, they are neither odoriferous nor flowery. I have lately planted a mixture of *Cydònia japónica*, and double furze, but I am afraid that the latter wil choke the former. Has any one tried the *Cydònia japónica* alone, or with the common hawthorn, or with holly? It seems to me highly desirable, that the holly should be generally used instead of the hawthorn; because it does neither harbour birds nor insects, nor produce so much moisture by evaporation as deciduous-leaved shrubs. — *S. T.*

Cáctus [*Cèreus*] *heptágona.* — Can any of your readers inform me if the great *Cáctus* heptágona ever flowered in this country? I have a very fine specimen, 8 ft. high, now showing flower in the green-house, here. — *John Clarke. Compton Gardens, near Sherborne, Dorset, May* 2. 1836.

Roses in Northamptonshire. — In Smith's *Florist's Magazine*, vol. i. p. 10., it is said, that it "is reported that most sorts of roses will not grow in the county of Northampton, and probably not in any of the oolitic districts, though they grow freely in the extreme north of the island." I should be glad to know from you, or any of your readers who are well acquainted with Northamptonshire, if they will state how far the above report is true; and I shall also be glad to know how far the probability of roses not growing in any of the oolitic districts of England is borne out by facts.—*J. D. Butler. Dublin, Aug.* 1836.

Tree Dahlias. — In Vol. XI. p. 680. mention is made of a tree dahlia in the Liverpool Botanic Garden. Can you, or any of your readers, inform me how the plant has succeeded there? I have heard, also, that there is a plant in the Edinburgh Botanic Garden; and that Messrs. Loddiges had it direct from Mexico, some years ago, but lost it. I understand the wood of the trunk of this plant (for a tree it cannot properly be called, being suffruticose in structure) is used for making packing-boxes, in the countries where it is indigenous. — *Id.*

The Potatoes in Norway, all over the country, carry a white flower. In whole fields, not one with red or purple flowers will be seen. Is this the effect of climate, which seems to have a tendency to produce every thing in the albino style; houses, cattle, even children, appearing white varieties of their species? (Laing's *Journ. of a Residence in Norway during* 1834, 1835, *and*

1836.) Can any of your readers throw light on this subject? — *Thomas White. Leith, Aug.* 1836.

The Fruit of the Ribes sanguíneum being more nearly allied to that of the black currant, than to that of the red currant or the gooseberry, would it not be worth while to try the effect of hybridising, with a view to the production of a new fruit? — *W. R.*

Queries respecting the most profitable Kinds of Fruit for a Market-Gardener. — What are the best sorts of pines, for late and winter fruits? What vines are the most productive and marketable for early and late crops? What strawberries will do best for forcing; also for early and late outdoor crops? What peaches should be grown on a south wall; also nectarines?

The above are to be forced, except the outdoor strawberries; those below are for east and west walls and espaliers. Apricots, for east and west walls. Cherries, for east and west walls; the earliest and the latest for espaliers. Plums, for east and west walls, and espaliers; the smooth-branched sorts only, for the sake of avoiding the aphis. Pears and apples, for espaliers, only the latest sorts and best keepers. Raspberries, for espaliers, the best bearers, and a late sort. Currants and gooseberries, for espaliers; of the gooseberries, the most erect growers will be preferred, as they are to be trained erect.

It will be seen by the above, that every thing that can be brought into espalier training with me is adopted, in consequence of the superiority of the fruit, the advantage of pruning, thinning, cleansing from filth, protection from frost, independently of beauty of appearance. —*Y. Lancashire, July,* 1836.

The Girton Pippin Apple. — At Kirkton, a village near Barton, in Suffolk, there is (which Camden also takes notice of) a very fair church, built cathedral-wise. This town gives original and name to that sort of apples which are called at Cambridge, corruptly, Girton pippins, of a very pleasant taste.— (*Select Remains of the learned John Ray,* p. 135. 8vo, 1661.)

I have no doubt some of your readers can inform me whether any of the trees which may have been supposed to be growing at Barton in the time of Camden are still in existence there; and if so, in what state they are with regard to health, bearing, &c. I should also be glad to know if what is called the Girton pippin, in England, be the same as the Kirkton, Kirton, or cracked, pippin of the Edinburgh Gardens, which is a small round flat apple, nearly resembling the Thorle pippin.— *Pomona. Oct.* 1836.

Potash from Beet-root. — The beet-root, says a French paper, is about to acquire an additional title to the attention of agriculturists, by the new produce which, besides molasses and sugar, it is now found can be extracted from it. One of these productions (potash) will be, like sugar, the rival of an exotic commodity. M. Dubrunfant has been the first to discover the means of advantageously extracting this substance from the residuum left after the distillation of molasses, and which has hitherto been thrown away after the separation of its alcohol. To give some idea of the importance of this new source of national wealth, it will be sufficient to say that the quantity of potash yielded by M. Dubrunfont's process is equal to one sixth of the quantity of sugar extracted from the beet-root; thus admitting the fact that, where 80,000,000 lb. of indigenous sugar are annually produced, we may expect to obtain from the primary materials 14,000,000 lb. of a saline substance, equal in all respects to the best potash imported; besides alcohol and other productions. At the present rate of prices, the value of this quantity will be about eight or nine millions of francs; and these facts furnish an additional argument for the protection of our indigenous sugar against foreign competition. (*Morning Chronicle,* Nov. 1. 1836.) I have since learned that a kind of coffee is made by the French from some part of the beet-root, after the sugar has been extracted, which is said to be equal, if not superior, to coffee from chicory. Now, as there is an establishment at Limehouse for extracting sugar from the beet, I should be greatly obliged to any of your readers who would inform me, 1st, Whether this manufactory answers as far as sugar is concerned? 2dly, Whe-

ther potash is extracted from the refuse? 3dly, Whether coffee is made of it? and, 4thly, To what other purpose is the refuse applied? The reason I ask is, that I intend trying to extract sugar from the root on a small scale, for the use of my own family, and for teaching my pupils. I give you my address below for your own use; but wish, if you publish this article, that it should be signed — *A. D. G. Near Stockport, Nov.* 2. 1836.

Salubrity and Insalubrity of Situations; in answer to Samuel Wright.—We strongly recommend our correspondent to read Dr. M'Culloch's *Essay on Malaria.* We are persuaded that very few persons are aware of the superior degree of healthfulness of an elevated open situation, exposed to the south rather than the north, and on a dry and, if possible, calcareous soil. Few of us are aware, also, of the superior dryness produced in the floor and the walls of ordinary houses, by raising the lowest living-floor 3 ft. or 4 ft. above the surrounding surface. In labourers' cottages this is of the very last importance, as we shall show on a future occasion. We shall, in the mean time, extract some notices on the subject from Dr. M'Culloch, and from what we consider the most useful review of his book that has yet appeared, in the *American Quarterly Review*, No. viii., for December, 1828. "Malaria (bad air), miasma (*miainō*, to infect), or marsh exhalation, is something which originates in swampy, marshy, moist ground, wherein vegetables having grown, die, and putrefy. Vegetables that die and become disorganised in cold weather do not appear to produce this infectious malaria; nor do vegetables that die, and are dried up by heat, in a dry place. Nor do we find it in places bare of vegetation, unless vegetable matter, liable to putrefy, be found there accidentally, or brought there purposely. Nor do we find this miasmatous air prevalent in the winter season: the months of July, August, and September, including, in warm climates, one half of October, are the seasons when this pestilence chiefly prevails. But it has been observed, that places producing remittent fevers in the fall are liable to produce intermittents in springs. Places completely covered with water do not produce malaria, although the margins of such places do. This poison is now usually supposed to be a gas, acting by its chemical properties; by others, it is presumed to be an exhalation, effluvium, or odour; the ancient opinion, at present not considered as worth investigation, is, that the deleterious quality of the air impregnated with it is owing to animalcula. Malaria, according to Dr. M'Culloch, is the source of more than half the diseases to which the human race is subject, and of more than half the mortality which depopulates mankind. It seems to be the angel of destruction, ordained to maintain the necessary proportion between population and the means of subsistence. It detracts one half from the value of life in Holland; and at least as much, and probably more, in Italy. The chances of life in England are variously calculated from forty to fifty years. In many parts of Holland they are not more than about twenty-five. In many places of France they are reduced by malaria to twenty and eighteen years. Sicily and Sardinia, and much of Greece, are similarly affected. Lincolnshire, Essex, Cambridgeshire, and the North Riding of Yorkshire are known seats of this pestilence in England. Oliver Cromwell died of it; and, although we are become much better acquainted with its effects and its habits than formerly, great ignorance still prevails, even in England, on this interesting subject. People are not yet aware of the many situations pregnant with latent disease, where danger is not suspected; nor are they aware of the anomalous forms of indistinct, but painful, suffering, attributable to this cause where the absence of intermittent or remittent diseases induces a dangerous confidence and security. Dr. M'Culloch is inclined to ascribe to this cause the following list of disorders:— Yellow, remittent, intermittent, and nervous fever; dysentery, diarrhœa, cholera, visceral obstructions; dropsy, œdema, obstructions of the liver and spleen, neuralgia, and, in particular, that form of it, the tic douloureux; to which we would be strongly inclined to add the dengue of the Havanna and Charleston, scrofula, and goitre; hebetude of intellect, and general lassitude; a Bœotian

diathesis; rickets, hernia, rheumatism, sciatica, toothach, asthma, peripneumony, dyspepsia, palsy, phthisis, chlorosis, are doubtful; not that these disorders, or any of them, do not, in many cases, originate in other causes; but that they are, in many cases, fairly ascribable to the effects of malaria or miasma.

Art. VI. *The London Horticultural Society and Garden.*

Meeting, October 4. 1836. — *Exhibited. Plants.* Lantàna Sellòii, *C*ombrètum purpùreum, Chirò*nia l*inifòlia, C. decussàta, Amarýllis, a hybrid between A. aúlica and A. Jóhnsoni; *E*rìca verticillàta, Manétti*a* cordifòlia, Rondelèti*a* speciòsa, and Zygopétalum Mackàii; from Mrs. Lawrence. Myánthus cristàtus, and M. barbàtus, from J. Bateman, Esq. Seedling lobelias and petunias, a hybrid Passiflòra between P. alàta and P. racemòsa, and dahlias, from Mr. R. Miller, gardener to the Earl of Shrewsbury. *C*lématis cærùlea grandiflòra, and two orchideous plants, from Mr. H. Low. A collection of flowers, from the Hon. W. H. F. Strangways. — *Fruits.* A branch of the Wormsley pippin, with sixteen fruit upon it, from J. Webster, Esq. Black Hamburgh grapes, from F. Hodgson, Esq. Cannon Hall muscat grapes, from the Earl of Tyrconnel. Seedling grapes, between the black Hamburgh and the Frontignan, from W. Whitlock, of Pepper Hall. Dove Bank plums, brown beurré pears, and chancellor peaches, from Sir Oswald Mosley, Bart., M. P. Providence pine-apple, weighing 9½ lb.; queen ditto, weighing 5¼ lb.; ditto, weighing, 4½ lb.; from Mrs. Edwards Vaughan. Nerii figs, from T. A. Knight, Esq.

From the Garden of the Society. Plants. Zygopétalum Mackàii, *So*lànum áspero-lanàtum, *S.* sp. with eatable fruit; *L*ithospérmum *r*osmarinifòlium, Lobèli*a Tùpa*, Vallò*ta* purpùrea, Escallò*nia* montevidénsis, *A*nemòne *v*itifòlia, *Técoma* capénsis, dahlias, and China asters. — *Fruits.* Pears: Flemish beauty, fondante d'automne, beurré Bosc, Buffam, Henri Quatre, Louise bonne (of Jersey), poire figue, bergamotte Dertrycker, autumn bergamots, moorfowl egg. Grapes: white Nice.

Medals awarded. A large silver medal was awarded at this meeting to Mrs. Edwards Vaughan, for the above-mentioned pine-apples; a Knightian medal to Mr. Whiting, gardener to Lord Tyrconnel, for the Cannon Hall muscat grapes; and one to Sir Oswald Mosley, for the Dove Bank plums. Banksian medals: one to Mr. H. Low, for the *C*lématis cærùlea grandiflòra (see fig. 57. p. 358.); and one, also, to Mrs. Lawrence, for the Zygopétalum Mackàii.

Meeting, Oct. 18. 1836. — *Presented.* Mémoires de l'Académie Royale des Sciences de l'Institut de France, tom. xiii.; et Mémoires présentés par divers Savans à l'Académie Royale, &c., tom. vi.; by the Royal Academy of Sciences, &c., of Paris. Transactions of the Agricultural and Horticultural Society of India; by the Society.

Exhibited. Plants. Epidéndrum ciliàtum, Oncídium ciliàtum, Cattlè*ya* Loddigèsii, Zygopétalum Mackàii var., Maxillària Déppei, Polýspora axillàris, from Messrs. Rollisson. Strelítzia hùmilis, from T. Harris, Esq. Miscellaneous flowers, from the Hon. W. H. F. Strangways. Ditto, from Mrs. Marryatt. Specimens of a new variety of oak, from Messrs. Fennessy of the Quay, Waterford. (See fig. 82. p. 407.) A collection of dahlias, seedling ditto, roses, and Cypripèdium insígne, from Mr. G. Glenny. A collection of dahlias, and a seedling chrysanthemum, from Mr. R. Chandler. *C*ássia sp., from Mrs. Lawrence. — *Fruits.* A melon from Valencia, from the Rev. F. J. Staniforth. Three varieties of apples, from the Rev. W. Cobbold of Selborne. Louise bonne (of Jersey) pears, from the Earl of Tyrconnel. Black Prince grapes, black Hamburgh grapes, and varieties of pears, from

Mr. C. Spory. Black Hamburgh grapes (grown in a green-house, without fire-heat), from R. Gibson, Esq., of Hackney.

From the Garden of the Society. Plants. Búddlea madagascariénsis, Monachánthus díscolor, Alstrœmèria acutifòlia, Escallònia montevidénsis, Rhodochìton volùbilis, Scabiòsa atropurpùrea grandiflòra, *Técoma* capénsis. — *Fruits.* Pears: Comte de Lamy, "a very sugary variety;" Duchesse d'Angoulême, from a wall; beurré de Capiaumont, a most abundant bearer; Marie-Louise, from a wall; brown beurré, from a standard; doyenné gris; doyenné blanc, from a wall; Seckle, from a wall; bon Chrétien fondant; Gansel's bergamot, from a standard; beurré d'Angleterre ["so called by the Parisians, by whom it is largely exposed for sale in the streets; being a great bearer, and succeeding as a standard. It is not equal in quality to the brown beurré; nor is it common in England." — *R. T.*]; Duc de Berri, Welbeck, moorfowl egg. Apples: Bedfordshire foundling, Hollandbury, late carse of Gowrie, no core: all good kitchen apples.

"The above are all from standards, except those marked otherwise. The Duchesse d'Angoulême is equal in size to the specimens received from Jersey. Still, although smaller, the Marie-Louise is the more valuable of the two. The brown beurré and Gansel's bergamot are seldom grown on standards; but, when they do succeed, the flavour is very good. Some of the kinds, as the Comte de Lamy and bon Chrétien fondant, are better in some seasons than the present." — *R. T.*

Medals awarded. A Knightian medal was this day awarded to Messrs. Rollisson, for their orchideous plants; also to Mr. Glenny, for his dahlias; and a Banksian medal to Messrs. Chandler, for their seedling chrysanthemum.

Meeting, Nov. 1. 1836. *Presented. — Books.* Stent on the Failure of the Potato Crop; from the author. Constitution, By-Laws, and Address delivered at the first annual Exhibition, and Report of the Committee of Arrangements of the second annual Exhibition, of the Horticultural Society in the District of Columbia; from the Society. Verhandlungen der K. K. Landwirth-Schafts-Geschellschaft in Wien, part i. vol. iv, n. s.; from the Society.

Exhibited. Plants. Cáctus truncàta, Blètia hyacinthöides, Gesnèria oblongàta, Gloxínia maculàta, Justícia speciòsa, Colúmnea scándens, Vínca ròsea álba, Amarýllis, Erìca magnífica, *E.* viridéscens, and *E.* cerinthöides, from Mr. J. Green, gardener to Sir E. Antrobus, Bart. Two seedling chrysanthemums, raised from seed of the expanded crimson chrysanthemum; and two seedling capsicums, from the long red-fruited var., from Mr. J. Wheeler, Oxford. Ròchea falcàta (two years old), from Mr. Cuthill. Oncídium crispum, and Catasètum cristàtum, from Messrs. Rollisson. Twenty-four varieties of seedling chrysanthemums, from Messrs. Chandler. Bignònia venústa, and camellia flowers, from Mr. G. Phillips. — *Fruits.* Beurré diel pears (from four standards), from Mr Jarvis, Turnham Green. Currants, from Mr. G. Phillips. A queen pine-apple, weighing 4½ lb.; ditto, 4 lb. 5 oz.; and an Enville pine-apple, weighing 6 lb. 5 oz., grown from suckers, without fire-heat; from Mr. Spence (see Mr. Spence's excellent communication on Brugmánsia, p. 589.), gardener to R. Durant, Esq., F.H.S. Apples, from J. Reeves, Esq., F.H.S. — *Articles.* Model of an apparatus for preserving currants on the trees, from Mr. G. Phillips.

From the Garden of the Society. Pears: Dumortier, Tillington, fondante Van Mons, Marie-Louise, calebasse, figue de Naples ["a hardy vigorous-growing tree. The fruit has something of the flavour of bishop's thumb and poire figue." — *R. T.*], Whitfield, bergamot cadet, Forelle, alpha, Eyewood [mentioned as a new and superior variety under our Pomological Notices, in a preceding page], Duchesse d'Angoulême, Bezi de la Motte, beurré d'Aremberg, Napoléon, Styrian, sucré vert, Madame. Apples: Golden reinette, king of the pippins, Margil, Barcelona pearmain, Hollandbury, beauty of Kent, Bedfordshire foundling, Devonshire buckland, Hormead pearmain drap d'or.

"The last six sorts are good kitchen apples, particularly the Bedfordshire foundling." — *R. T.* Chrysanthemums: Queen (Nos. 70. and 79.), and Stanhòpea ebúrnea.

Medals awarded. A silver Knightian medal to Mr. Green, for Colúmnea scándens; to Messrs. Rollisson, for Oncídium críspum; and to R. Durant, Esq., for pine-apples.

Art. VII. *Obituary.*

The following notice, understood to be written by Dr. Lindley, is taken from the *Athenæum*. A biography, somewhat more in detail, will be found in the French journal *Hermes*, for Sept. 24. 1836.

"*Jussieu.* — The French newspapers have announced the death, at the age of eighty-nine, of the celebrated botanist, M. Antoine Laurent de Jussieu. We cannot suffer this melancholy event to pass by without offering our humble tribute to the memory of so excellent a man, and profound a philosopher, — the great and successful antagonist of Linnæus in his favourite field of natural history, and the founder of the present school of systematic botany. Called, at the early age of twenty-two, to assume the duties of botanical demonstrator in the Jardin du Roi, in room of Lemonnier, the physician of Louis XVI., Jussieu was led, from the very beginning of his career, to occupy himself with the affinities and analogies of plants; and he speedily acquired a knowledge of such subjects far beyond that of his day. He saw clearly that the artificial system of Linnæus was more specious than solid, and that it had the intolerable fault of leading those who adopted it to a superficial and unphilosophical mode of studying. At the same time, he was not less alive to the defects of the systems of his countrymen, Tournefort and Adanson, which were the only natural methods of arrangement at that time known; for the works of Ray, upon which they were founded, had become obsolete. This led Jussieu to investigate for himself the principles upon which the mutual relations of plants are to be determined; and, after nineteen years of study, he found himself able to lay before the world his ideas, in his celebrated *Genera Plantarum*, which at once elevated its author to the highest rank among botanists, and created a new era in science; for it reduced to a definite form all those important circumstances upon which natural affinity depends, and proved that the points which Linnæus had found inappreciable and intangible were susceptible of being clearly stated and methodically disposed. The possibility of doing this had been generally disbelieved; and that was one of the greatest causes of the slow progress of systematic botany previously to 1789, the year in which the *Genera* appeared. From that time forward it advanced with rapid strides, in those countries where men were to be found capable of appreciating the profound views of its learned author. In England it met with little notice till the year 1810, when Brown's *Prodromus of the New Holland Flora* was ushered into the world. Up to that time, botany, under the evil influence of a self-created leader, was with us in a state of torpor. As soon as the principles of Jussieu and his follower, Brown, began to become known, they spread rapidly in this country, and the science from that period began to revive. The *Genera Plantarum* was the only special work that its author ever published. All that he subsequently produced consisted of separate memoirs upon parts of his great work, in which he altered, or added to, what he had therein stated, or proposed improvements, as his sources of knowledge became more extended. For many years he has been dead to science, in consequence of the failure of his eyesight; and has been exclusively occupied in an exemplary attention to his duties in private life; while his chair of botany has been worthily filled by his son Adrien, who inherits the talent and reputation of his

father. The last illness of Jussieu was sudden and short: his body was already bowed down with the weight of years; his hearing, as well as his sight, had failed him, although his faculties are said to have otherwise remained but little impaired; and, at last, to use the words of a correspondent, "*sa mort fut moins un malheur qu'une apothéose.*" After the manner of the French, a funeral oration was pronounced over his grave; and M. Mirbel, to whom this sacred duty was entrusted, is said to have performed his melancholy task with an eloquence, good taste, and feeling, most worthy of his own high reputation." (*J. L.* in *Athenæum*, Oct. 22. 1836.)

Mr. John Shepherd, A.L.S., Curator of the Liverpool Botanic Gardens, died Sept. 27. 1836. His name has been associated with that Institution from its first establishment, now nearly 35 years since. He was recommended to Mr. Roscoe, the then president of the garden, by the late J. L. Philips, Esq., of Manchester, and fully justified the high character given him by that gentleman, as a person eminently gifted by nature for such a situation. Endowed with a native love of gardening, and indefatigable in his exertions, he succeeded in raising the establishment over which he was placed to a state of competition with the first gardens in Europe; and it is believed that in the department of hardy herbaceous plants it stood for many years unrivalled: the scitamineous tribe were also cultivated with great success, and afforded an opportunity to Mr. Roscoe of illustrating that interesting class of plants. During his long curatorship, the records of the garden exhibit an array of names of high celebrity, as well in rank as science, and more particularly of enlightened foreigners. Of social habits, and great cheerfulness of mind, his society was much courted by the cultivators of plants in his own immediate vicinity and the neighbouring counties, many gentlemen being anxious to avail themselves of his correct taste in the disposition of their grounds and gardens. A pleasing specimen of his talents in this line will be found in the new Liverpool Zoological Gardens. From the extension of the town, and the proximity of dwelling-houses, it was found requisite, about three years ago, to change the site of the Liverpool Botanic Garden, and since that period Mr. Shepherd has been unintermittingly employed in preparing and completing the fine piece of ground purchased for that purpose, in Lodge Lane, His health had sensibly declined for the last two years, but he had the good fortune to survive to witness the opening of the new gardens, when the approbation of his labours by the gentlemen of the committee, and the subscribers at large, was conveyed to him in a manner highly gratifying to the feelings of their aged curator. He was arrested on his way to London by the hand of sickness, about the middle of August, and returning home, after a confinement and severe illness of six weeks, died on the 27th of September. Mr. Shepherd was born at Gosford, a small village in Cumberland, and was in his 73d year.

The interment of Mr. Shepherd took place at St. Mary's Church, Edgehill, when the committee of the Botanic Garden and a number of the proprietors attended, as a mark of respect to the memory of their late curator. (*Liverpool Mercury*, Sept. 30.)

END OF THE TWELFTH VOLUME.

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