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T H E

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Gardeners Dictionary.

Containing the METHODS of

CULTIVATING and IMPROVING

T H E

Kitchen, Fruit, *and* Flower-Garden,

AS ALSO THE

Physic-Garden, Wilderness, Conservatory,

A N D

V I N E Y A R D.

In which likewise are Included

The PRACTICAL PARTS of HUSBANDRY;
and the Method of Making and Preserving WINES,
according to the Practice of Foreign Vignerons.

Abridged from the Two Volumes in Folio,

By the AUTHOR, *PHILIP MILLER*, F.R.S.
Gardener to the Worshipful COMPANY of APOTHECARIES,
at their BOTANIC GARDEN, in *Chelsea*.

— *Digna manet divini gloria ruris.* Virg. Geo.

In THREE VOLUMES.

V O L. III.

The THIRD EDITION, Corrected;
And the Whole digested into ONE ALPHABET.

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M.DCC.XLVIII.





T H E

Gardeners Dictionary.

V O L. III.

P H

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PHILLYREA, Mock-privet.

The Characters are ;
The Leaves grow by Pairs opposite to each other, and are ever-

green: the Flower consists of one Leaf, is bell-shaped, and divided into four Parts at the Top: the Pointal, which rises from the Centre of the Flower-cup, afterward becomes a spherical Flower containing one round Seed.

The Species are ;

1. **PHILLYREA latifolia lævis.** C. B. P. The broad-leaved true Phillyrea.
2. **PHILLYREA latifolia spinosa.** C. B. P. Ilex-leaved Phillyrea ; *vulgo.*
3. **PHILLYREA folio alaterni.** J. B. Phillyrea with an Alaternus-leaf.
4. **PHILLYREA folio lignstri.** C. B. P. Privet-leaved Phillyrea.
5. **PHILLYREA angustifolia pri-**

ma. C. B. P. Narrow-leaved Phillyrea.

6. **PHILLYREA angustifolia secunda.** C. B. P. Rosemary-leaved Phillyrea ; *vulgo.*

7. **PHILLYREA oleæ Ephesiaca folio.** Hort. Chelf. Pluk. Phyt. Olive-leaved Phillyrea.

8. **PHILLYREA latifolia lævis, foliis ex luteo variegatis.** Cat. Plant. Hort. The true Phillyrea, with striped Leaves.

9. **PHILLYREA longiore folio, profunde crenato.** H. R. Par. Phillyrea with a longer Leaf, which is deeply crenated.

10. **PHILLYREA folio buxi.** H. R. Par. Box-leaved Phillyrea.

11. **PHILLYREA Hispanica, lauri folio serrato & aculeato.** Inst. R. H. Spanish Phillyrea, with a prickly and sawed Bay-leaf.

12. **PHILLYREA Hispanica, nerii folio.** Inst. R. H. Spanish Phillyrea, with an Oleander-leaf.

13. **PHILLYREA Capensis, folio cestri,**

lastri. Hort. Elb. Phillyrea of the *Cape of Good Hope*, with a Staff-tree Leaf, commonly called by the *Dutch*, Lippelhout.

14. PHILLYREA *Americana humilis, radice crassa lutea, foliis acuminatis. Plum. Cat.* Dwarf *American* Phillyrea, with a thick yellow Root, and pointed Leaves.

15. PHILLYREA *Americana humilis, radice crassa rosea, foliis rotundioribus. Plum. Cat.* Dwarf *American* Phillyrea, with a thick rose-coloured Root, and rounder Leaves.

The first twelve Sorts are all of 'em Natives of the Southern Parts of *France, Spain, and Italy*; but are hardy enough to endure the Cold of our Climate in the open Air: they have been formerly in great Request for Hedges, and to cover Walls; for both which Purposes they are very improper, because they shoot so fast in the Spring and Summer-months, that it is very troublesome to keep such Hedges in Order: besides, all these Sorts with broad Leaves do naturally produce their Branches so far asunder, that they can never be reduced to a thick handsome Hedge; for altho', by frequently clipping the extreme Parts of the Shoots, you force out some Side-branches, which render it thick on the Outside, yet the inner Branches are very far asunder, and, being of a pliable Nature, are often displaced by strong Winds; or if there happen to fall much Snow in Winter, so as to lie upon these Hedges, it often displaces them so much as not to be recovered again in some Years; for which Reasons they are not so much in Use for Hedges, as they were some Years past: nor are they so often planted to cover Walls; for it is a very difficult Task to keep them close to the Wall, because their Branches, being vigorous, com-

monly grow to some Distance from the Wall, and harbour all sorts of Insects and Filth: besides, their Leaves being large, and growing pretty far asunder upon the Branches, they appear naked, especially when they are kept closely clipped.

But all these Sorts of Trees are very proper to intermix with other Ever-greens, to form Clumps, Amphitheatres, or to plant round the Sides of Wildernesses of ever-green Trees, where, being placed among other Trees of the same Growth, they will afford a pleasing Variety.

The three first Sorts will grow to the Height of twenty Feet, or more, and may be trained up to regular Heads: but the narrow-leaved Sorts seldom rise above fourteen or sixteen Feet high with us; so that they will be of a proper Size to place in a Line before the broad-leaved Sorts, where, being intermixed with Hollies, *Alaternus's*, *Arbutus's*, and some other Sorts, they will make a beautiful Prospect.

These Plants are propagated either from Seeds or Layers; but the latter, being the most expeditious Method in *England*, is chiefly preferred. The best Time to lay them down is in *March*, when you should dig the Ground round the Plants intended to lay, making it very loose; then, making Choice of a smooth Part of the Shoot, you should make a Slit upwards (in the manner as is practised in laying of Carnations); and then bend the Branch gently down to the Ground, making an hollow Place with your Hand to receive it; and, having placed the Part which was slit in the Ground, so as that the Slit may be open, you should fasten it down with a forked Stick, that it may remain steady, covering that Part of the Branch with Earth about three Inches thick, observing

to keep the Upper-part erect. In dry Weather these Layers should be watered, which will greatly facilitate their Rooting; you must also keep them clear from Weeds, which, if suffered to grow up amongst them, will prevent their taking Root.

The *March* following many of these Plants will be rooted, at which time they may be taken off, and carefully planted in a Nursery, where they may be trained up three or four Years in the Manner you intend them to grow; during which time you should dig the Ground between the Rows, and cut about the Roots of the Plants every Year, which will cause them to strike out strong Fibres, so as to support a good Ball of Earth when they are removed; you should also support their Stems with Stakes, in order to make them strait, otherwise they are very apt to grow crooked and unightly.

When the Plants have been thus managed three or four Years, you may transplant them into the Places where they are designed to remain. The best Time for this Work is the Latter-end of *March*, or the Beginning of *April*, just before the Plants begin to shoot: but, in removing them, you should dig round their Roots, and cut off all downright or strong Roots, which have shot out to a great Distance, that you may the better preserve a Ball of Earth to each Plant, otherwise they are subject to miscarry: and when you have placed them in their new Quarters, you should lay some Mulch upon the Surface of the Ground, to prevent its drying; and give them some Water twice a Week in very dry Weather: but do not repeat it too often, nor give it to them in too great Quantities, which will rot the new Fibres, and prevent their Growth. You should also support the Plants

with Stakes until they have taken fast Hold of the Earth, to prevent their being turned out of the Ground, or displaced by the Winds, which will destroy the Fibres that were newly put out, and greatly injure the Plants. These Trees delight in a middling Soil, which is neither too wet and stiff, nor too dry; tho' the latter is to be preferred to the former, provided it be fresh.

The Sort with striped Leaves is at present pretty rare, and somewhat tenderer than the others (as are most Sorts of variegated Plants less capable to endure the Cold, than those of the same Kinds which are plain; the striping of Plants always proceeding from their Weakness): this is preserved in some Gardens as a Curiosity, but may be propagated in the same manner with the former.

Those Sorts with small Leaves are commonly two Years before they take Root when laid: therefore they should not be disturbed sooner; for the raising them out of the Ground does greatly retard their Rooting.

The thirteenth Sort is very common in several Gardens in *Holland*, but is at present pretty rare in *England*. This Sort will not live abroad through the Winter in this Climate, but is always preserved in Pots or Tubs, and removed into the Greenhouse in Winter; where, if it is treated after the manner directed for the *Alaternoides*, it will thrive exceedingly well. This Sort is also propagated by laying down the tender Branches in the Spring of the Year, which must be duly watered in dry Weather; and by the following Spring they will have taken Root; when they should be separated from the old Plant, and planted in Pots filled with fresh Earth, and placed in the Shade until they have taken new Root; after which time, they

may be exposed during the Summer-season, with other pretty hardy Exotic Plants, in a sheltered Situation, where they may remain till Autumn, when they must be removed into the Green-house. These Plants are ever-green, so that they make a pretty Variety in the Green-house, during the Winter-season.

The fourteenth Sort grows plentifully in several Parts of the *Spanish West-Indies*: the Seeds of this Kind were sent to *England* by Mr. Robert Millar, who gathered them near *Carthagena* in *America*. The fifteenth Sort was discovered by Father Plumier in *America*, and since by Mr. Millar in the Island of *Tabago*, from whence he sent some Seeds, but they did not succeed in *England*.

These two Sorts are tender Plants, which must be kept in a warm Stove in Winter, otherwise they will not live in this Country. They may be propagated by Seeds, which should be obtained as fresh as possible from the Countries of their Growth, and must be sown in Pots of fresh light Earth, and plunged into an Hot-bed of Tanners Bark; where they should remain until the Plants come up, which is often a Year from the time of sowing; wherefore whenever the Seeds remain so long in the Ground, the Pots must be frequently watered in Summer, and in Winter the Glasses of the Hot-bed should be covered with Mats, when the Weather is cold, to prevent the Frost from entering of the Bed, which would destroy the Seeds.

When the Plants are come up, they should be each transplanted into a small Pot filled with fresh Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun in the Heat of the Day, until they have taken new Root; after which time, they must have free

Air admitted to them every Day, in proportion to the Warmth of the Season, and should be constantly watered three or four times a Week in warm Weather. In this Bed the Plants may remain till Autumn, when they should be removed into the Stove, and plunged into the Bark-bed, where, during the Winter-season, they should be kept pretty warm, and must be frequently watered. These Plants may remain in the Bark-stove for two Years or less, according as they acquire Strength; for, when they are pretty strong, they may be treated less tenderly, exposing them in the middle of the Summer to the open Air, in a sheltered Situation; and in Winter they may be placed in a dry Stove, where they should have a moderate Degree of Warmth, in which they will thrive very well. These Plants retain their Verdure thro' the Year, for which they are chiefly esteemed.

PHLOMIS, The Sage-tree, or, Jerusalem-sage.

The Characters are;

It hath a labiated Flower consisting of one Leaf, whose Upper-lip (or Helmet) which is crested, does wholly rest upon the Upper-lip (or Beard), which is divided into three Parts, and extends a little beyond the Upper-lip; the Pointal rises out of the Flower-cup, accompany'd with four Embryo's, which afterward become so many oblong Seeds, shut up in an Husk, or a pentagonal Tube, which before was the Flower-cup.

The Species are;

1. PHLOMIS *fruticosa, salviæ folio, latiore & rotundiore.* Tournef. broad-leaved Sage-tree; *vulgo.*
2. PHLOMIS *fruticosa, salviæ folio, longiore & angustiore.* Tournef. Narrow-leaved Sage-tree; *vulgo.*
3. PHLOMIS *fruticosa humilis latifolia candidissima, floribus luteis.*

A&.

Aët. Phil. Low shrubby Sage-tree, with broad hoary Leaves, and yellow Flowers.

4. PHLOMIS *Narbonensis*, *hormini folio*, *flore purpurascente*. *Tourn.* *Narbonne*, Jerusalem-sage, with a Clary-leaf, and purplish Flower.

5. PHLOMIS *Hispanica candidissima herbecea*. *Tourn.* *Sp. nisp* Jerusalem-sage, with very hoary Leaves.

6. PHLOMIS *lychnitis*. *Clus. Hist.* Narrow-leaved Jerusalem-sage.

7. PHLOMIS *Samia herbecea, lunariæ folio*. *T. Cor.* Herbaceous *Samian* Jerusalem-sage, with a Moonwort-leaf.

8. PHLOMIS *orientalis, foliis laciniatis*. *T. Cor.* Eastern Jerusalem-sage, with jagged Leaves.

9. PHLOMIS *orientalis lutea herbecea latifolia verticillata*. *Aët. Phil.* Broad-leaved herbaceous Jerusalem-sage from the *Levant*, with yellow Flowers growing in Whorles.

10. PHLOMIS *fruticosa, flore purpureo, foliis rotundioribus*. *Inf. R. H.* Shrubby Jerusalem sage, with a purple Flower, and rounder Leaves.

11. PHLOMIS *fruticosa Lusitanica, flor- purpurascente, foliis acutioribus*. *Inf. R. H.* Shrubby Jerusalem-sage of *Portugal*, with a purplish Flower, and sharp-pointed Leaves.

12. PHLOMIS *Hispanica fruticosa candidissima, flore ferrugineo*. *Inf. R. H.* The whitish *Spanish* shrub Jerusalem-sage, with an iron-coloured Flower.

13. PHLOMIS *orientalis lutea angustifolia, cymis fulvescentibus*. *D. Sherard, Aët. Phil. N. 376.* Yellow Eastern Jerusalem-sage, with a narrow-Leaf, and yellow Tops.

The three first-mentioned Sorts grow to be Shrubs of a middling Size, and are proper to intermix with other Sorts of Plants, which are of the same Growth, in small

Wilderness-quarters; where, by the Diversity of their hoary Leaves, their large Spikes of yellow Flowers, and their long Continuance in Flower, they make an agreeable Variety.

These Plants have been preserved in Pots, and placed in the Greenhouse in Winter among other tender Exotics: but they are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry Soil, and have a warm Situation; and are rarely injured by Cold, unless in a very severe Frost.

They are propagated by Cuttings in this Country; for their Seeds do seldom ripen well in *England*, except in very warm dry Seasons. The best Time to plant these Cuttings is in *May*, that they may have good Roots before Winter: they should be planted in a Bed of fresh light Earth, and shaded from the Sun until they have taken Root; after which they will require no farther Care, but only to keep them clear from Weeds, until the following Spring, when they may be removed to the Places where they are designed to be continued.

The best Season for transplanting them is in *March*, before they begin to shoot, observing to preserve a Ball of Earth to the Root of each Plant, as also to water them until they have taken Root: and in order to form them into a regular Shape, they should be staked, and their Stems kept constantly fastened thereto, until they arrive at the Height you design them; then you may suffer their Branches to shoot out on every Side, to make an handsome Head; in order to which, you should prune off such Branches as grow irregular to either Side, which must always be performed in Summer; for if they are wound-

ed in Winter, the Cold does often injure the Plants, by entering the Wounds.

The Soil in which they are placed should not be dunged; for that causes them to grow too fast, whereby their Shoots are too replete with Moisture, and so less capable to endure the Cold; whereas, if they are planted upon a dry, barren, rocky Soil, they are seldom injured by Cold, which is the Case of most of the same Class of Plants with Lip-flowers.

The six next-mentioned Sorts are all of them propagated by parting of their Roots, which should be done in the Spring of the Year, observing to preserve a leading Bud to each Off-set: these should also be placed in a dry, rocky, or gravelly Soil, in which they will thrive much better than if planted in a richer Ground, and will endure the Cold of our ordinary Winters extremely well in the open Air.

These are Plants of no great Beauty, but are preserved in the Gardens of those who are fond of Variety. A Tea made with the Leaves of these Plants is accounted very good for sore Throats.

The four last Sorts grow to the Height of five or six Feet, and become shrubby: they are all of them pretty hardy, and will bear the Cold of our ordinary Winters in the open Air, provided they are planted on a dry Soil, and in a warm Situation: but as they are sometimes destroyed by severe Frosts, it is proper to keep a Plant of each Sort in Pots, which may be removed into Shelter in the Winter, in order to preserve the Kinds. These may be placed with Bays, and other hardy Plants, which only require to be defended from very hard Frosts; but must have as much free Air as possible in mild

Weather; and should be treated as hath been directed for the three first Sorts. These may be propagated by Cuttings, as the common Sort.

PHYTOLACCA, *American Nightshade.*

The Characters are;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose; out of whose Centre rises the Pointal, which afterwards becomes a soft Fruit, or almost globular Berry, full of Seeds, placed orbicularly: to which should be added, That the Flowers and Fruit are produced on a Bunch like Currans.

The Species are;

1. PHYTOLACCA *Americana majori fructu.* Tourn. *American Nightshade*, with large Fruit, commonly called, *Virginian Poke*, or *Pork-physic*.

2. PHYTOLACCA *Mexicana, baccis sessilibus.* Hort. Etb. *Branching Nightshade of Mexico*, with flatter Berries growing close to the Stalk.

The first of these Plants is very common in *Virginia*, *New-England*, and *Maryland*, where the Inhabitants take a Spoonful or two of the Juice of the Root, as a familiar Purge: the Berries thereof are full of a purple Juice, which gives a fine Tincture to Paper, from whence it has the Name; but it will not abide long.

It may be propagated by sowing the Seeds in the Spring, upon a Bed of light rich Earth; and when they come up, they should be transplanted into a Bed of rich dry Earth about two Feet asunder; for they grow to be very large, especially if the Soil be good. When they have taken Root, they will require no farther Care but only to clear them from Weeds, and in the Autumn they will produce these Flowers and Fruit:

Fruit: but when the Frost comes on, it will cut down the Tops of these Plants, which constantly decay in Winter: but their Roots will abide in the Ground, and come up again the succeeding Spring. There is no great Beauty in this Plant; but, for Variety, a few of them may be placed in the Borders of large Gardens, since they require but little Culture.

The second Sort grows in divers Parts of *America*: the late Dr. *Houfston* observed it in great Plenty about *La Vera Cruz*, where the Sailors used to gather the Leaves of the Plant, and boil it instead of Spinach, which they eat without any ill Effects, tho' by most People these Plants were thought to have a poisonous Quality.

It may be propagated by Seeds, which should be sown in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be transplanted on another Hot-bed, about four Inches asunder, where they may grow till the Plants are pretty strong; when they should be carefully transplanted into Pots, and plunged into a moderate Hot-bed, observing to shade them in the middle of the Day, until they have taken new Root; after which time, they should have a large Share of fresh Air in warm Weather, and must be plentifully watered: with this Management the Plants will flower in *July*, and their Seeds will ripen in *September*. The Plants will continue two or three Years, provided they are placed in a Stove, and kept in a moderate Degree of Warmth, otherwise they will perish in Autumn. The Berries of this Sort, when bruised, have a fine purple Juice, with which the Inhabitants make a fine Colour, but it is very

apt to fade. The Juice of these Berries mixt with Water, in such Proportion as to make a strong Tincture, will tinge some white Flowers, so as to make them beautifully striped; but especially the tuberose, whose Flowers, when fully blown, should be cut off, and the Stem set into a Phial of this Tincture, which in one Night will be drawn up into the Flower, and appear in beautiful purple Stripes by the next Day.

PILOSELLA; *vide* Hieracium.

PIMPINELLA, Burnet.

The Characters are;

The Flower consists of one Leaf, which expands in a circular Form, and is generally cut into four Segments, to the Centre, accompanied with many Chives, or a tufted Pointal; the Flower-cup afterwards becomes a Fruit, for the most part sharp-pointed, and quadrangular; having sometimes but one Cell, and at other times two Cells, which are full of oblong Seeds.

The Species are;

1. PIMPINELLA *sanguisorba minor lævis*. C. B. P. Common or Lesser Burnet.

2. PIMPINELLA *sanguisorba major*. C. P. B. Great Burnet.

3. PIMPINELLA *major præalta auriculata Sabauda*. Bocc. Mus. Great rigid tall Burnet, with auriculated Leaves.

4. PIMPINELLA *maxima Canadensis*. Corn. Greatest Canada Burnet.

5. PIMPINELLA *major Hispanica, spica dilute rubente*. H. R. Par. Greater Spanish Burnet, with a pale-red Spike.

6. PIMPINELLA *major Hispanica altera, conglomerato flore*. H. R. Par. Another large Spanish Burnet, with a conglomerated Flower.

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7. *PIMPINELLA Canadensis, spica longa rubente.* H. R. Par. Canada Burnet, with a long red Spike.

8. *PIMPINELLA agrimonoides odorata.* H. R. Par. Sweet-scented Burnet, with the Appearance of Agrimony.

9. *PIMPINELLA sanguisorba minor hirsuta.* C. B. P. Lesser rough Burnet.

10. *PIMPINELLA sanguisorba inodora.* C. B. P. Unfavoury Burnet.

11. *PIMPINELLA sanguisorba minor, semine majore & crassiore.* Bot. Monsp. Smaller Burnet, with a larger and thicker Seed.

12. *PIMPINELLA spinosa, seu sempervirens.* Mor. Umb. Prickly evergreen Burnet.

There are some other *Species* of this Plant, which are preserved in curious Botanic Gardens for Variety: but those here mentioned are what I have observed in the *English* Gardens.

The common Burnet is found wild in great plenty upon dry chalky Hills, in divers Parts of *England*; yet is often cultivated in Gardens for Medicinal Uses; though the Herb, gathered on its native Place of Growth, is much stronger, and fitter for such Purposes.

The second Sort is found growing in moist Meadows, and other wet Soils in divers Parts of *England*; and is rarely cultivated in Gardens.

The next seven Sorts are Strangers to our Country, but are hardy enough to endure the Cold of our Climate in the open Air. These may be propagated either by sowing of the Seeds, or parting their Roots.

The best time for parting their Roots is in the Autumn, that they may take good Root before the

Drought of the Spring hinders their Growth. They should be planted in Beds of light dry Earth, about ten Inches or a Foot asunder; for if they have not room to spread, they will rot each other. In *May* they will shoot up to flower; but, if you will preserve the Roots, the Stems should be constantly cut off; for if they are permitted to seed, they seldom remain long after.

They may also be propagated by sowing their Seeds upon a Bed of light Earth in the Spring; and when the Plants are come up, they should be transplanted out into a Bed of fresh Earth, at the Distance before-mentioned, observing to water and shade them until they have taken Root; after which they will require no farther Care but to keep them clear from Weeds. The first Sort is what should be used in Medicine, and the Leaves of that are also put into cool Tankards in the Heat of Summer, as a cordial Herb.

The eighth Sort is a biennial Plant, which is only cultivated by Seeds. The Seeds of this Sort should be sown in *March*, on a Bed of light fresh Earth, in an open Situation; and, when the Plants are come up, they should be carefully cleared from Weeds, and thinned where they are too close; and as the Plants increase in Size, they should be reduced to leave them about a Foot apart; and many times the Plants will flower the same Year they were sown; but they always flower the second Year, and produce ripe Seeds, but seldom continue long after. The Leaves of this Plant, when rubbed, emit a grateful Odour.

The twelfth Sort is an abiding Plant, which rises to the Height of two Feet, or more, and becomes shrubby. The slender Branches of this

this Plant are beset with Thorns, at the Joints where the Leaves are produced; the Flowers are very small, and of an herbaceous Colour, which are seldom succeeded by Seeds in this Country.

This is propagated by Cuttings, which should be planted in the Summer Months, on a Bed of fresh light Earth, and should be shaded either with Mats or oiled Paper, until they have taken Root, which will be in about six Weeks, or two Months, if they are carefully watered. When the Cuttings are rooted, they should be carefully taken up, and planted into separate Pots filled with light fresh Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be exposed in a sheltered Situation, till the Middle or Latter-end of October, when they should be placed under a Frame, to defend them from the hard Frost in Winter; but they must have as much free Air as possible in mild Weather; and in the Spring they should be placed abroad with Myrtles, and other hardy Plants, observing to water them duly in dry Weather. With this Management the Plants will thrive very well, and may be continued several Years.

PINASTER; vide Pinus sylvestris.

PINUS, The Pine-tree.

The Characters are;

It hath amentaceous Flowers (or Katkins) which are produced at remote Distances from the Fruit on the same Tree; the Seeds are produced in squamous Cones: to which should be added, That the Leaves are longer than those of the Fir-tree, and are produced by Pairs out of each Sheath.

The Species are;

1. PINUS sativa. C. B. P. The manured Pine.

2. PINUS sylvestris. C. B. P. The Pinafter, or Wild Pine.

3. PINUS sylvestris, foliis brevibus glaucis, conis parvis albertibus. Raii Hist. The Scotch Pine, commonly called, *The Scotch Firr.*

4. PINUS Americana, foliis prælongis, subinde ternis, conis plurimis confertim nascentibus. Rand. American Pine, with longer Leaves coming out by Threes, and many Cones growing in a Cluster, commonly called, *The Cluster Pine.*

5. PINUS Americana, ex uno folliculo setis longis tenuibus triquetris, ad unum angulum, per totam longitudinem, minutissimis crenis asperatis. Pluk. Amalth. Lord Weymouth's Pine; vulgo.

6. PINUS sylvestris montana tertia. C. B. P. The third wild Mountain Pine, of Caspar Baubin.

7. PINUS sylvestris montana altera. C. B. P. Another wild Mountain Pine.

8. PINUS sylvestris maritima, conis firmiter ramis adærentibus. J. B. Wild maritime Pine, whose Cones adhere firmly to the Branches.

9. PINUS maritima altera Matthioli. C. B. P. Another maritime Pine of Matthiolus.

10. PINUS maritima minor. C. B. P. Lesser maritime Pine.

11. PINUS humilis, iulis virescentibus aut pallescentibus. Inst. R. H. Dwarf Pine, with a green or pale Katkin.

12. PINUS humilis, iulo purpurascente. Inst. R. H. Dwarf Pine, with a purplish Katkin.

13. PINUS conis erectis. Inst. R. H. Pine whose Cones grow erect.

14. PINUS orientalis, foliis durioribus amaris, fructu parvo peracuto. Tourn. Cor. Eastern Pine, with harder bitter Leaves, and a small sharp-pointed Cone.

15. PINUS Hierosolymitana, prælongis

longis & tenuissimis viridibus setis.
Pluk. Almag. Eastern Pine, with long narrow green Leaves.

16. *PINUS Virginiana, praelongis foliis tenuioribus, cono echinato.* *Pluk. Almag.* *Virginian* Pine, with longer narrower Leaves, and a rough Cone.

17. *PINUS Virginiana triphyllis f. ternis plerumque ex uno folliculo setis, strobilis majoribus.* *Pluk. Almag.* *Virginian* Pine, having, for the most part, three Leaves, coming out of one Sheath, commonly called the Frankincense-tree.

18. *PINUS Virginiana, binis brevioribus & crassioribus setis, minori cono, singulis squamarum capitibus aculeo donatis.* *Pluk. Alm.* *Virginian* Pine, with shorter thicker Leaves, and smaller Cones, with a Prickle on the Top of each Scale, commonly called the *Jersey* Pine.

19. *PINUS Americana palustris patula, longissimis & viridibus setis.* Marsh spreading *American* Pine, with the longest green Leaves.

The first Sort is commonly called the Stone Pine, on account of the Hardness of the Cover of the Seeds. The Cones of this Tree are annually brought from *Italy*, by the Persons who bring Orange-trees, Jesamines, &c. The Kernels of these are eaten in the South of *France, Italy,* and *Spain*, after the manner as *Pistachia* Nuts, either in Puddings, or raw. These were formerly used in Medicine, but of late Years the *Pistachia* Nuts have been substituted in their Room.

The second, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, and thirteenth Sorts, do grow on the Mountains of *Italy, France, Spain,* and in *Germany*; but many of them are very uncommon as yet in *England*; the second Sort being the only one which has been long cultivated here: and it is but in few Places

there are any Quantity of these Trees to be found. I suppose one of the principal Reasons for these Trees having been neglected, is the Difficulty of transplanting them; for if they are not frequently removed while young, to keep their Roots from extending far, they will not transplant when they are grown to any considerable Size.

The third Sort is a Native of *Scotland*, growing chiefly in the Highlands, where there are very large Forests of these Trees, some of which are of vast Sizes; but as they grow at a great Distance from the Sea, and in mountainous Places, over which it is impracticable to draw them, they remain to drop on the Ground as they decay: but, in the Southern Parts of *Scotland*, there have been several large Plantations of these Trees made of late Years, which have thriven so well, as in a few Years longer they will be worth to their Owners more than the Freehold of the Estates on which they are planted. In *England* also there have been some few Plantations made of these Trees, which have succeeded, though it were to be wish'd they were more generally cultivated, especially on barren sandy, chalky, gravelly, or rocky Soils, on which few other Trees will thrive; and the Land, being of little Value to the Owner, might, by Plantations properly made of these Trees, become considerable Estates, and this within the Compass of a Man's Life. But a great Discouragement to the making of large Plantations of these Trees, in *England*, has been the ill Success of many Persons who have made Trials of them in small Quantities; which, by their not setting out rightly, either in not preparing of the Ground, or by planting the Trees too large, or not keeping the Ground clean

clean amongst them, has occasioned their failing: to remedy which, I shall subjoin such Directions, as, if duly followed, will be attended with Success.

This Tree is also a Native of *Norway, Sweden, Denmark,* and other Northern Countries, from whence *England* is supplied with the Deals. The red or yellow Deal, as it is called, is from this Species, and is called in those Countries *Grana*, to distinguish it from the white, which they call *Firr*. I have seen some of these Trees which grew in *England* saw'd into Boards, which were little inferior to those brought from abroad, and these were not above fifty Years Growth. The Wood of all the other Kinds of Pine, are greatly inferior to this for Use; and as this Tree is the hardiest of the Kinds, so it is the better worth cultivating. The white Deals are from the *Norway* or *Spruce Firr*, which is also very common in those Northern Countries, where it grows in the Valleys, where the Soil is deep and strong; but the *Scotch Pine* grows on the Mountains, where there is scarce two Inches Depth of Soil on the Rocks. From all the Inquiry I have made by Persons skilled in Botany, who are Natives of those Countries, I cannot find there are any more Sorts of Pines or Firrs than these two, *viz.* the *Scotch Pine* and *Spruce Firr* to be found there: so that all the Degrees in the *Yellow Deals* are accidental, or from the Places of their Growth, and not from any Difference in the Trees.

I shall now proceed to the Culture of the *Scotch Pine*, as designed for large Plantations; and afterward shall add some Directions for all the other Sorts of Pine. In order to raise a Quantity of those Trees, there should be a Nursery chosen, which

must be well inclosed, to keep out Rabbets, Hares, &c. otherwise the young Plants will be destroyed by them in Winter. The Ground of this Nursery must be carefully dug, and cleared from the Roots of Weeds. If this has been Grass-ground, it will be proper to break it up one Year before the Seeds are sown, and some Kitchen Crops put on it, to loosen the Soil, and rot the Sward. Then in Winter, or early in the Spring, the Ground should be trenched, and laid in Ridges, till the Latter-end of *March*, or the Beginning of *April*, when it must be laid level, and made into Beds about four Feet and an half broad, with Paths two Foot broad between them. In these Beds there should be Drills drawn across, at six Inches Distance, and half an Inch deep, into which the Seeds must be sown pretty thick, and the Drills filled up again with Earth, so as to render the Surface of the Beds level. After the Seeds are sown, they will require no other Care but to protect them from being eaten by Vermin: but, when the Plants begin to thrust their Heads out of the Ground, they must be carefully protected from Birds; otherwise they will destroy them in a short time, by picking off their Heads, on which the Husks of the Seeds are always brought out of the Ground. And if the Season should prove very hot and dry, it will be proper to shade the Plants in the Day with Mats, especially if the Ground is of a loose and dry Nature: for in such Places these seedling Plants are very subject to miscarry; for these Plants, if watered, are often destroyed by it, their young tender Stems being rotted thereby: nor will they bear the Force of the Sun in the Heat of the Day: so that in Places where there are not proper Conveniencies for shading these seedling

ling Beds, it will be the better Way to sow the Seeds on an East Border, where they may have only the Morning Sun.

When the Plants are come up, they will require no other Care, but to keep them always clean from Weeds; for if these are permitted to grow to any Size, it will be very difficult to pull them out, without drawing the young Plants out with their Roots, or at least greatly disturbing their Roots. In these Beds the Plants should remain two Years, when they will be of a proper Age to transplant, either into a Nursery, or the Places where they are design'd to remain; the latter being to be preferred to the former, provided the Ground is prepared to receive them; but where it is not so, they may be planted out in a Nursery for two Years, placing them in Rows about three Feet Distance, and about six Inches asunder in the Rows. The best Time for transplanting of these Plants, is the Beginning of *April*, just before they begin to shoot; and, if the Season should prove cloudy with Showers of Rain, it will be a great Advantage to the Plants; but if otherwise, they should be watered after planting, to settle the Earth to their Roots. In removing of these Plants, it will be the better Way to take them out of the Ground no faster than they can be planted, because they should be as short a time out of the Ground as possible: their Fibres being very tender, are soon dried by the Winds, which often endangers their Growth.

When the Plants have taken new Root, they will require no other Care but to keep them clean from Weeds during the Summer-season; and the following Winter the Ground between the Rows should be dug to loosen it, being careful in doing of

this not to disturb the Roots of the Plants. The following Summer they must also be kept clean, which if carefully observed, the Plants will make vigorous Shoots this second Year, so as to be full large enough to transplant out for good the following Spring. For although these Trees may be transplanted when of much larger Growth, yet they rarely make so good Trees as those which are planted young; beside, the Trouble and Expence of staking these Trees to secure them from being disturbed by Winds, in large Plantations, will be very great, which will not be wanting when they are planted small. I shall now proceed to give Directions for preparing the Ground for large Plantations, which, if begun about the same time as the Seeds were sown, or the Autumn before, may be brought into such Order as to receive the Plants when two Years old.

If the Ground on which the Plantation is designed, is covered with Heath, or has any other bushy Stuff growing on it, such as Broom, &c. then the Heath should be pared up, and the Bushes grubb'd in Summer; and, when they are dry, should be laid in small Heaps, and burned, spreading of the Ashes on the Ground; and when the first Rain falls, the Ground should be plowed, laying it in high Furrows, that the Air may the better enter it, to pulverize it. And about *November* it should be plowed a second time, leaving it all the Winter to have the Benefit of the Frost. In *March* the Ground should be again plowed, and if there are any Roots of Couch-grass, or other bad Weeds, they must be dragg'd out when the Ground is dry, and laid in small Heaps, and burned. This should be several times repeated where the Ground is foul; for
nothing

nothing can be worse to the Plants while young, than to have their Roots matted about by such Weeds. If the Ground is not foul, there may be a Crop of Turneps sown on it the Summer after it is broken up; which, if the Autumn should prove favourable, may produce a tolerable Feed for Sheep in Winter; and the hoeing of the Turneps will be of great Service to destroy the Weeds, and pulverize the Ground; and, by feeding off the Turneps, the Sheep will dress the Land. As soon as the Turneps are eaten off, the Ground should be plowed in small Furrows, laying it as smooth as possible; and in the Beginning of *April* it must be well harrowed, to break the Clods, before it is planted: but where the Ground is foul, there will be a Necessity for plowing it, at least three times the following Summer and Autumn: after each Plowing it must be carefully couched, by which Method it may be brought clean by the Spring following for planting; but where this is not done, it will be better to defer planting a Year longer, in order to get the Ground as clean as possible; for upon this the future Success of the Plantation chiefly depends, which is what few Gentlemen sufficiently attend to, being for the most part in too great Hurry to get their Trees planted, which occasions their ill Success.

When the Ground is thus prepared, and a favourable Season offers, about the time before-mentioned, the Plants should be removed with as much Expedition as possible; so that where the Plantation is large, there should be a greater Number of Hands employed in order to have it finished soon: some should be employed in taking up of the Plants, and carrying them to others who should put them in, so as they may remain as little time out of the

Ground as possible. In planting, one Man should with a Spade dig out a Spit of Earth, and another should follow with the Plants, putting one into each Hole, drawing the Earth with his Hand to fill it up, and with his Foot gently press the Earth to their Roots. The Distance of the Plants should be between three and four Feet, Row from Row, and one Foot in the Rows. Not that I would advise them to be planted in Lines, but rather the contrary, for Reasons hereafter; but for the better cleaning of the Ground between the Plants, it will be best to make such Spaces between the Plants, though the Lines may be drawn in Curves, or any irregular Order; for as these larger Plantations are supposed to be made on Places greatly exposed to strong Winds, so where they are planted in strait Lines, the Wind entering between the Rows, is continued in a Current quite through the Plantations, to the great Prejudice of the Trees; whereas, in irregular Plantations, the Force of the Wind is broken by the Trees on the Outside of the Plantation, which are hereby greatly retarded in their Growth; but by the Shelter of these, the Trees within are secured, and grow much faster. Therefore I would advise the planting of two or three cross Rows of Trees, at each End of the other Rows, by way of Screen.

When the Plantation is finished, and the Trees have taken Root, the next Care must be to keep them clear from Weeds; for, if this should be neglected, the Weeds will in a short time overbear the Plants; and, if they do not destroy them, will weaken them so much, as not to recover their Strength in a Year or two: beside, when the Weeds are permitted to grow large, their Roots will have fastened themselves so strongly

strongly in the Ground, as to be with Difficulty taken out without disturbing the young Plants. This Neglect of keeping young Plantations clean is too general. Many People will plant Numbers of Trees (and often at a great Expence); and, when that is done, give themselves very little Trouble afterward about their Success. Therefore I do most earnestly recommend the keeping of all young Plantations clean for at least seven or eight Years, until the Trees have so far advanced as to overpower the Weeds, when these *Pines* and *Firs*, where they are closely planted, will by that time be sufficiently grown so as to get the better of all Weeds.

In cleaning of these Plantations, it should be done by Hand, with Common or *Dutch* Hoes, being very careful not to wound the Stems of the Plants; to avoid which, the best Way will be to hough over the Ground before the Weeds have gotten to any Height; and one Man will do more Work of this Sort, if taken in time, than three Men will be able to do afterward; and the Weeds, being young, will be presently destroyed after they are cut, especially if the Work is performed in dry Weather. Therefore the frequent cleaning (according to the Season, for in moist Weather the Weeds will grow so much faster as to require more frequent Hoeings than are necessary in dry Seasons) will be found not only a better Method for the Growth of the Plants, but may be done at a less Expence than when the Weeds are suffered to get to a great Strength, because when they are large and numerous, they will shelter each other from the Sun, when cut so as to maintain some Hold of the Ground; and, if Rain should happen some Days after, they will grow again; nor

can they be destroyed under two or three Hoeings, which will cost more than the often hoeing over the Ground as before-directed. This Expence, perhaps, may be thought by some too great; but I am sure, a small Plantation well made, and thus carefully managed, will not only afford a greater Pleasure and Satisfaction to the Owner, but will be much more profitable, than a large Plantation ill executed, and carelessly managed; which is what is too often seen in Places where great Sums of Money have been expended.

These Trees, being closely planted, will draw each other upward, which is an Advantage to them; for, where they are planted wide, they shoot their Branches out on every Side, and do not make so great Progress upward: but as the Distance before assigned them is too small for their Growth, so they may be thinned as they shall require it: but this should be done by degrees, so as to make several Thinnings; as first, when they are grown tall enough for Baulks or Scaffold-poles, then every other Tree, or every third Tree, may be cut down; always observing to cut down such as are the smallest and least promising Trees.

The other Sorts of European Pines are also propagated by Seeds, which may be sown in the Beginning of *April*, either in Pots or Cases, filled with fresh undunged Earth; and when they are one Year old, they should be transplanted each into a small Pot, and the Pots should be plunged into the Ground, to prevent the Sun and Wind from drying of the Earth; and, if the Season should prove hot and dry, they should be screen'd from the Sun until they have taken Root, and afterward must be watered two or three times a Week, till after Midsummer, by which time they

they will be done growing; therefore should not be too often watered, especially if the Place where they are plunged is shaded from the Mid-day Sun.

In these Pots they may remain one Year, and then shaken out with the Earth preserved to their Roots, only loosening the Outside of each Ball with the Fingers, and put into Peny-Pots, which should also be plunged and managed as was directed for the former Year; with which they will make good Progress, so as to be fit to transplant, where they are to remain, by the Spring following; when they should be shaken out of the Pots, preserving all the Earth to their Roots: and by this Management there is no Danger of their growing; whereas, when they are in the Ground, and to be transplanted, they seldom succeed, especially the true (or Stone Pine), which is a very unkindly Plant to remove, even when they are but of two-three Years Growth; and when older, do rarely succeed. This Sort is also somewhat tenderer than the other Sorts while young; so, during the time they remain in Pots, they should be plunged in a sheltered Situation in Winter; and in hard Frost the Surface of the Ground should be covered with Mulch, to prevent the Frost from penetrating to their Roots: and, when these are planted out for good, they should have a Situation defended from the cold Winds, otherwise in hard Winters their Leaves will change brown, and become very unsightly. As to most of the other Sorts, they are hardy enough, being most of them Natives of the mountainous Parts of *Europe*; but these do all require to be planted pretty close, otherwise they will not aspire upward, and will be often damaged with strong Winds, if they stand so

thin as to admit the Wind amongst them.

The fourteenth Sort was discovered by Dr. *Tournefort* in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*. This bears the Cold extremely well, and may be propagated by Seeds, as the common Sorts.

The fourth, fifth, sixteenth, seventeenth, eighteenth, and nineteenth Sorts, are Natives of *America*, from whence their Cones have been brought into *Europe*, and many of the Plants have been raised, which are in the Gardens of several curious Gentlemen. These Plants are somewhat tender, when they first arise from Seeds; therefore should be particularly taken care of, the first Summer, otherwise they will drop away in a short time. The Seeds of these Kinds should be sown in Pots or Tubs filled with very light Earth, and they should have some light sifted Earth spread over them, about a quarter of an Inch thick. These Pots or Tubs must be shaded with Mats, or oiled Paper, to screen the Plants from the Sun; and these Coverings should be taken off every Night, unless the Weather is cold or stormy, when they should be continued on. For if the Plants are exposed to too much Wet, or strong Winds, it will destroy them while they are very young; though, when they have obtained Strength, they will resist the Severity of Weather extremely well. The Plants should be frequently refreshed with Water; but it must not be given to them in large Quantities, for the Reason before assigned. Toward the middle of the Summer, the Plants should be exposed to the Sun by degrees, taking the Covers off in the Afternoon, and letting them remain off longer in the Morning, so that by the middle of

July

July they may be quite exposed in the open Air, observing to water them duly in dry Weather. About the Latter-end of *October*, the Pots or Tubs must be placed under a common Frame, where they may be sheltered from excessive Rains or Frosts in the Winter; but they must have as much free Air as possible in mild Weather. The following Spring they should be transplanted, at which Time there must be a Bed of light fresh Earth prepared, in a well-sheltered Situation; and in the Beginning of *April*, if the Season proves warm, they may be removed; but if it should prove cold, it is much better to defer it a little later in the Month. In taking of them up, great Care should be had, that the Fibres of their Roots are not broken, as also to plant them immediately; for if the Air dries their Roots, they very rarely survive it. The Distance these Plants should be placed in the Bed, is about ten Inches, or a Foot; and, as soon as they are planted, they should be gently watered three or four times over, so as to moisten the Earth thoroughly, but not to bear down the Plants: then the Bed should be arched over with Hoops or Withils, and covered with Mats, or oiled Paper, to screen the Plants from the Sun, and drying Winds, until they have taken Root: After which time they should be inured to bear the open Air by degrees; but then it will be proper to lay some Mulch on the Surface of the Ground, to prevent the Sun and Air from penetrating of the Ground, so as to dry the Fibres of the Plants; and during this Season the Plants must be watered in dry Weather; for as they have but small rooting in the Ground while they are young, a little Drought will greatly injure, if not absolutely destroy them. The fol-

lowing Winter, if the Frost should prove extremely hard, it will be of great Service to the Plants to screen them with Oak-branches, which, retaining of their Leaves, will greatly protect the Plants from the Severity of the Frost, and they will not be so close as to exclude the Air wholly from them. But, when the Frost is over, the Branches should be taken away by degrees, so as not to expose the Plants at once to the open Air; for an Indiscretion of this kind may destroy more Plants than the Frost would have done, if they had been exposed thereto.

In this Bed the Pines may remain two Years, when it will be proper to transplant them where they are to remain for good; for they will not endure transplanting when they are large. When this is performed, it should be in *April*, just before the Plants begin to shoot, and, if possible, in a rainy or cloudy Season? The Plants should be taken up with good Balls of Earth to their Roots, and the Holes should be opened, and thoroughly moistened before, so that the Plants may be immediately planted after they are taken up, that their Roots may not suffer from the Air. Then they should be watered to settle the Earth to the Roots; and the Surface of the Ground should be covered with Mulch, to prevent the Sun and Air from drying of their Roots; and if the Season should continue dry, it will be proper to water them twice a Week; but they should not have too much Water given them each time. When the Pines are well fixed in the Ground, they require no farther Care, but to keep them clear from large Weeds, which, if permitted to grow, would overbear the Plants while they are young.

All

All these Sorts of *American Pines* should be planted on a Soil rather moist than dry, but especially the nineteenth Sort, which grows naturally on low moist boggy Places, and will not thrive on a dry Soil. This Tree hath a very remarkable Growth; for the Branches spread near the Ground to a great Distance from the Stem, and never rise in Height. The eighteenth Sort is the most common in the Northern Parts of *America*, where the Inhabitants call it the *Jersey-Pine*.

As all the *European* Kinds of Pines are Inhabitants of Mountains and Hills, they delight in an hard rocky Soil, for which there are no Trees more proper; therefore whenever it happens in a large Plantation, that there is a low moist Place intervening between two Hills, that may be planted with these *American Pines*: so that the whole Plantation will appear, at a Distance, of the same Trees; and when nearer, the different Shades of their Leaves will diversify the Prospect; for which Reason all these Sorts of Trees should be propagated in the Nurseries.

The most beautiful of all these Kinds is that which is called Lord *Weymouth's*; this has a fine polished Bark, generally growing with strait Stems; the Leaves are of a great Length, growing very thick on the Branches, and are of a beautiful Green, so that they may be distinguished at a Distance from any other Kinds. In *America* I have been assured there are many of these Trees above an hundred Feet in Height, whose Stems are perfectly strait. The Wood of this Tree is very white, so is not so much esteemed as that of the *Jersey-Pine*, which is more like that of the *Scotch Fir*.

PISONIA, Fingrigo; vulgo.

The Characters are;

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It is male and female in different Plants; the male Flowers consist of a great Number of Stamina, and have no Petals: the female Flowers consist of one Leaf, which is Bell-shaped, and divided at the Top into five Parts: from whose Cup arises the Pointal, which afterward becomes an oblong angular channelled Fruit, containing oblong Seeds.

The Species are;

1. PISONIA aculeata mas. Houst. The male Fingrigo.

2. PISONIA aculeata, fructu glutinoso & racemoso. Plum. Nov. Gen. Prickly Pisonia, with a glutinous and branching Fruit.

These Plants are seminal Variations, which arise from the Seeds of the same Plant; but as they were not distinguished by any of the Botanists, till the late Dr. *Houfoun* observed their Difference, I thought proper to mention the different Sexes as separate Plants.

The Name of this Plant was given by Pather *Plumier*, in Honour to Dr. *William Piso*, who published a Natural History of *Brazil*. The Name of *Fingrigo* is what the Inhabitants of *Jamaica* know it by.

These Plants are very common in the *Savanna's*, and other low Places in the Island of *Jamaica*, as also in several other Places in the *West-Indies*; where they are very troublesome to whoever passes through the Places of their Growth, in fastening themselves, by their strong crooked Thorns, to the Cloaths of the Persons; and their Seeds, being glutinous, also fasten themselves to whatever touches them; whereby the Wings of the Ground Doves, and other Birds, are often loaded with the Seeds, so as to prevent their Flying, by which means they become an easy Prey.

It rises about ten or twelve Feet high, with a pretty strong Trunk;

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but the Branches are long and slender, whereby being unable to support themselves, they generally twist about whatever Plants are near them.

In *Europe* this Plant is preserved in the Gardens of some curious Persons, for Variety: it is propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into an Hot-bed of Tanners Bark; and when the Plants come up, they should be transplanted into separate Pots, and plunged into the Hot-bed again; where they may remain till *Michaelmas*, when they should be removed into the Stove, and plunged into the Bark-bed, and treated in the same manner as hath been directed for several tender Plants of the same Country; observing in hot Weather to give them plenty of Water, but in Winter they should have it more sparingly. They are too tender to thrive in the open Air of this Country at any Season of the Year; but should be constantly kept in the Stove.

PISTACHIA; *vide* Terebinthus.
PISUM, Pea.

The Characters are;

It is a Plant with a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes a long Pod, full of roundish Seeds: to which must be added, Fistulous Stalks, for the most part weak, which the Leaves embrace in such a manner, that they seem to be perforated by them; but the other Leaves grow by Pairs along the Mid-rib, ending in a Tendril.

The Species are;

1. *PISUM hortense majus, flore fructuque albo.* C. B. P. The greater Garden Pea, with white Flowers and Fruit.
2. *PISUM praecox Anglicum.* Boerb. Ind. Hot-spur Pea; *vulgo.*
3. *PISUM humile, caule firmo.* Tourn. The Dwarf Pea.
4. *PISUM humile Gallicum.* Boerb. Ind. French Dwarf Pea.

5. *PISUM cortice eduli.* Tourn. Pea with an esculent Husk.

6. *PISUM siliqua carnosia incurva, seu falcata, eduli.* Raii Hist. The Sickle Pea; *vulgo.*

7. *PISUM arvense, fructu albo.* C. B. P. Common white Pea.

8. *PISUM arvense, fructu viridi.* C. B. P. Green rouncival Pea.

9. *PISUM arvense, fructu cinereo.* C. B. P. The grey Pea.

10. *PISUM arvense, flore roseo, fructu variegato.* Raii Hist. Maple rouncival Pea.

11. *PISUM umbellatum.* C. B. P. The Rose Pea, or Crown Pea.

12. *PISUM maximum, fructu nigra linea maculato.* H. R. Par. The Spanish Morotto Pea.

13. *PISUM hortense, siliqua maxima.* R. H. Par. The Marrow-fat, or Dutch Admiral Pea.

14. *PISUM fructu maximo, ex viridi obsoleto.* Boerb. Ind. The Union Pea.

15. *PISUM spontaneum maritimum Anglicum.* Park. Theat. English Sea Pea.

16. *PISUM arvense, fructu e luteo virescente.* C. B. P. Pig Peas.

There are several other Varieties of the Garden Peas, which differ in the Colour of their Flowers and Fruit, and are by some Persons distinguished by Names as distinct Sorts; but as they are very subject to vary when sown two or three Years in the same Place, there can be no Doubt of their being seminal Variations, which are not worth enumerating in this Place.

The English Sea Pea is found wild upon the Shore in *Suffex*, and several other Counties in *England*: this was first taken notice of in the Year 1555. between *Oxford* and *Alaborough*, where it grew upon the Heath, where not so much as Grass, was ever seen to grow; and the poor People, being in Distress, by

reason

reason of the Dearth of that Year, gathered large Quantities of these Peas, and so preserved themselves and Families. This is mentioned by *Stow* in his *Chronicle*, and *Camden* in his *Britannia*. But they were both mistaken, in imagining that they were Peas cast on Shore by a Shipwreck, seeing they grow in divers other Parts of *England*, and are undoubtedly a different Species from the common Pea.

The sixteenth Sort is greatly cultivated in the Fields in *Dorsetshire*, where they are known by the Name of *Pig-Peas*, the Inhabitants making great Use of them to feed their Hogs. These are also often brought up to *London*, and sold for the same Purpose.

I shall now proceed to set down the Method of cultivating the several Sorts of Garden Peas, so as to continue them throughout the Season.

It is a common Practice with the Gardeners near *London*, to raise Peas upon Hot-beds, to have them very early in the Spring; in order to which they sow their Peas upon warm Borders, under Walls or Hedges, about the Middle of *October*; and, when the Plants come up, they draw the Earth up gently to their Stems with an Hoe, the better to protect them from Frost; in these Places they let them remain until the Latter-end of *January*, or the Beginning of *February*, observing to earth them up from time to time as the Plants advance in Height (for the Reasons before laid down), as also to cover them in very hard Frost with Peas-haulm, Straw, or some other light Covering, to preserve them from being destroyed: then, at the Time before-mentioned, they make an Hot-bed (in proportion to the Quantity of Peas intended), which must be well

worked in laying the Dung, that the Heat may not be too great: the Dung should be laid about two Feet thick, or somewhat more, according as the Beds are made earlier or later in the Season; when the Dung is equally levelled, then the Earth (which should be light and fresh, but not over-rich) must be laid on about six Inches thick, laying it equally all over the Bed: this being done, the Frames (which should be two Feet deep on the Back-side, and about fourteen Inches in Front) must be put on, and covered with Glasses; after which it should remain three or four Days, to let the Steam of the Bed pass off, before you put the Plants therein; observing every Day to raise the Glasses either with Bricks or Stones, to give Vent for the rising Steam to pass off: then, when you find the Bed of a fine moderate Temperature for Heat, you should, with a Trowel, or some other Instrument, take up the Plants as carefully as possible, to preserve a little Earth to their Roots, and plant them into the Hot-bed in Rows, about a Foot asunder; and the Plants should be set about an Inch and half, or two Inches, Distance from each other in the Rows, observing to water and shade them until they have taken Root; after which you must be careful to give them Air, at all times when the Season is favourable; otherwise they will draw up very weak, and be subject to grow mouldy and decay. You should also draw the Earth up to the Shanks of the Plants, as they advance in Height, and keep them always clear from Weeds. The Water they should have, must be given them sparingly; for if they are too much watered, it will cause them to grow too rank, and sometimes rot off the Plants at their

Shanks, just above Ground. When the Weather is very hot, you should cover the Glasses with Mats in the Heat of the Day, to screen them from the Violence of the Sun, which is then too great for them, causing their Leaves to flag, and their Blossoms to fall off without producing Pods; as will also the keeping of the Glasses too close at that Season. But when the Plants begin to fruit, they should be watered oftener, and in greater Plenty, than before; for by that time the Plants will have nearly done growing, and the often refreshing them will occasion their producing a greater Plenty of Fruit.

The Sort of Pea which is always used for this Purpose, is the Dwarf; for all the other Sorts ramble too much to be kept in Frames: the Reason for sowing them in the common Ground, and afterwards transplanting them on a Hot-bed, is also to check the Growth, and cause them to bear in less Compass; for if the Seeds were sown upon a Hot-bed, and the Plants continued thereon, they would produce such luxuriant Plants as not to be contained in the Frames, and would bear but little Fruit.

The next Sort of Pea, which is sown to succeed those on the Hot-beds, is the Hot-spur, of which there are reckoned three or four Sorts, as the Master's Hot-spur, the *Reading* Hot-spur, and some others; which are very little differing from each other, except in their early Bearing, for which the Master's Hot-spur is chiefly preferred; tho', if either of these Sorts are cultivated in the same Place for three or four Years, they are apt to degenerate, and be later in fruiting; for which Reason most curious Persons procure their Seeds annually from some distant Place; and in the Choice of

these Seeds, if they could be obtained from a colder Situation, and a poorer Soil, than that in which they are to be sown, it will be much better than on the contrary, and they will come earlier in the Spring.

These must also be sown on warm Borders, towards the Latter-end of *October*; and, when the Plants are come up, you should draw the Earth up to their Shanks in the manner before directed; which should be repeated as the Plants advance in Height (always observing to do it when the Ground is dry); which will greatly protect the Stems of the Plants against Frost: and, if the Winter should prove very severe, it will be of great Service to the Plants, to cover them with Peas-haulm, or some other light Covering, which should be constantly taken off in mild Weather, and only suffered to remain on during the Continuance of the Frost: for, if they are kept too close, they will be drawn very weak and tender, and thereby be liable to be destroyed with the least Inclemency of the Season.

In the Spring you must carefully clear them from Weeds, and draw some fresh Earth up to their Stems; but do not raise it too high to the Plants, lest, by burying their Leaves, you should rot their Stems, as is sometimes the Case, especially in wet Seasons. You should also observe to keep them clear from Vermin, which, if permitted to remain amongst the Plants, will increase so plentifully, as to devour the greatest part of them. The Chief of the Vermin which infest Peas, are the Slugs, which lie all the Day in the small Hollows of the Earth near the Stems of the Plants, and in the Night-time come out, and make terrible Destruction of the Peas; and

and these chiefly abound in wet Soils, or where a Garden is neglected, and over-run with Weeds: therefore you should make the Ground clear every way round the Peas, to destroy their Harbours; and afterward, in a fine, mild Morning, very early, when these Vermin are got abroad from their Holes, you should slack a Quantity of Lime, which should be sown hot over the Ground, pretty thick; which will destroy the Vermin, where-ever it happens to fall upon them; but will do very little Injury to the Peas, provided it be not scattered too thick upon them: this is the best Method I could ever find to destroy these troublesome Vermin.

If this Crop of Peas doth hit, it will immediately succeed those on the Hot-bed; but, for fear this should miscarry, it will be proper to sow two more Crops, at about a Fortnight Distance from each other; so that there may be the more Chances to succeed: this will be sufficient until the Spring of the Year, when you must sow at least two more Crops of these Peas, one toward the Latter-end of *January*, and the other a Fortnight after: these two later Sowings will be sufficient to continue the early Sort of Peas through the first Season; and after this it will be proper to have some of the large Sorts of Peas to succeed them: in order to which, you should sow some of the *Spanish Morotto*, which is a great Bearer, and a hardy Sort of Pea, about the Middle of *February*, upon a clear open Spot of Ground: these must be sown in Rows, about two Feet and an half asunder, and the Peas should be dropt in the Drills about an Inch and an half Distance, covering them about two Inches deep with

Earth, being very careful that none of them lie uncovered, which will draw the Mice, Pigeons, or Rooks, to attack the whole Spot; and it often happens by this Neglect, that a whole Plantation is devoured by these Creatures; whereas, when there are none of the Peas left in Sight, they do not so easily find them out.

About a Fortnight after this, you should sow another Spot, either of this Sort, or any other large Sort of Pea, to succeed those; and then continue to repeat sowing once a Fortnight, till the Middle or Latter-end of *April*, some of these Kinds, only observing to allow the Marrow-fats, and other very large Sorts of Peas, at least three Feet between Row and Row: and the Rose Pea should be allowed at least eight or ten Inches Distance Plant from Plant, in the Rows; for these grow very large; and if they have not room allowed them, they will spoil each other, by drawing up very tall, and will produce no Fruit.

When these Plants come up, the Earth should be drawn up to their Shanks (as was before directed), and the Ground kept intirely clear from Weeds; and when the Plants are grown eight or ten Inches high, you should stick some rough Boughs, or Brushwood, into the Ground close to the Peas, for them to ramp upon; which will support them from trailing upon the Ground, which is very apt to rot the large-growing Sorts of Peas, especially in wet Seasons: besides, by thus supporting them, the Air can freely pass between them, which will preserve the Blossoms from falling off before their time, and occasion them to bear much better, than if permitted to lie upon the Ground; and there will be room to pass between

the Rows to gather the Peas when they are ripe.

The Dwarf Sorts of Peas may be sown much closer together than those before-mentioned; for these seldom rise above a Foot high, and rarely spread above half a Foot in Width; so that these need not have more room than two Feet, Row from Row, and about an Inch asunder in the Rows. These will produce a good Quantity of Peas, provided the Season be not over-dry; but they seldom continue long in bearing, so that they are not very proper to sow for the main Crop, when a Quantity of Peas is expected for the Table; their chief Excellency being for Hot-beds, where they will produce a greater Quantity of Peas (provided they are well managed) than if exposed to the open Air, where the Heat of the Sun soon dries them up.

The Sickle Pea is much more common in *Holland* than in *England*, it being the Sort mostly cultivated in that Country; but in *England* they are only propagated by curious Gentlemen for their own Table, and are rarely brought into the Markets. This Sort the Birds are very fond of; and if they are not prevented, do many times destroy the whole Crop. This should be planted in Rows, about two Feet and an half asunder, and be managed as hath been directed for the other Sorts.

The grey, and other large Winter-peas, are seldom cultivated in Gardens, because they require a great deal of room; but are usually sown in Fields, in most Parts of *England*. The best Time for sowing of these is about the Beginning of *March*, when the Weather is pretty dry; for if they are put into the Ground in a very wet

Season, they are apt to rot, especially if the Ground be cold. These should be allowed at least three Feet Distance Row from Row, and must be sown very thin in the Rows; for if they are sown too thick, the Haulm will spread so as to fill the Ground, and ramble over each other, which will cause the Plants to rot, and prevent their Bearing.

The best Method to sow these Peas is, to draw a Drill with an Hoe by a Line, about two Inches deep, and then scatter the Seeds therein; after which, with a Rake you may draw the Earth over them, whereby they will be equally covered; and this is a very quick Method for Gardens; but where they are sown in Fields, they commonly make a shallow Furrow with the Plough, and scatter the Seeds therein, and then with a Harrow they cover them over again. After this, the great Trouble is to keep them clear from Weeds, and draw the Earth up to the Plants: this, in such Countries where Labour is dear, is a great Expence, to do it by Hand with an Hoe; but this may be easily effected with a Breast-hoeing Plough, which may be drawn through between the Rows, which will intirely eradicate the Weeds, and, by stirring of the Soil, render it mellow, and greatly promote the Growth of the Plants.

When any of these Sorts are intended for Seed, there should be as many Rows of them left ungathered, as may be thought necessary to furnish a sufficient Quantity of Seed; these must remain until their Pods are changed brown, and begin to split; when you should immediately gather them up together with the Haulm, and, if you have
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not room to flack them up until Winter, you may thresh them out as soon as they are dry, and put them up in Sacks for Use: but you must be very careful not to let them remain too long abroad after they are ripe; for if Wet should happen, it would rot them; and Heat after a Shower of Rain would cause their Pods to burst, and cast forth their Seeds, so that the greatest Part of them would be lost; but, as I said before, it is not advisable to continue sowing of the same Seed longer than two Years, for the Reasons there laid down; but rather to exchange your Seeds every Year, or every two Years at least, whereby you may always expect to have them prove well.

PITTONIA.

The Characters are;

It hath a globular bell-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim; from whose Cup arises the Pointal, which after-ward becomes a soft spherical Berry full of Juice, inclosing two Seeds, which are, for the most part, oblong.

The Species are;

1. PITTONIA *arborescens chamaedrifolia major*. Plum. Nov. Gen. Greater tree-like Pittonia, with a Germander-leaf.

2. PITTONIA *arborescens chamaedrifolia minor*. Plum. Nov. Gen. Smaller tree-like Pittonia, with a Germander-leaf.

3. PITTONIA *humilis, anchusæ foliis*. Plum. Nov. Gen. Dwarf Pittonia, with alkanet Leaves.

4. PITTONIA *scandens, baccis niveis, nigris maculis notatis*. Plum. Nov. Gen. Climbing Pittonia, with white Berries spotted with black.

5. PITTONIA *frutescens, folio carnosò, hirsuto & obtuso*. Plum. Nov. Gen. Shrubby Pittonia, with an hairy fleshy obtuse Leaf.

6. PITTONIA *hirsutissima & racemosissima, baccis albis*. Plum. Nov. Gen. The most hairy and branched Pittonia, with white Berries.

7. PITTONIA *racemosa, nicotianæ foliis foetidissimis*. P. um. Nov. Gen. The most stinking branchy Pittonia, with Tobacco-leaves.

These Plants are all of them Natives of the warmest Parts of America, where the first Sort grows to the Height of twelve or fourteen Feet, and divides into many Branches, so as to form a small Tree. The second, fifth, and seventh Sorts grow to the Height of eight or nine Feet, and produce many Branches near their Roots, so as to form thick Bushes.

They may be all propagated by Seeds, which should be sown early in the Spring in Pots filled with fresh Earth, and plunged into an Hot-bed of Tanners Bark; and when the Plants are come up, they may be treated after the same manner as hath been directed for the Persea: with which Management these Plants will thrive very well, and in few Years will produce their Flowers. These are preserved by those Persons who are curious in collecting rare Plants; but there is no great Beauty in their Flowers: however, as they are ever-green, they make a Diversity amongst other Exotic Plants in the Stove in the Winter-season.

PLANTAIN-TREE; *vid. Musa*.

PLANTING: Although the Method of Planting the various Sorts of Trees is fully set down under the several Articles where each Kind is mentioned, yet it may not be amiss to say something in general upon that Head in this Place; which shall be set down as briefly as possible. And,

First, The first thing in the planting of Trees is, to prepare the Ground (according to the different

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Sorts

Sorts of Trees you intend to plant, before the Trees are taken out of the Earth; for you should suffer them to remain as little time out of the Ground as possible.

In taking up the Trees, you should carefully dig away the Earth round their Roots, so as to come at their several Parts to cut them off; for if they are torn out of the Ground without Care, the Roots will be broken and bruised very much, to the great Injury of the Trees. When you have taken them up, the next thing is, to prepare them for planting; in doing of which there are two things to be principally regarded; the one is to prepare the Roots, and the other to prune their Heads, in such a manner as may be most serviceable in promoting the future Growth of the Trees.

And, first, as to the Roots; all the small Fibres are to be cut off, as near to the Place from whence they are produced, as may be (excepting such Trees as are to be replanted, immediately after they are taken up); otherwise the Air will turn all the small Roots and Fibres black; which, if permitted to remain on, when the Tree is planted, will grow mouldy and decay, and thereby spoil all the new Fibres which are produced; so that many times the Trees miscarry for want of duly observing this: after the Fibres are all cut off, you should prune off all the bruised or broken Roots smooth, otherwise they are apt to rot and distemper the Trees; you should also cut out all irregular Roots, which cross each other, and all downright Roots (especially in Fruit-trees) must be cut off; so that when the Roots are regularly pruned, they may in some measure resemble the Fingers of an Hand, when

spread open; then you should shorten the larger Roots, in proportion to the Age and Strength of the Tree; as also the particular Sorts of Trees are to be considered; for the Walnut, Mulberry, and some other tender-rooted Kinds, should not be pruned so close, as the more hardy Sorts of Fruit or Forest-trees, which in young Fruit-trees, such as Pears, Apples, Plums, Peaches, &c. that are one Year old, from budding or grafting, may be left about eight or nine Inches long; tho' in older Trees they must be left of a much greater Length: but this is to be understood of the larger Roots only; for the small ones must be chiefly cut quite out, or pruned very short, their extreme Part, which are generally very weak, commonly decaying after moving, so that it is the better way intirely to displace them.

The next thing is the pruning of their Heads, which must be differently performed in different Trees; and the Design of the Trees must also be considered; for, if they are intended for Walls or Espaliers, it is the better way to plant them with the greatest part of their Heads, which should remain on until the Spring, that the Trees begin to shoot, when they must be cut down to five or six Eyes (as is fully set down in the several Articles of the various Kinds of Fruit), being very careful not to disturb the new Roots.

But, if the Trees are designed for Standards, you should prune off all the small Branches close to the Places where they are produced, as also irregular Branches, which cross each other, and by their Motion, when agitated by the Wind, do rub and bruise each other, so as to occasion many times great Wounds in those Places; besides, it makes a disagreeable Appearance to the

the Sight, and adds to the Closeness of its Head, which should always be avoided in Fruit-trees, whose Branches should be preserved as far distant from each other, as they are usually produced when in a regular way of Growth (which is in all Sorts of Trees proportionable to the Size of their Leaves, and Magnitude of their Fruit); for when their Heads are very thick, which is often occasioned by the unskillful shortening of their Branches, the Sun and Air cannot freely pass between their Leaves, so that the Fruit must be small and ill-tasted. But to return: After having displaced these Branches, you should also cut off all such Parts of Branches, as have by any Accident been broken or wounded; for these will remain a disagreeable Sight, and often occasion a Disease in the Tree. But you should by no means cut off the main leading Shoots, as is by too many practised; because those are necessary to attract the Sap from the Root, and thereby promote the Growth of the Tree; for, from several Experiments which I made the Winter 1729. by cutting off the Branches of several Sorts of Trees, and putting them into Phials filled with Water, whose Tops were closely covered, to prevent the evaporating of the Water, I found, that those Shoots whose leading Buds were preserved, did attract the Moisture in much greater Quantity, than those Shoots whose Tops were cut off: and from several Experiments made by the Reverend Dr. Hales, we find, that great Quantities of Moisture are imbibed at Wounds, where Branches are cut off; so that by thus shortening the Branches, the Wet, which generally falls in great plenty during the Winter-season, is copiously imbibed,

and for want of Leaves to perspire it off, mixes with the Sap of the Trees; and thereby distending the Vessels, destroys their contracting Force, which many times kills the Tree, or at least weakens it so much, as not to be recovered again for some Years, as I have several times observed.

But, being willing to try the Experiment, in the Month of *October* 1723. I made Choice of two Standard Almond-trees, of equal Strength and Age; these I took up as carefully as possible, and, having prepared their Roots as before directed, I pruned their Heads in the following manner; *viz.* from one of them I only cut off the small Branches, and such as were bruised or broken, but preserved all the strong ones intire: of the other I shortened all the strong Branches, and pruned off the weak and broken Shoots, as is the common Practice. These two Trees I planted in the same Soil, and to the same Situation, gave them both equal Attendance, and managed them both as nearly alike as possible; yet, in the Spring, when these Trees began to shoot, that, whose Branches were intirely preserved, came out early, continued to shoot stronger, and is at present much larger, and in better Health, than the other. And since this, I have made several other Experiments of the like Nature, which have constantly succeeded in the same manner; from whence it is reasonable to conclude, that the shortening of the Branches is a great Injury to all new-planted Trees.

Having thus prepared the Trees for Planting, we must next proceed to the placing them into the Ground; but, before this, I would advise, if the Trees have been long
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out of the Ground, so that their Fibres are dried, to place their Roots in Water eight or ten Hours, before they are planted, observing to place them in such a manner, that their Heads may remain erect, and their Roots only immerfed therein; which will swell the dried Vessels of the Roots, and prepare them to imbibe Nourishment from the Earth. In fixing of them, great regard should be had to the Nature of the Soil, which if cold and moist, the Trees should be planted very shallow; as also, if it be an hard Rock or Gravel, it will be much the better way to raise an Hill of Earth where each Tree is to be planted, than to dig into the Rock or Gravel, and fill it up with Earth, as is too often practised; whereby the Trees are planted, as it were, in a Tub, there being but little room for their Roots to extend; so that after two or three Years Growth, when their Roots have extended to the Sides of the Hole, they are stopped by the Rock or Gravel, can get no farther, and the Trees will decline, and in a few Years die; besides, these Holes detain the Moisture, so that the Fibres of the Plants are often rotted thereby. But when they are raised above the Surface of the Ground, their Roots will extend, and find Nourishment, though the Earth upon the Rock or Gravel be not three Inches thick, as may be frequently observed, where Trees are thus placed.

The next thing to be observed, is, to place the Tree in the Hole in such manner, that the Roots may be about the same Depth in the Ground, as they were growing before they were taken up; then break the Earth fine with a Spade, and scatter it into the Hole, so that it may fall in between every

Root, that there may be no Hollowness in the Earth; but you should by no means sift or screen the Mould, for Reasons given in the Article of *Firrs*; then having filled in the Earth, you should gently tread it close with your Feet; but do not make it too hard, which is a very great Fault, especially if the Ground be strong or wet.

Having thus planted the Trees, you should provide a Parcel of Stakes, which should be driven down by the Sides of the Trees, and fastened thereto, to support them from being blown down, or displaced by the Wind; and then lay some Mulch upon the Surface of the Ground, about their Roots, to prevent the Earth from drying.

This is to be understood of Standard-trees which cast their Leaves; and, as to such as are planted against Walls, there is no other Difference in their Management, but only to preserve their Heads intire, and to place their Roots about five or six Inches from the Wall, inclining their Heads thereto, which should be fastened to the Wall, to prevent their being displaced by the Wind; and in the Spring following, just before they shoot, their Heads should be cut down to five or six Buds, as is fully directed under the several Articles of the different Kinds of Fruit.

As to the watering of all newly-planted Trees, I should advise it to be done with great Moderation; nothing being more injurious to them, than over-watering of them. Examples enough of this Kind may have been seen in *St. James's Park*, a few Years past, where there have been many Trees planted to make the Rows complete, where the old Trees were decayed; and, notwithstanding the great Care in bringing

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in a large Quantity of fresh Earth, where each Tree was planted, yet very few of them have taken, and those few which are yet alive, have made but poor Progress, nor will they ever be thriving Trees; which is wholly owing to the Abundance of Water given to them whereby the Fibres are rotted off as soon as they are produced. And how can any Person imagine, that a Tree should thrive, when the Ground in which it is planted, is continually floated with Water? For, by an Experiment made by the Reverend Dr. Hales, in placing the Roots of a dwarf Pear-tree in Water, the Quantity of Moisture imbibed decreased very much daily, because the Sap-vessels of the Roots, like those of the cut off Boughs in the same Experiment, were so saturated and clogged with Moisture, by standing in Water, that more of it could not be drawn up. And this Experiment was tried upon a Tree which was full of Leaves, and thereby more capable to discharge a large Quantity of Moisture, than such Trees as are intirely destitute of Leaves; so that it is impossible such Trees can thrive, where the Moisture is too great about their Roots.

The Seasons for Planting are various, according to the different Sorts of Trees, or the Soil in which they are planted; for such Trees whose Leaves fall off in Winter, the best Time is the Beginning of *October*, provided the Soil be dry; but, for a wet Soil, it is better to defer it until the Latter-end of *February*, or the Beginning of *March*; and, for Ever-greens, the Beginning of *April* is by far the best Season; though they may be safely removed at Midsummer, provided they are not to be carried very far; but you

should always make Choice of a cloudy moist Season, if possible, when they will take fresh Root in a few Days. And, on the contrary, when these Trees are removed in Winter, during which time they are almost in a State of Rest, they do not take Root until the Spring advances, and sets the Sap in Motion, so that many times they die, especially if the Winter proves severe.

As to the preparing the Soil for planting, that must also be done to suit the different Sorts of Trees, some requiring a light Soil, others a strong one, &c. but this is fully set down in the several Articles of Trees, under their proper Heads, to which the Reader is desired to turn; though, for Fruit-trees in general, a fresh Soil from a Pasture-ground, which is neither too light and dry, nor over-strong and moist, but rather a gentle, soft, loamy Earth, is to be preferred: and if it be for Wall-trees, it will be the better if the Borders are filled with this Earth six Feet wide; but it need not be above eighteen Inches or two Feet deep at most; for when the Borders are made too deep, the Roots of those Trees are enticed downward, which is of bad Consequence to Fruit-trees, as hath been elsewhere observed. The same also must be observed for Standard-trees (where fresh Earth is brought to the Places in which they are planted), not to make the Holes too deep; but rather let them have the same Quantity of Earth in Width, which is much to be preferred.

There are several Persons who direct the placing of the same Side of the Tree to the South, which, before removing, had that Position, as a material Circumstance to be strictly

strictly regarded; but, from several Trials which I have made, I could not observe the least Difference in the Growth of those Trees which were so placed, and others which were reversed; so that I conclude it is not of any Consequence to observe this Method.

The Distance which Trees should be planted at, must also be proportioned to their several Kinds, and the several Purposes for which they are intended; all which is explained under their several Heads; but Fruit-trees, planted either against Walls, or for Espaliers, should be allowed the following Distances: For most vigorous shooting Pear-trees, twenty-four Feet; for Apricocks, sixteen Feet; Apples, sixteen Feet; Peaches, Nectarines, Cherries, and Plums, fourteen or sixteen Feet, according to the Goodness of the Soil, or the Height of the Wall. But as these things are mentioned in their several Articles, it will be needless to repeat any more in this Place.

PLATANUS, The Plane-tree.

The Characters are;

It hath an amentaceous Flower, consisting of several slender Stamina, which are collected into spherical little Balls, and are barren; but the Embryoes of the Fruit, which are produced on separate Parts of the same Trees, are turgid, and afterward become large spherical Balls, containing many oblong Seeds, intermixed with Down.

The Species are;

1. *PLATANUS orientalis verus. Park. Theat.* The true oriental Plane-tree.

2. *PLATANUS occidentalis, aut Virginiensis. Park. Theat.* The Western or Virginian Plane-tree.

3. *PLATANUS orientalis, aceris folio. T. Cor.* The maple-leaved Plane-tree.

4. An *PLATANUS Americanus, foliis oblongis ex adverso nascentibus.* The Button-tree; *vulgo.*

The first of these Trees, though the first-known Sort in Europe, is less common than the second, which has been introduced since the English settled in Virginia; which may be, in a great measure, owing to the latter Sort being much easier to propagate than the former: for every Cutting of this, if planted in a moist Soil, just before the Tree begins to shoot, will take Root, and in a few Years make very large Trees; whereas the first is only propagated from Seeds, or by Layers.

The third Sort, although by some supposed to be a distinct Species from either of the former, yet is no more but a seminal Variety of the first; for I have had many Plants which came up from the Seeds of the first Sort, which ripened in the Physic-garden, and do most of them degenerate to this third Sort, which, in the manner of its Leaves, seems to be very different from either, and might reasonably be supposed a distinct Sort, by those who have not traced its Original.

The fourth Sort here mentioned was sent from Carolina, by the Name of Button-tree; and by the Account sent with it, seems to be a Sort of Plane-tree, though the Manner of this Tree's growing is very different from any of the other Sort; but as it hath not produced either Flowers or Fruit in England, I cannot determine whether it be a true Plane-tree or not.

These Trees delight to grow on a moist rich Soil, on which they will arrive to a prodigious Size in a few Years, and during the Summer-

mer-season afford a glorious Shade ; their Leaves being of a prodigious Size, especially on a good Soil ; so that there is scarcely any Tree at present in *England*, which does afford so good a Shade. But the Backwardness of their coming out in Spring, together with their Leaves fading early in Autumn, has occasioned their not being so generally esteemed, as otherwise they would be.

The first Sort was brought out of the *Levant* to *Rome*, where it was cultivated with much Cost and Industry : the greatest Orators and Statesmen among the *Romans* took great Pleasure in their Villa's, which were surrounded with *Platanus* ; and their Fondness to this Tree became so great, that we frequently read of their irrigating them with Wine, instead of Water. *Pliny* affirms, that there is no Tree whatsoever, which so well defends us from the Heat of the Sun in Summer, nor that admits it more kindly in Winter ; for the Branches are produced at a proportionable Distance to the Largeness of their Leaves (which is what holds through all the different Sorts of Trees yet known) ; so that when the Leaves are fallen in Winter, the Branches, growing at a great Distance, easily admit the Rays of the Sun.

This Tree was afterward brought to *France*, where it was cultivated only by Persons of the first Rank ; and so much was the Shade of it prized, as that if any of the Natives did but put his Head under it, they exacted a Tribute from him.

It is generally supposed, that the Introduction of this Tree into *England* is owing to the great Lord Chancellor *Bacon*, who planted a noble Parcel of them at *Verulam*,

which were there, very flourishing, a few Years since. But, notwithstanding its having been so long in *England*, yet there are but few very large Trees to be seen of it at present ; which may, perhaps, be owing to the great Esteem the Persons of the last Age had for the Lime, which being much easier to propagate, and of quicker Growth, during the three or four first Years, than the Plane-tree, thereby it became the most common Tree for planting of Avenues and shady Walks near Habitations in *England*. But since the Defects of that Tree have been more generally discovered, the Elm has had the Preference, and is now the most commonly planted for such Purposes.

However, notwithstanding what has been said of the Plane-tree, of its Backwardness in coming out in the Spring, and the sudden Decay of its Leaves in Autumn, yet, for the goodly Appearance, and great Magnitude to which it will grow, it deserves a Place in large Plantations, or shady Retreats near Habitations, especially if the Plantation be designed on a moist Soil, or near Rivulets of Water ; in which Places this Tree will arrive to a prodigious Magnitude.

We read of one of these Trees, which was growing at a Villa of the Emperor *Caligula*, whose Trunk was so large, as, when hollowed, to make a Room therein, capacious enough to entertain ten or twelve Persons at a Repast, and for their Servitors to wait upon them. And there is mention made of one of these Trees, which was growing in the Eastern Country, which was of so great a Magnitude, that *Xerxes* made his Army (which consisted of seventeen hundred thousand Men) halt, for some Days, to admire the Beauty

Beauty and Procerity of this Tree ; and became so fond of it, as to take his own, his Concubines, and all the great Persons Jewels to cover it; and was so much enamoured with it, that for some Days, neither the Concern of his grand Expedition, nor Interest, nor Honour, nor the necessary Motion of his prodigious Army, could dissuade him from it: he stiled it, *His Mistress, His Mignon, His Goddess*; and, when he was obliged to part with it, he caused a Figure of it to be stamped on a Gold Medal, which he constantly wore about him.

And such was the Esteem which the People of *Asa* had for this Tree, that where-ever they erected any sumptuous Buildings, the Porticoes, which opened to the Air, terminated in Groves of these Trees.

The Eastern Plane-tree is propagated either from Seeds or by Layers, the latter of which is generally practised in *England*; though the Plants thus raised seldom make so large, strait Trees, as those which are produced from Seeds: but it has been generally thought, that the Seeds of this Tree were not productive, because they have not been sown at a proper Season, nor managed in a right Manner; for I have had thousands of the young Plants spring up from the Seeds of a large Tree, which scattered upon the Ground in a moist Place: and I since find, that if these Seeds are sown soon after they are ripe, in a moist shady Situation, they will rise extremely well; and the Plants thus obtained will make a considerable Progress after the second Year, being much hardier, and less liable to lose their Tops in Winter, than those which are propagated by Layers. And since the Seeds of this Tree ripen well in *England*, they may be

propagated in as great plenty as any other Forest-tree.

The *Virginian* Plane-tree will grow extremely well from Cuttings, if they are planted the Beginning of *March* upon a moist Soil; and if they are watered in dry Weather, they will make a prodigious Progress: so that in a few Years from the planting, they will afford noble Trees for planting of Avenues, and other shady Walks; and their Trunks are perfectly strait, growing nearly of the same Size to a considerable Height, there being the least Difference in the Girt of this Tree, for several Yards upwards, of any other Sort of Tree whatsoever. The Honourable *Paul Dudley*, Esq; in a Letter to the Royal Society, mentions one of these Trees, which he observed in *New-England*, whose Girt was nine Yards, and held its Bigness a great way up; which Tree, when cut down, made twenty-two Cord of Wood. He also says, in the same Letter, That he has propagated many of these Trees by cutting off Sticks of five or six Feet long, and setting them a Foot deep into the Ground in the Spring of the Year, when the Season was wet; and that they always thrive best in a moist Soil.

The Leaves of this Sort are larger, and less divided, than those of the oriental Plane-tree; and the Tree grows much faster, and is hardier; and, being thus easily propagated, is now the most common in *England*.

The maple-leaved Plane-tree hath its Leaves less divided than the first, but more than the second Sort; so that it is a middle Kind, between both; though, as I before said, it comes originally from the Eastern Sort.

This

This is propagated very easily by Layers, every Twig of which will take Root, if they are but covered with Earth; and, when transplanted out in a moist Soil, will grow equally fast with the *Virginian* Kind. But whether this will take from Cuttings or not, I cannot say, having never made Trial of it; tho', from the Readiness of the Branches taking Root, there is little Reason to doubt of it. The best Time to transplant these Trees is in *March*; for if they are removed in Winter, and the Season should prove very severe, the tender Shoots are often killed by the Frost.

PLINIA.

The Characters are;

It hath a bell-shaped Flower consisting of one Leaf, which is divided into five Segments at the Brim; from whose Cup rises the Pointal, which afterward becomes a globular, soft, chanelled Fruit, in which is included one Seed of the same Form.

We have but one Species of this Plant; which is,

PLINIA fructu croceo odorato. Plum. Nov. Gen. Plinia with a sweet-scented saffron-coloured Fruit.

This Plant was discovered by Father Plumier in the *West-Indies*, who gave it this Name, in Honour to *Pliny* the famous Natural Historian,

It grows in several Places in the warmer Parts of *America*, from whence the Seeds have been sent to *Europe*. These Seeds must be sown in Pots filled with light rich Earth, and plunged into an Hot-bed of Tanners Bark, observing to moisten the Earth with Water whenever it appears dry, as also to preserve a moderate Temperature of Heat in the Bed: so that if the Nights should prove cold, the Glasses of the Hot-bed should be every Night covered

with Mats; and in the Middle of the Day the Glasses may be raised to admit fresh Air, when the Weather is warm. These Seeds will sometimes remain long in the Ground before the Plants appear; and, whenever it so happens, the Pots must be constantly kept clear from Weeds, and duly watered. And when the Plants come up, they should be transplanted into Pots, and may be managed as is directed for the *Pittonia*.

PLOUGHING of Land.

There is not a greater Improvement of arable Land, than that of well ploughing it; by which Method the Soil is pulverized, and rendered fit to receive the Fibres of Plants. And the oftener this is repeated, the greater Improvement is made. But as this Part of Agriculture has been fully treated of by the several Writers on Husbandry, I shall not repeat what they have said, but subjoin a few Remarks to those already published.

In ploughing of Land, great regard should be had to the Crop which is designed to be sown; for if the Plants have Tap-roots, which run deep into the Ground, then it should be ploughed deep; otherwise, when the Roots have reached so low as to meet with the unfirred Earth, they will stop, and divide into small forked Roots, and be good for little. It has been often asserted, that deep ploughing is very injurious to many Soils; but from repeated Observations it appears otherwise; for where-ever there is Depth enough of Soil to admit of deep ploughing, when it is practised rightly, it is a vast Improvement to the Land. Indeed, where the Land is very stubborn, and ploughed so deep as to turn up the strong Part on the Surface, and this is not well wrought

to

to divide the Parts, it often proves a Disadvantage to the Crop; but when this is practised, it should always be done the Beginning of Winter, so that it may be exposed to the Frost, which will be of great Use, by entering of the Clods, and causing them to crumble after the Thaw: then in the Spring it should be again ploughed, and this repeated twice more at least the following Summer; which will not only destroy the Weeds, but so divide the Particles of Earth, as to make it fall easily under the Harrow.

The Difference between Land which is dug by Hand, and that which is ploughed, consists in having the Parts more divided; so that every Person who is curious in working of his Land, will oblige his Labourers to take as thin Spits of Earth as possible, that there may remain no large Clods unbroken. And it is the same in ploughing; for if the Land is ploughed three or four times carefully, it will divide the Clods equal to the Land which is dug, and will sufficiently repay the Husbandman. But this is not to be done with the common Plough; for that will not divide the Parts: therefore the Plough with four Coulters should be used for this Purpose. As this Sort of Plough requires more Strength to draw it, it should not be used but in wet Weather; for when the Ground is moist, this Plough may be more easily drawn, than when it is dry and hard; and there is no Danger of injuring the Land, by ploughing in wet Weather with this Plough: tho' there is much in the common Plough at such times; because, when the Furrow is turned over whole, the Clods will cement with the Wet; and where the Cattle tread on it, the Ground will be rendered as hard as before it was stirred.

It hath been a Practice in some Counties, where the Land is mellow, to plough the Top of the Furrow, and then with six or seven Labourers to dig after the Plough, and throw the Earth on the Top, which is almost equal to digging of the Land two Spits deep, and is performed at a much easier Expence: but this is never practised, except for some particular Crops, which root very deep in the Ground.

The Models or Draughts of all the Sorts of Ploughs in use being already exhibited in the several Books of Husbandry extant, I shall not give any farther Account of them.

PLUM-TREE; *vide* Prunus.

PLUMBAGO, Leadwort.

The Characters are;

The Flower consists of one Leaf, which is shaped like a Funnel, and cut into several Segments at the Top; out of whose fistulous Flower-cup rises the Pointal, which afterward becomes one oblong Seed, for the most part sharp-pointed, which ripens in the Flower-cup.

The Species are;

1. PLUMBAGO *quorundam*. *Clus. Hist.* Leadwort, or Toothwort.
2. PLUMBAGO *Americana*, *betæ folio ampliori*. *Plum.* American Leadwort, with a broad Beet-leaf.
3. PLUMBAGO *flore albo*. *Inst. R. H.* Leadwort with a white Flower.
4. PLUMBAGO *orientalis, lapathi folio, flore minori albido*. *Tourn. Cor.* Eastern Leadwort, with a Dock-leaf, and a smaller whitish Flower.
5. PLUMBAGO *Americana scandens aculeata, betæ folio minori*. *Plum. Cat.* Prickly Climbing American Leadwort, with a lesser Beet-leaf.

The first of these Sorts grows about *Naples*, in *Sicily*, and the Southern Parts of *France*; but is hardy enough to endure the Cold of our Climate in the open Ground, provided

vided it be planted in a warm dry Soil. This is propagated by parting of the Roots in the Spring, before they shoot: in doing of which, you should be very careful to preserve an Head to each Slip, otherwise they will not grow. They should be planted in a warm Situation, and a dry Soil, about two Feet asunder, and watered until they take Root; after which they will require no farther Care, but to clear them from Weeds, and support their Branches from being broken by the Wind. They commonly rise about three Feet high; but, unless the Autumn be very favourable, they seldom flower in this Country. The Root of this Plant is sometimes used in Medicine.

The second is preserved by such as are curious in collecting Exotic Plants. This may be propagated in the same manner as the former, as also from Seeds, which should be sown upon an Hot-bed in the Spring; and when the Plants come up, they may be treated in the Manner directed for Amaranths; to which the Reader is desired to turn, to avoid Repetition. These Plants must be placed in the Stove in Winter, where they may have a moderate Degree of Warmth, and should be frequently refreshed with Water. The second Year they will produce Flowers in the Autumn, and if the Season be warm, the Seeds will ripen. This Plant grows plentifully in *Jamaica*, and the *Caribbee* Islands; and from the Name given it by *Dr. Boerhaave*, it doth also grow in *Ceylon*.

The third Sort here mentioned differs in nothing from the common Sort, except in the Colour of the Flower, that having a purple, and this Sort a white Flower; so that they may be indifferently used in Medicine.

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The fourth Sort was discovered by *Dr. Tournefort* in the *Levant*. This is an hardy Plant, which will endure the Cold of our ordinary Winters extremely well in the open Air. Both these Sorts may be propagated and managed in the same manner as was directed for the ordinary Sort.

The fifth Sort was discovered by *Father Plumier*, in some of the *French Settlements in America*, and since was found by the late *Dr. Houstoun* at *La Vera Cruz*. This Sort may be propagated by Seed, which should be sown on an Hot-bed early in the Spring, and must be afterward treated in the same manner as has been directed for the second Sort. This Sort will abide several Years, if it is preserved in a Stove in the Winter, and will ripen Seed every Year.

PLUMERIA, The Jasmine-tree; *vulgo*.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim, out of whose Cup arises the Pointal, which afterward becomes the Fruit or Pod, which for the most part grows double, and open lengthwise, discovering the Seeds, which are oblong, and have a Border round them: these are ranged over each other like Slates on an House, and are fastened to the Placenta.

The Species are;

1. PLUMERIA *flore roseo odoratissimo*. *Inst. R. H.* Plumeria with a rose-coloured sweet-scented Flower, commonly called in the *West-Indies* Red Jasmine.

2. PLUMERIA *flore majore odorato & incarnato*. Plumeria with a larger sweet-scented and incarnate Flower, called in the *West-Indies* the Japan-tree.

3. PLUMERIA *flore niveo, foliis longis*
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longis angustis & acuminatis. Inst. R. H. Plumeria with a snowy Flower, and long narrow-pointed Leaves.

4. PLUMERIA *flore niveo, foliis brevioribus & obtusis. Inst.* R. H. Plumeria with a snowy Flower, and shorter blunt Leaves.

5. PLUMERIA *foliis longissimis minus succulentis, flore palladio Houst.* Plumeria with very long and less succulent Leaves, and a pale Flower.

6. PLUMERIA *folio latiore obtuso, flore luteo minore.* Plumeria with a broad obtuse Leaf, and a smaller yellow Flower.

This Name was given to this beautiful Genus of Plants, by Dr. *Tournefort*, in Honour to Father *Plumier*, who was Botanist to the late King of *France*, and a long time in *America*, searching after new Plants, and who has published a Catalogue of the Plants he discovered, with the new Genus's he constituted; and two Volumes in *Folio*, with Figures and Descriptions of many of the Plants.

These Plants grow wild in the *Spanish West-Indies*, from whence some of the most beautiful Kinds were brought into the *English* Settlements in *America*, and are cultivated in their Gardens for Ornament. The first Sort here mentioned is the most common Kind, which is preserved in the Gardens of the Inhabitants of *Jamaica* and *Barbados*. The Flowers of this Kind nearly resemble those of the red Oleander, but are larger, and have an agreeable Odour. These are produced in small Bunches at the Extremity of the Shoots, and generally appear in *July* and *August*, in this Climate; but in the *West-Indies* they flower a great Part of the Year.

The second Sort I received from the Island of *St. Christophers*, by the

Name of *Japan-tree*: this Sort is very rare in the *English* Settlements at present, having been but lately introduced from the *Spanish West-Indies*: it is in Leaf and Stem very like the first, but the Flowers of this are of a paler Colour, and are produced in much larger Bunches. It is very common to have upward of twenty of these Flowers open in one Bunch, and a Number to succeed these as they decay, so as that the Bunches have continued in Beauty upward of two Months; during which time they make a most beautiful Appearance in the Stove, and have a very agreeable Flavour.

The third Sort grows plentifully at *Campechy*, from whence the late Dr. *Houfoun* sent the Seeds. He also observed some Plants of this Kind at *Jamaica*. The sixth Sort is also pretty common in both those Places. These are not near so beautiful as the two former Sorts, their Flowers being smaller, and produced in lesser Branches, and are moreover of shorter Duration. But for the Beauty of their Stems and Leaves, and for the sake of Variety, they deserve Room in every curious Collection of Plants.

The fourth and fifth Sorts were discovered by Dr. *Houfoun*, growing in great Plenty near *Carthagena* in the *Spanish West-Indies*, from whence he sent their Seeds to *England*. The fourth Sort produces small white Flowers, resembling those of the third, and is less valuable than the two first. But the fifth Sort produces as large Flowers as the first; which are of a pale-red Colour, and smell very sweet. The Leaves of this Sort are sometimes ten Inches or a Foot in Length, and about three Inches over in their broadest Part. These are not near so thick, or full of Juice, as are those of the other

other Sorts, nor are they so deeply veined; but being of a bright shining green Colour, they make an agreeable Variety amongst other tender Exotic Plants in the Stove.

All these Plants may be propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into an Hot-bed of Tanners Bark; and when the Plants are come up about two Inches high, they should be transplanted into separate small Pots filled with light sandy Earth, and plunged into the Hot-bed again, observing to shade them from the Heat of the Sun in the middle of the Day, until they have taken Root: but they must not have much Water; for as all the Sorts are very succulent, being full of a milky Juice, somewhat like the Euphorbiums, Moisture will cause them to rot. In hot Weather the Plants should have a pretty large Share of fresh Air admitted to them, by raising of the Glasses of the Hot-bed every Day, in proportion to the Warmth of the Season. Toward *Michaelmas*, when the Nights begin to be cold, the Plants should be removed into the Stove, and plunged into the Bark-bed, where they must remain throughout the Winter. As these Plants all cast their Leaves in the middle of Winter, and continue destitute of them till about the Beginning of *May*, therefore during that time, they should be watered very sparingly; because they are in more Danger of rotting, while they are in a less active State, by too much Moisture, than when they are furnished with Leaves, thro' which the Moisture is more freely perspired.

All these Sorts are too tender to thrive in the open Air of this Country in the Summer-season; therefore they should be constantly

preserved in the Stove, where, in warm Weather, they must have a large Share of free Air; but in cold Weather they must be kept very warm. While they are young, it will be proper to continue them in the Bark-bed; but when they have obtained Strength, they may be placed in the dry Stove, where they will thrive very well, provided they are kept in a moderate Temperature of Heat, and have not too much Water.

These Plants may also be propagated by Cuttings, which should be taken from the old Plants a Month before they are planted; during which time they should be laid on the Flues in the Stove, that the Part which joined to the old Plant may be quite healed, otherwise they will rot. These Cuttings should be planted in small Pots filled with light sandy Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them in the Heat of the Day from the Sun, and refresh them every third or fourth Day with Water; but it must be given to them sparingly each time. If the Cuttings succeed, they will have taken Root in about two Months, when they should have a larger Share of Air, to harden them by degrees to bear the Sun and Air, and afterward may be treated as the old Plants.

The milky Juice of these Plants is very caustic, and reckoned very poisonous: in cutting off any of the Branches of the Plants, if the Knife be not immediately cleaned, the Juice will corrode it, and turn the Blade almost black in a very little time, so as not to be cleaned off again; and if dropped on Linen, will cause it to wash in Holes, equal to *Aqua-fortis*.

POINCIANA, *Barbados* Flower-sence, or *Spanish* Carnations.

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The Characters are;

The Flower consists of several Leaves, which are placed in a circular Order; in the Centre of which arises a Number of crooked Stamina; the Pointal, which arises from a quinquesid Flower-cup, becomes a long, broad, flat Pod, opening into two Parts, and filled with broad flat roundish Seeds, each of which is lodged in a separate Cell, which are divided by a thin Partition.

The Species are;

1. POINCIANA flore pulcherrimo. Tourn. Barbados Flower-fence, with a fair Flower.
2. POINCIANA flore luteo. Houst. Flower-fence with a yellow Flower.
3. POINCIANA flore rubente. Houst. Flower-fence with a reddish Flower.
4. POINCIANA spinosa, vulgo TARA. Feuil. Prickly Flower-fence, commonly called Tara.

The first Sort is very common in the *Caribbee* Islands, where it is planted for a Fence to divide Fields, and is greatly esteemed for the Beauty of its Flowers, which are produced on long Spikes in vast Quantities. The Leaves of this Plant are also used instead of Sena to purge withal.

This was carried from *Cape Verd* Islands to *Barbados*, as is related by *Ligon*, and hath since been dispersed through the other Islands. It grows in those Countries to be ten or twelve Feet high, and the Stem is often as large as the Small of a Man's Leg, and the Wood is very hard; from whence it hath obtained the Name of *Ebony* in some Places. The second Sort is a Variety of the first, differing only in the Colour of the Flowers, which in this are yellow, but in the other are of a bright-red Colour.

The Seeds of this Plant are annually brought over in Plenty from the *West-Indies*, which, if sown up-

on an Hot-bed, will rise very easily; and when the Plants are come up, they should be transplanted into small Pots, and plunged into an Hot-bed of *Tanners Bark*, observing to shade them until they have taken Root; after which you must give them Air in proportion to the Warmth of the Season, and they must be frequently refreshed with Water. When the Plants have filled the Pots with their Roots, they should be taken out, and placed into larger ones, that they may have room to grow: if Care be taken to water and shift them as often as is necessary, they will grow to be three Feet high the first Season. At *Michaemas* the Pots should be plunged into a fresh Hot-bed of *Tanners Bark*, in the Stove, which should be kept to the *Ananas Heat*, marked on Mr. *Fowler's* Thermometers, and frequently refreshed with Water; but you must never give them large Quantities, which is very injurious to these Plants at that Season. The Earth which these Plants should be planted in, must be fresh, light, and sandy, but not over-rich; in which they will stand the Winter better than if placed in a stronger Soil.

With this Management I have raised several Plants to be five Feet high; some of which I have preserved two or three Years, and have had the Buds of the Flowers appear, but have not as yet been able to bring them to flower; tho' I am in hopes it may be effected, since the Improvements which are made every Year in the keeping of tender Plants are very considerable.

The third Sort was discovered by the late Dr. *Houstoun* at *Campeachy*, where it grew in great Plenty. This doth not differ in any thing from the common Sort, except in the Colour

of

of the Flowers; that having a Flower variegated with Red and Yellow, and this hath Flowers of a plain red Colour.

The fourth Sort was discovered by *Pere Feuillée*, growing plentifully in the Valleys of *Lima*. The Flowers of this Kind are smaller than those of the other Sorts, and are of a greenish yellow Colour, so that they are not near so beautiful. The Seed-pods of this Sort are used by the Dyers in the *Spanish West-Indies*, for Dying of Black; and they are also used for making of Ink: the Infusion of these Pods with Galls, affords the most beautiful black Ink in the World.

These two Sorts may be propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants come up, they must be treated in the same manner as is directed for the common Sort.

POKE VIRGINIAN; *vide* Phytolacca.

POLEMONIUM, Greek Valerian, or Jacob's Ladder.

The Characters are;

The Flower consists of one Leaf, which is divided deeply into five Parts, and is wheel-shaped; the Pointal which rises from the Flower-cup, afterwards becomes a roundish Fruit, divided into three Cells, which are filled with oblong Seeds; to which should be added, The Leaves are pinnated.

The Species are;

1. POLEMONIUM *vulgare cœruleum*. *Tourn.* Greek Valerian, with a blue Flower.

2. POLEMONIUM *vulgare album*. *Tourn.* Greek Valerian, with a white Flower.

3. POLEMONIUM *vulgare, flore variegato*. *Tourn.* Greek Valerian, with a striped Flower.

4. POLEMONIUM *vulgare, foliis*

elegantè variegatis. *Boerb. Ind.* Greek Valerian, with beautiful striped Leaves.

The two first Species are very common in many *English* Gardens, where they are cultivated for the Beauty of their Flowers: they have also been found wild in *Carleton-beek*, and about *Malbam-cove* near *Craven*. The Sort with variegated Flowers, as also that with striped Leaves, are Varieties which have been obtained from the former.

These Plants are easily propagated by sowing their Seeds in the Spring upon a Bed of light Earth; and when they are come up pretty strong, they should be pricked out into another Bed of the same light Earth, about three Inches asunder, observing to shade and water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, until *Michaelmas*; at which time they must be transplanted into the Borders of the Flower-garden, where, being intermixed with different Sorts of Flowers, they will make a beautiful Appearance. These produce their Flowers in *May* and *June*, and their Seeds ripen in *August*.

The variegated Kinds are preserved by parting of their Roots, because the Plants raised from Seeds would be subject to degenerate, and become plain. The best Time to part them is about *Michaelmas*, that they may take good Root before the cold Weather prevents them. These should have a fresh light Soil; but if it be too rich, their Roots will rot in Winter, and their Stripes will go off.

POLIUM, Poley-mountain.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Stamina

Supply the Place of a Crest; the Beard (or Under-lip) is divided into five Segments, as the Germander; out of the Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which after-ward become so many Seeds, shut up in the Flower-cup: to these Marks must be added, That the Flowers are collected into an Head upon the Tops of the Stalks and Branches.

The Species are;

1. *POLIUM montanum luteum*. C. B. P. Yellow Poley-mountain.
2. *POLIUM montanum album*. C. B. P. White Poley-mountain.
3. *POLIUM lavendulae folio*. C. B. P. Poley-mountain with a Lavender-leaf.
4. *POLIUM lavendulae folio angustiori*. C. B. P. Poley-mountain with a narrower Lavender-leaf.
5. *POLIUM Pyrenaicum supinum, hederæ terrestris folio*. Tourn. Creeping Pyrenean Poley-mountain, with a Ground-ivy-leaf.
6. *POLIUM maritimum erectum Monspeliacum*. C. B. P. Upright Poley-mountain of Montpellier.
7. *POLIUM montanum luteum, serratis angustioribus incanis foliis*. Barrel yellow Poley-mountain, with narrow hoary serrated Leaves.
8. *POLIUM montanum alterum, foliis angustioribus, capitulis longioribus*. C. B. P. Another Mountain-poley, with narrower Leaves, and longer Heads.
9. *POLIUM montanum repens*. C. B. P. Creeping Poley-mountain.
10. *POLIUM maritimum supinum Venetum*, C. B. P. Creeping maritime Venetian Poley-mountain.
11. *POLIUM Hispanicum, chamaedryos folio, purpurascente flore*. Inst. R. H. Spanish Poley-mountain, with a Germander-leaf, and a purplish Flower.
12. *POLIUM Lusitanicum supinum*

minus incanum, caulibus purpurascensibus, flore albo. Inst. R. H. Creeping less hoary Portugal Poley-mountain, with purplish Stalks, and a white Flower.

13. *POLIUM Hispanicum latifolium, capitulo breviori, purpurascens flore*. Inst. R. H. Broad-leaved Spanish Poley-mountain, with a shorter Head, and purplish Flower.

14. *POLIUM Hispanicum maximum album*. Inst. R. H. The largest white Spanish Poley-mountain.

15. *POLIUM Hispanicum maximum luteum*. Inst. R. H. The greatest yellow Spanish Poley-mountain.

16. *POLIUM Hispanicum maritimum frutescens, rosmarini folio, flore rubro*. Inst. R. H. Shrubby maritime Spanish Poley-mountain, with a Rosemary Leaf, and a red Flower.

17. *POLIUM Hispanicum supinum, flore flavescens* Inst. R. H. Creeping Spanish Poley-mountain, with a yellowish Flower.

18. *POLIUM Hispanicum, linariae foliis brevioribus, flore albo*. Inst. R. H. Spanish Poley-mountain, with shorter Toadflax leaves, and a white Flower.

19. *POLIUM montanum gnafaloides incisum, flore rubro, & supinum*. Barr. Icon. Creeping Poley-mountain resembling Cudweed, with a red Flower.

20. *POLIUM Hispanicum luteum, majoranae folio*. Inst. R. H. Yellow Spanish Poley-mountain, with a Majoram Leaf.

21. *POLIUM Hispanicum serpylli folio, purpurascens flore*. Inst. R. H. Spanish Poley-mountain, with a Mother-of-thyme Leaf, and a purplish Flower.

22. *POLIUM Hispanicum, thymi folio, purpurascens coma*. Inst. R. H. Spanish Poley-mountain, with a Thyme-leaf, and a purplish Top.

23. *POLIUM Creticum maritimum humifusum*. Tourn. Cor. Trailing maritime Poley-mountain of Crete.

24. *POLIUM Smyrnaeum, scordii folio*. Tourn. Cor. Smyrna Poley-mountain, with a Water-germander Leaf.

All these Sorts of Poley-mountain are pretty hardy Plants, and will endure the Cold of our ordinary Winters in the open Air, provided they are planted in a warm Situation, and on a dry stony Soil; for if they are planted in a rich moist Soil, they will grow very freely in Summer; but being replete with Juice, are apt to rot in Winter; so that when they are planted on a lean stony Soil, where they will be stinted, and grow short, and have small Leaves, they will abide several Years. These Plants seldom produce good Seeds in this Country; therefore are propagated by Cuttings, which may be planted any time in the Summer, in a Bed of fresh Earth, observing to shade them until they have taken Root, as also to refresh them with Water in dry Weather. When they are rooted, they will want no farther Care, but to keep them clear from Weeds; and at Michaelmas they may be transplanted into the Places where they are designed to remain, that they may be well rooted before the Frost comes on.

These Plants are chiefly preserved in Botanic Gardens for Variety; but they may be rendered ornamental in other Gardens, where they will grow on stony gravelly Soils; and their hoary Leaves and Branches, with the different Colour of their Flowers, will make an agreeable Prospect, if they are properly disposed.

POLYANTHOS; vide Primula Veris.

POLYGALA, Milk-wort.

The Characters are;

It hath a Flower consisting of one Leaf, of an anomalous Figure, perforated behind, but divided into two Lips before: the uppermost Lip is divided into two Parts, but the under one is curiously fringed; out of the lower Part of the Flower rises the Pointal, which afterward becomes a broad Fruit, divided into two Cells, which contain oblong Seeds: the Fruit is generally inclosed in the Flower-cup, which is composed of five Leaves, viz. three small ones, and two larger, which afterward embrace the Fruit like Wings.

The Species are;

1. *POLYGALA major caerulea*. Tabern. Greater blue Milk-wort.

2. *POLYGALA major alba*. Tabern. Greater white Milk-wort.

3. *POLYGALA vulgaris*. C. B. P. Common Milk-wort, with a blue Flower.

4. *POLYGALA alba*. Tabern. White common Milk-wort.

5. *POLYGALA Africana frutescens, folio buxi, flore maximo*. Olden. Shrubby African Milk-wort, with a Box-leaf, and a very large Flower.

6. *POLYGALA acutioribus foliis, Monspeliaca*. C. B. P. Montpellier Milk-wort, with sharp-pointed Leaves.

7. *POLYGALA acutioribus foliis, Monspeliaca, floribus caeruleis*. H. R. Mons. Montpellier Milk-wort, with sharp-pointed Leaves, and blue Flowers.

8. *POLYGALA foliis lanceolatis brevibus*. Bocc. Mus. Milk-wort with short spear-shaped Leaves.

9. *POLYGALA montana minima myrtifolia*. Inf. R. H. The least Mountain Milk wort, with a Myrtle Leaf.

10. *POLYGALA Cretica vulgaris similis, flore albido longiore*. Tourn. Cor. Milk-wort of Crete like the
U u u 4 *similis*

common Sort, with a longer whitish Flower.

11. *POLYGALA orientalis supina myrtifolia, flore cœruleo.* Tourn. Cor. Low Eastern Milk-wort, with a Myrtle Leaf, and a blue Flower.

12. *POLYGALA orientalis linifolia, flore magno albo.* Tourn. Cor. Eastern Milk-wort, with a flax Leaf, and a large white Flower.

13. *POLYGALA orientalis linifolia, flore magno purpureo.* Tourn. Cor. Eastern Milk wort, with a flax Leaf, and a large purple Flower.

14. *POLYGALA Lusitanica frutescens, magno flore, foliis minimis.* Inst. R. H. Shrubby Portugal Milk-wort, with a large Flower, and very small Leaves.

15. *POLYGALA Africana frutescens angustifolia major.* Oldenl. Greater shrubby African Milk-wort, with a narrow Leaf.

16. *POLYGALA Africana, lini folio, magno flore.* Oldenl. African Milk-wort, with a flax Leaf, and a large Flower.

17. *POLYGALA Virginiana, foliis oblongis, floribus in thyrso, candidis, radice alexipharmica.* Milk-wort of Virginia, with oblong Leaves, and white Flowers, growing in a loose Spike, whose Root is alexipharmic, commonly called, the *Senegaw Rattle-snake-root.*

18. *POLYGALA cœrulea Americana, angustis & densioribus foliis, vulgo Clin-clin.* Feuille. Blue American Milk-wort, with narrow Leaves, commonly called by the Name of *Clin-clin.*

19. *POLYGALA rubra Virginiana, spica parva compacta.* Banist. Red Virginian Milk-wort, with a small compact Spike.

20. *POLYGALA spicata rubra major, foliis & caulibus cœrulescentibus.* Banist. Greater red-spiked Milk-wort, with bluish Leaves and Stalks,

21. *POLYGALA f. Flos Ambarvalis Virginiana, floribus luteis in caput oblongum congestis.* Banist. Virginian Milk-wort, with yellow Flowers collected in an oblong Head. Four-leaved Milk-wort, with reddish green Flowers, growing in a compact Globe.

22. *POLYGALA quadrifolia, f. cruciata, floribus ex viridi niventibus, in globum compactis.* Banist.

23. *POLYGALA quadrifolia minor Virginiana, spica parva rubenti.* Banist. Smaller four-leaved Virginian Milk-wort, with a small reddish Spike.

24. *POLYGALA Mariana, angustiore folio, flore purpureo.* Pluk. Mantif. Narrow-leaved Milk-wort of Maryland, with a purple Flower.

25. *POLYGALA Mariana quadrifolia minor, spica parva albicante.* Pluk. Mantif. Smaller four-leaved Milk-wort of Maryland, with a small whitish Spike.

The four first Species are found wild in moist Meadows in divers Parts of England; and are seldom preserved in Gardens, except for the sake of Variety.

The fifth is propagated by Seeds, which should be sown upon a moderate Hot-bed in the Spring; and when the Plants are come up, they should be pricked into small Pots filled with light rich Earth, and plunged into another Hot-bed, where they should be shaded until they have taken Root, and often refreshed with Water; after which they must have Air given them in proportion to the Warmth of the Season; and in July they may be removed into the open Air, placing them in a warm Situation, where they may be sheltered from strong Winds, and in dry Weather they must be often refreshed with Water. In this Place they may remain until October, when the Nights

Nights begin to be frosty; then you should remove them into the Green-house, placing them where they may have the Advantage of the fresh Air, when the Weather is favourable enough to admit of the Glasses being opened; for they only require to be protected from Frost. During the Winter-season, they should be often refreshed with Water; but it should not be given to them in large Quantities, which will injure their Roots: in Summer, they may be exposed with Myrtles, Geraniums, &c. in a Situation where they are defended from strong Winds; and as their Roots increase, the Size of their Pots should be enlarged; but you must be very cautious not to over-pot them, which is injurious to all Sorts of Exotic Plants.

The Earth in which these Plants are set, should be rich; fresh, and light, in which they will thrive exceedingly, and continue in Flower most Part of the Year, which renders it very valuable; and if the Season proves favourable, the Seeds will ripen very well; but you must be careful to gather them when ripe, otherwise they'll drop off, and be lost.

The four Sorts next-mentioned are low Plants, which grow in *Spain*, *Italy*, and the South of *France*; as are also the tenth, eleventh, twelfth and thirteenth Sorts, which were discovered by Dr. *Tournefort* in the *Levant*. These are hardy Plants, which will live in the open Air in this Country, and may be propagated by Seeds, in the same manner as the common Sort.

The fourteenth and fifteenth Sorts are shrubby Plants, which are preferred in some curious Gardens for Variety. These may be also propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are

come up, they should be transplanted into separate Pots filled with light fresh Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun until they have taken Root; after which time they should have a large Share of fresh Air in warm Weather, and must be frequently watered. About the middle of *May* these Plants should be inured to bear the open Air by degrees; and in *June* they may be placed abroad in a sheltered Situation, where they may remain during the Summer-season; and in Autumn they must be removed into the Green-house, and managed as hath been directed for the fifth Sort. These Plants continue a long time in Flower, and are worthy of a Place in every curious Garden, for the sake of Variety.

The sixteenth Sort is a Native of the *Cape of Good Hope*; and the seventeenth grows on the Mountains in the Kingdom of *Chily* in the *Spanish West-Indies*, where it is used by the *Indians* to cure Pleurisies, and all Complaints of the Side. These two Sorts are of low Growth, seldom rising higher than the common Sort; but being too tender to live in the open Air in *England*, they should be planted in Pots, and preserved in the Green-house in Winter. These may be propagated by Seeds, as the two former Sorts.

The other Sorts are all of them Natives of *Virginia*, *Maryland*, *New-England*, and several other Places in the North of *America*; therefore are hardy enough to live in the open Air in *England*, provided they are planted in a warm Situation, and on a light Soil. These are very pretty Plants, and require very little Trouble to cultivate them; for after they are come up from Seeds, the only Care they require, is to keep them clear from Weeds, and in very dry Weather

ther to water them while they are young; for when they have obtained Strength, they will not be in much Danger of suffering by Drought; for the Roots run pretty deep into the Ground, where they will find Nourishment to support them.

The Root of the seventeenth Sort hath been long used by the *Senegaw Indians* to cure the Bite of the Rattle-snake, which, if taken in time, is an infallible Remedy. And of late Years it hath been used by the Inhabitants of *Virginia* in many Disorders, which are occasioned by thick fizy Blood; so that the Root of this Plant, when its Virtues are fully known, may become one of the most useful Medicines yet discovered. The eighteenth Sort, by the Account which *Pere Feuillee* gives of it, partakes of the same Qualities with this, tho' the *Indians* use it differently; for, he says, they make a Decoction of the Plant, which they drink to cure the Pain of the Side; whereas the *Senegaw Indians* use the Root of the 17th Sort, which they powder, and generally carry about them, when they travel in the Woods, lest they should be bit by the Rattle-snake; and whenever this happens, they take a Quantity of the Powder inwardly, and apply some of it to the Part bitten, which is a sure Remedy.

POLYGONATUM, Solomon's-seal.

The Characters are;

The Flower consists of one Leaf, is tuberose, and expands at the Top in Shape of a Bell, and is divided into several Segments; the Ovary, which is situated in the Centre of the Flower, becomes a soft globular Fruit, containing roundish Seeds.

The Species are;

1. POLYGONATUM *latifolium vulgare*. C. B. P. Common broad-

leaved Solomon's-seal.

2. POLYGONATUM *latifolium vulgare, caulibus rubentibus*. H. L. Common broad-leaved Solomon's-seal, with red Stalks.

3. POLYGONATUM *latifolium minus, flore majore*. C. B. P. Lesser broad-leaved Solomon's-seal, with a larger Flower.

4. POLYGONATUM *latifolium, flore duplici odoro*. H. R. Par. Broad-leaved Solomon's-seal, with a double sweet-smelling Flower.

5. POLYGONATUM *latifolium maximum*. C. B. P. The greatest broad-leaved Solomon's-seal.

6. POLYGONATUM *latifolium, bellebori albi foliis*. C. B. P. Broad-leaved Solomon's-seal, with Leaves like the white Hellebore.

7. POLYGONATUM *latifolium, flore majore odoro*. C. B. P. Broad-leaved Solomon's-seal, with a large sweet Flower.

8. POLYGONATUM *orientale latifolium, flore parvo*. Tourn. Cor. Eastern broad leaved Solomon's-seal, with a small Flower.

9. POLYGONATUM *angustifolium non ramosum*. C. B. P. Narrow-leaved unbranched Solomon's-seal.

10. POLYGONATUM *angustifolium ramosum*. C. B. P. Narrow leaved branching Solomon's-seal.

11. POLYGONATUM *Americanum scandens altissimum, foliis tamni*, Plum. The tallest climbing American Solomon's-seal.

The fifth and sixth Sorts grow very tall, provided they are planted in a pretty good Soil. In a moist Season it is common for these to be upward of three Feet high, whereas the ordinary Sort seldom rises above half that Height. The Leaves of these Sorts are also very large, so that they make an handsome Appearance in the Borders of large Gardens.

The

The seventh Sort hath broader Leaves than the common Sort, but doth not grow much higher. The Flowers of this Sort, being larger, and having an agreeable Scent, render it worthy of a Place in large Gardens.

The eighth Sort was discovered by Dr. *Tournefort* in the *Levant*, but is not common in *Europe*: this hath a broader Leaf than the common Sort, and the Flower is much smaller. It is preserved in some curious Botanic Gardens, for the sake of Variety.

The ninth and tenth Sorts are very different from either of the former: these have four or five Leaves, produced at each Joint, which are much longer and narrower than those of the common Sort, so that they make a very different Appearance; therefore should be allowed a Place in large Gardens for the sake of Variety.

All these Sorts are as hardy as the common Solomon's-seal, and may be propagated by parting of their Roots. They should be planted in a fresh light Earth, where they will thrive exceedingly; but if it be over-rich, it will destroy their Roots. The first Sort is the most common in *England*, and is what the College has directed for Medicinal Use.

The eleventh Sort is a Native of the warmest Parts of *America*, where it grows in the Woods, and climbs on whatever Trees grow near it, by the Help of which it rises to a great Height. This produces its Flowers in long Bunches, somewhat like the black Bryony. The Seeds of this Plant were sent from *Campechy*, by Mr. *Robert Millar*, Surgeon. This Plant must be preserved in Stoves, otherwise it will not live thro' the Winter in this Country: it may be

propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be treated in the same manner as hath been directed for *Dioscorea*: with which Management this Plant will thrive, and produce Flowers in *England*.

POLYPODIUM, Polypody.

The Characters are;

It is a capillary Plant, with oblong jagged Leaves, having a middle Rib, which joins them to the Stalks, running through each Division.

The Species are;

1. POLYPODIUM *vulgare*. C.B.P. Common Polypody.
2. POLYPODIUM *majus, serrato folio*. Barr. Icon. Greater Polypody, with a serrated Leaf.
3. POLYPODIUM *Cambro-Britanicum, pinnulis ad margines laciniatis*. Raii Syn. Welsh Polypody, with lacinated Leaves.

There are several other Species of this Plant, which are preserved in some curious Botanic Gardens for Variety; but as they are rarely cultivated in other Gardens, it is not worth while to enumerate them in this Place.

The first Sort is that which is used in Medicine, and is found growing upon old Walls, and shady Banks, in divers Parts of *England*. The second seems to be only a Variety of the first, which differs therefrom in being larger, and having serrated Leaves. The third Sort was brought from *Wales*, where it grows in great Plenty, and is the most beautiful of all the Sorts. These Plants may be propagated by parting of their Roots in the Spring, before they shoot; and should be planted in a very poor moist Soil under the Shade of a Wall; for if they are exposed to the Sun, they will not thrive. They chiefly delight to grow out of the Joints

Joints of Walls, and old Buildings; but are commonly found exposed to the North.

POMEGRANATE; *vide* Punicia.

POMUM ADAMI; *vide* Aurantium.

POPULAGO, Marsh-marigold.

The Characters are;

The Flower consists of several Leaves, which are placed circularly, and expand in form of a Rose, in the middle of which rises the Pointal, which afterward becomes a membranaceous Fruit, in which there are several Cells (which are, for the most part, bent downwards) collected into little Heads, and are full of oblong Seeds.

The Species are;

1. **POPULAGO flore majore.** *Tourn.* Marsh-Marigold with a larger Flower.

2. **POPULAGO flore minore.** *Tourn.* Marsh-Marigold with a smaller Flower.

3. **POPULAGO flore pleno.** *Tourn.* Marsh-Marigold with a double Flower.

The two first Sorts are very common on boggy and watery Places in divers Parts of England, and are seldom cultivated in Gardens: but the third Sort, which is a Variety from the second, is preserved in Gardens for its fine double Flowers.

This Plant is propagated by parting of the Roots in Autumn, and must be planted on a moist Soil, otherwise the Flowers will not be near so fair, nor will the Plants thrive. These are very proper to place in very wet Parts of the Garden, where few other Plants will thrive, and will afford an agreeable Variety during their Season of Flowering, which is from the Middle of April until the Latter-end of May; so

that they are worthy of a Place in every curious Flower-garden.

POPULUS, The Poplar-tree.

The Characters are;

The Leaves are broad, and, for the most part, angular; the Male Trees produce amentaceous Flowers, which have many little Leaves and Apices, but are barren: the Female Trees produce membranaceous Pods, which open into two Parts, containing many Seeds, which have a large Quantity of Down adhering to them, and are collected into Spikes.

The Species are;

1. **POPULUS alba, minoribus foliis.** C. B. P. White Poplar, with smaller Leaves.

2. **POPULUS alba, majoribus foliis.** C. B. P. White Poplar, with large Leaves, commonly called, *The Abele-tree.*

3. **POPULUS tremula.** C. B. P. The trembling Poplar, or Aspentre.

4. **POPULUS nigra.** C. B. P. The black Poplar-tree, by some falsely called, *The Cotton-tree.*

5. **POPULUS alba, folio minore variegato.** The white Poplar, with striped Leaves.

6. **POPULUS nigra Caroliniana, folio maximo, gemmis balsamum odoratissimum fundentibus.** *Catesb.* The Carolina black Poplar, with the largest Leaf, from whose Buds issues a very sweet Balsam.

These Trees may be propagated either from Layers or Cuttings, which will readily take Root, as also from Suckers, which the white Poplars send up from their Roots in great Plenty. The best Time for transplanting these Suckers is in October, when their Leaves begin to decay. These may be placed in a Nursery for two or three Years, to get Strength, before they are planted out where they are designed to remain:

remain: but if you intend to propagate them from Cuttings, it is better to defer the doing of that until *February*; at which time you may plant Truncheons of four or five Feet long, thrusting them about a Foot into the Ground: these will readily take Root, and if the Soil be moist in which they are planted, will arrive to a considerable Bulk in a few Years.

The black Poplar is not so apt to take Root from large Truncheons; therefore it is the better Method, to plant Cuttings about a Foot and an half in Length, thrusting them a Foot deep into the Ground: these will take Root very freely, and may be afterward transplanted where they are to remain. This Sort will grow upon almost any Soil, but will thrive best in moist Places.

I have planted Cuttings of this Tree, which in four Years have been bigger in the Trunk than a Man's Thigh, and near twenty Feet in Height, and this upon a very indifferent Soil; but in a moist Soil it is common for these Trees to shoot twelve or fourteen Feet in a Season: so that where a Person hath a mind to make a Shelter in a few Years, there is scarce any Tree so proper for that Purpose as this. But they should not be planted too near the Pleasure-garden, because the Down which falls from these Trees will make a prodigious Litter.

The white Sorts, as also the Aspen-tree, likewise cause a great Litter in the Spring, when their Down falls off; and their Roots being very apt to produce a large Quantity of Suckers, render them unfit to be planted near an House or Garden; but when they are interspersed with other Trees in large Plantations, they afford an agreeable Variety; their

Leaves being very white on their Under-sides, which when blown with the Wind, are turned to Sight.

A considerable Advantage may be obtained by planting these Trees upon moist boggy Soils, where few other Trees will thrive: many such Places there are in *England*, which do not, at present, bring in much Money to their Owners; whereas, if they were planted with these Trees, they would, in a very few Years, over-purchase the Ground, clear of all Expence: but there are many Persons in *England*, who think nothing, except Corn, worth cultivating: or if they plant Timber, it must be Oak, Ash, or Elm; and if their Land be not proper for either of these, it is deemed little worth; whereas, if the Nature of the Soils were examined, and proper Sorts of Plants adapted to them, there might be very great Advantage made of several large Parcels of Land, which at this time lie neglected.

The Wood of these Trees, especially of the Abele, is very good to lay for Floors, where it will last many Years; and, for its exceeding Whiteness, is by many Persons preferred to Oak; it is also very proper for waincoting of Rooms, being less subject to swell or shrink, than most other Sorts of Wood: but for Turnery-ware, there is no Wood equal to this for its exceeding Whiteness; so that Trays, Bowls, and many other Utensils, are made of it; and the Bellows-makers prefer it for their Use; as do also the Shoemakers, not only for Heels, but also for the Soles of Shoes: it is also very good to make light Carts; and the Poles are very proper to support Vines, Hops, &c. and the Lopping will afford good Fuel, which in many Countries is much wanted.

The

The sixth Sort of Poplar-tree grows by the Sides of Rivers, and in other moist Places, in *South Carolina*, where it rises to be a very large Tree. The young Branches of this Tree are commonly angular, sometimes having three, and at other times four Angles. The Leaves are much broader, and are not so pointed, as those of the common black Poplar. The Buds of the Leaves are very large, and in the Spring, just before they push, there issues out of them a very sweet Balsam.

Altho' this Tree is a Native of a much warmer Country than *England*, yet it is hardy enough to endure the Cold of our Winters in the open Air; and may be propagated by Cuttings, in the same manner as the common black Poplar: the best Time to plant these Cuttings is in the Beginning of *March*. These Cuttings should be about a Foot or fourteen Inches long, and should be planted six or eight Inches in the Ground. If the Spring prove dry, they must be frequently watered until they have made Roots; after which time they will require no farther Care, but to keep them clear from Weeds. These Cuttings will be rooted enough to bear transplanting in one Year; and the *March* following they should be removed, and planted either in a Nursery, where they may be trained up to Stems, or in the Places where they are designed to remain; which must be in a moist Soil, where they will grow to be large Trees; and being intermixed with other Trees of the same Growth, will make an agreeable Diversity.

PORRUM, Leek.

The Characters are;

The Flower consists of six Petals: and is shaped, as it were, like a Bell,

in the Centre arises the Pointal, which afterward becomes a roundish Fruit; divided into three Cells, which contain roundish Seeds: to these Notes must be added, The Stamina are generally broad and flat, ending in three Capillaments; of which the middle one is furnished with a Chivee the Flowers are also gathered into almost globular Bunches; the Roots are long, cylindrical, and coated; the Coats ending in plain Leaves.

The Species are;

1. PORRUM commune capitatum. C. B. P. The common Leek.

2. PORRUM setosum latifolium. C. B. P. Broad-leaved Leek, commonly called, *The London Leek*.

There are some other Species of this Plant, which grow wild in the South of *France* and *Spain*; but as they are seldom cultivated in Gardens, I shall forbear to mention them here. The two Sorts here mentioned are by many Persons affirmed to be the same, both of them rising from the same Seed: but this is what the Gardeners near *London* will not believe; for they never sow the Seeds of the latter, if they can procure those of the first Sort, there being a great Difference in the Size of the Head, or principal Part of the Leek; but whether by long cultivating they may not alter, I cannot positively affirm, having never sown the Seeds of the latter Sort above one Year.

These Plants are cultivated by sowing their Seeds in the Spring, in the same manner as was directed for Onions, with which these are commonly sown, the two Sorts of Seeds being mixed according to the Proportion which is desired of either Sort; though the most common Method is, to mix an equal Quantity of both; for the Onions will greatly outgrow the Leeks in the

Spring:

Spring; but these being drawn off in *July*, the Leeks will have time to grow large afterwards so that there may be a moderate Crop of both Sorts. The Management of Leeks being exactly the same with Onions, I shall not repeat it in this Place, but shall only add; that many Persons will sow their Leeks very thick in Beds in the Spring; and in *June*, after some of their early Crops are taken off, they dig up the Ground, and plant their Leeks out thereon, in Rows a Foot apart, and six Inches asunder in the Rows, observing to water them until they have taken Root; after which they will require no farther Culture, but to clear the Ground from Weeds: the Leeks thus planted, will grow to a great Size, provided the Ground be good, and this Method is very proper for such Persons as have little room.

If you would save the Seeds of this Plant, you should make Choice of some of the largest and best you have, which must remain in the Place where they grew, until *February*; when they should be transplanted in a Row against a warm Hedge, Pale or Wall, at about eight Inches asunder; and when their Stems advance, they should be supported by a String, to prevent their being broken down, to which they are very liable, especially when in Head; and the closer they are drawn to the Fence, in Autumn, the better the Seeds will ripen; for it sometimes happens, in cold Summers or Autumns, that those which grow in the open Garden, will not perfect their Seeds in this Country, especially if there should be sharp Frosts early in Autumn, which will intirely spoil the Seed.

When it is ripe (which may be known by the Heads changing

brown), you should cut off their Heads with about a Foot or more of the Stalk to each, and tie them in Bundles, three or four Heads in each, and hang them up in a dry Place, where they may remain till *Christmas*, or after, when you may thresh out the Seeds for Use. The Husk of these Seeds is very tough, which renders it very difficult to get out the Seeds; therefore some Persons who have but a small Quantity, rub it hard against a rough Tile, which will break the Husks, and get the Seeds out better than most other Methods I have known used.

PORTULACA, Purslain.

The Characters are;

The Flower consists of many Leaves; which expand in form of a Rose; out of whose Flower-cup (which consists of one Leaf) arises the Pointal, which, together with the Flower-cup, becomes a Fruit, for the most part, oval, full of small Seeds, and furnished with two Shells or Husks at Top; of which the outer one, which was the Part of the Flower-cup that was split in two, opens first; and the inner one, which is the Pointal enlarged, opens last, doubly and transversely, while the lower Part of the Flower-cup adheres to the Foot-stalk.

The Species are;

1. PORTULACA *latifolia*, seu *sativa*. C. B. P. Broad-leaved or Garden Purslain.

2. PORTULACA *sativa latifolia, foliis flavis*. Mor. Hist. Broad-leaved garden Purslain, with yellow Leaves.

3. PORTULACA *angustifolia, sive sylvestris*. C. B. P. Narrow-leaved or Wild Purslain.

4. PORTULACA *Curassavica, foliis capparidis*. Par. Bat. Purslain from *Curassao*, with a Caper-leaf.

The

The first Sort here mentioned is what the Gardeners near London chiefly cultivate; though the second Sort very often comes up mixed with the first; but whether it is only an accidental Variety arising from the same Seeds, or that the Seeds are promiscuously sowed, I cannot determine: indeed, there is no other Difference between them, but only the Colour of their Leaves, so that they are both equally good for Use; but the green Sort, having a better Appearance, is generally preferred in the Markets.

The wild Sort is not a Native of England, but grows plentifully in many warm Countries; where, when it has once obtained so as to shed its Seeds, it is difficult to extirpate again. This is seldom used, though it is not different from the garden Kind, except in the Smallness of its Leaves.

The fourth Sort is very common in most of the warm Parts of America, where it grows in great Plenty upon the Shores and Rocks near the Sea. This is preserved in some curious Gardens for Variety, but is a Plant of no great Beauty.

Purslain is propagated from Seeds, which may be sown upon Beds of light rich Earth, during any of the Summer-months: but if you intend to have it early in the Season, it should be sown upon an Hot-bed; for it is too tender to be sown in the open Air before April, and then it must be in a warm Situation. This Seed is very small, so that a little of it will be sufficient to supply a Family. There is no other Culture which this Plant requires, but to keep it clear from Weeds, and in dry Weather to water it twice or three times a Week. In warm Weather this Plant will be

fit for Use in six Weeks after sowing; so that in order to continue a Succession of this Plant, you should sow it at three or four different Seasons, allowing a Fortnight between each Sowing, which will be sufficient to last the whole Season, while it is proper for the table; for it being of a very cold Nature, is unsafe to be eaten, except in the Heat of Summer, in England; for which Reason it is not to any Purpose to sow it upon an Hot-bed, since it will come early enough for Use in the open Air.

PRIMULA VERIS, Primrose.

The Characters are;

The Flower consists of one Leaf, the lower Part of which is tubulose; but the upper Part expands itself flat in form of a Salver, and is cut into several Segments; from the Flower-cup (which is fistulous) arises the Pointal; which, when the Flower is decayed, becomes an oblong Fruit, or Husk, lying almost concealed in the Flower-cup, and opens at the Top, in which are contained many roundish Seeds fastened to the Placenta.

The Species are;

1. PRIMULA VERIS *vulgaris*. Park. Common Primrose.
2. PRIMULA VERIS *Constantinopolitana, flore albo*. Tourn. Primrose of Constantinople, with a white Flower commonly called, *The Paper-white Primrose*.
3. PRIMULA VERIS *Constantinopolitana, flore dilute purpureo*. Tourn. Primrose of Constantinople, with a pale flesh-coloured Flower.
4. PRIMULA VERIS *Constantinopolitana, flore dilute purpureo*. Tourn. Primrose of Constantinople, with a pale-purple Flower.
5. PRIMULA VERIS *Constantinopolitana, flore albo duplici*. Primrose of Constantinople, with a double white

white Flower, commonly called, *The double Paper-white Primrose*.

6. PRIMULA VERIS *vulgaris, flore dilute purpureo*. Common Primrose, with a pale-purple Flower.

7. PRIMULA VERIS *vulgaris, flore pleno*. Common Primrose, with a very double Flower.

8. PRIMULA VERIS *vulgaris, flore pleno, dilute rubente*. Common Primrose, with a double pale-red Flower.

9. PRIMULA VERIS *pallido flore, elatior*. *Clus.* Common Pagils, or Cowslips.

10. PRIMULA VERIS *umbellata odorata pratensis*. Great Cowslips, or Oxlips.

11. PRIMULA VERIS *geminata flore*. *H. Eyst.* Double Cowslip, or Hofe in Hofe.

12. PRIMULA VERIS *caulifera, flore luteo pleno odorato*. *J. B.* Cowslip or Pagil, with a very double Flower.

13. PRIMULA VERIS *hortensis umbellata, caule & flore folioso coccineo majore*. *H. L.* Garden Primrose, or Polyanthus, with a large red Flower.

14. PRIMULA VERIS *umbellatae odoratae hortensis simplicis varietas uberrima, pro varietate jucundissima, coloris multiplicis*. *Boerb. Ind.*

There are a great Variety of the Garden-primroses or Polyanthus's, which are annually produced from Seeds; the Flowers of which are so beautifully striped, and some of them have so great a Number of Flowers upon a Stalk, that they equal the Auricula's in the Beauty of their Flowers; and as they require but little Culture, they have, in many Gardens, obtained the Preference to most other Spring Flowers.

The first Sort of Primrose grows wild in Woods, and other shady Places, in most Parts of *England*, from whence their Roots may be

easily transplanted into the Garden; where, if they are placed under Hedges, and in shady Walks, they make a beautiful Appearance early in the Spring, when few other Plants are in Flower.

The best Time to transplant them is at *Michaelmas*, that their Roots may have Strength to produce their Flowers early in the Spring. These delight in a strong rich Soil, but will grow in almost any sort of Earth, provided they have a shady Situation.

The sixth, seventh, and eighth Sorts are Varieties of the first, which have been accidentally produced from Seeds. These may be propagated by parting their Roots at *Michaelmas*, and must be treated as the common Sort.

The ninth and tenth Sorts will also grow wild in the Meadows in divers Parts of *England*, the Roots of which are often transplanted into Gardens; where, if they are intermixed with other early-flowering Plants, they afford an agreeable Variety.

The eleventh and twelfth Sorts are Varieties which were produced from Seeds of the former; but the last is, at present, very rare in *England*. These may be propagated by parting their Roots at *Michaelmas*, and should be planted on a strong Soil, and exposed to the morning Sun.

The several Varieties of Polyanthus's are produced by sowing of Seeds, which should be saved from such Flowers as have good Properties, *i. e.* such as have large upright Stems, producing many Flowers upon a Stalk, the Flowers large, beautifully striped, and that open flat: from the Seeds of such Flowers, there is room to hope for a great Variety of good Sorts.

These Seeds should be sown in Boxes filled with light rich Earth, in *December*, being very careful not to bury the Seed too deep; for if it be only covered with light Earth, it will be sufficient: these Boxes should be placed where they may receive the Benefit of the morning Sun until Ten of the Clock; but must by no means be exposed to the Heat of the Day, especially when the Plants begin to appear; for, at that time, one whole Day's Sun will intirely destroy them. In the Spring, if the Season should prove dry, you must often refresh them with Water; and as the Heat increases, you should remove the Boxes more in the Shade, for the Heat is very injurious to them.

In *May* these Plants will be strong enough to plant out; at which time you should prepare some shady Borders, which should be made rich; upon which you must set the Plants about four Inches asunder, observing to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, until the latter-end of *August* following; when you should prepare some Borders, which are exposed to the East, with good light rich Earth, into which you must transplant your *Polyanthus's*, placing them six Inches asunder equally in Rows, observing, if the Season proves dry, to water them until they have taken Root. In these Borders your Plants will flower the succeeding Spring; at which time you must observe to mark such of them which are fine, to preserve, and the rest may be transplanted into Wilderesses, and other shady Places in the Garden; where, although they are not very valuable Flowers, they will afford an agreeable Variety.

Those which you intend to preserve, may be removed soon after they have done flowering (provided you do not intend to save Seeds from them), and may be then parted, and transplanted into a fresh Border of the like rich Earth, allowing them the same Distance as before; observing also to water them until they have taken Root, after which they will require no farther Care, but only to keep them clear from Weeds; and the following Spring they will produce strong Flowers; and if the Kinds are good, will be little inferior to a Shew of *Auricula's*.

These Roots should be constantly removed and parted every Year, and the Earth of the Border changed; otherwise they will degenerate, and lose the greatest Part of their Beauty.

If you intend to save Seeds, which is the Method to obtain a great Variety, you must mark such of them, which, as I said before, have good Properties: these should be, if possible, separated from all ordinary Flowers; for, if they stand surrounded with plain-coloured Flowers, they will impregnate each other, whereby the Seeds of the valuable Flowers will not be near so good, as if the Plants had been in a separate Border where no ordinary Flowers grew; therefore the best way is to take out the Roots of such as you do not esteem, as soon as the Flowers open, and plant them in another Place, that there may be none left in the Border, but such as you would chuse for Seeds.

The Flowers of these should not be gathered, except such as are produced singly upon Pedicles, leaving all such as grow in large Bunches; and if the Season should prove dry, you must now-and-then refresh them with Water, which will cause their
Seeds

Seeds to be larger and in greater Quantity, than if they were intirely neglected. Towards the Latter-end of *May* the Seed will be ripe, which may be easily known by the Pods changing brown, and opening; so that you should at that time look over it three times a Week, gathering each time such of it as is ripe, which should be laid upon a Paper to dry, and may then be put up until the Season of sowing

PRIMROSE-TREE; *vide Onagra.*

PRIVET; *vide Ligustrum.*

PRUNING OF TREES:

There is not any Part of Gardening, which is of more general Use than that of Pruning; and yet it is very rare to see Fruit-trees skilfully managed; almost every Gardener will pretend to be a Master of this Business, though there are but few who rightly understand it; nor is it to be learned by Rote, but requires a strict Observation of the different Manners of Growth of the several Sorts of Fruit-trees; some requiring to be managed one way, and others must be treated in a quite different Method, which is only to be known from carefully observing how each Kind is naturally disposed to produce its Fruit: for some Sorts will produce their Fruit on the same Year's Wood, as Vines; others produce their Fruit, for the most part, upon the former Year's Wood, as Peaches, Nectarines, &c. and others upon Curfons or Spurs, which are produced upon Wood of three, four, or five Years old, as Plums, Pears, Cherries, &c. Therefore, in order to the right Management of Fruit-trees, there should always be Provision made to have a sufficient Quantity of bearing Wood, in every Part of the Trees; and at the same time there should not be a Superfluity of

useless Branches, which would exhaust the Strength of the Trees, and cause them to decay in a few Years.

The Reasons which have been laid down for pruning of Fruit-trees, are as follow: First, to preserve Trees longer in a vigorous bearing State; the second is, to render the Trees more beautiful to the Eye; and thirdly, to cause the Fruit to be larger, and better tasted.

1. It preserves a Tree longer in an healthy bearing State, by pruning off all superfluous Branches, whereby there are no more left upon the Tree than is necessary, or than the Roots can nourish kindly; so that the Root is not exhausted in supplying useless Branches, which must afterward be cut out, and thereby consequently much of the Sap expended to no Purpose.

2. By skilful Pruning of a Tree, it is rendered much more pleasing to the Eye; but I would not be understood to be an Advocate for a sort of Pruning, which I have seen too much practised of late, *viz.* the drawing of a regular Line against the Wall, according to the Shape or Figure they would reduce the Tree to, and cutting all the Branches, whether strong or weak, exactly to the chalked Line; the Absurdity of which Practice will soon appear to every one who will be at the Pains of observing the Difference of those Branches shooting the succeeding Spring. All therefore that I mean by rendering a Tree beautiful, is, that the Branches are all pruned according to their several Strengths, and are nailed at equal Distances, in proportion to the different Sizes of their Leaves and Fruit; and that no Part of the Wall (so far as the Trees are advanced) be left unfurnished with bearing Wood. A Tree

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well

well managed, though it does not represent any regular Figure, yet will appear very beautiful to the Sight, when it is thus dressed and nailed to the Wall.

3. It is of great Advantage to the Fruit; for the cutting away all useless Branches, and shortening all the bearing Shoots, according to the Strength of the Tree, will render the Tree more capable to nourish those which are left remaining, so that the Fruit will be much larger, and better tasted. And this is the Advantage which those Trees against Walls or Espaliers have, to such as are Standards, and are permitted to grow as they are naturally inclined; for it is not their being trained either to a Wall or Espalier, which renders their Fruit so much better than Standards, but because they have a less Quantity of Branches and Fruit for their Roots to nourish, and so consequently their Fruit will be larger, and better tasted.

The Reasons for pruning being thus exhibited, the next Thing is the Method of performing it; but this being fully handled under the several Articles of the different Kinds of Fruit, I shall not repeat it again in this Place, and therefore shall only add some new general Instructions, which are necessary to be understood, in order to the right Management of Fruit-trees.

There are many Persons who suppose, that if their Fruit-trees are but kept up to the Wall or Espalier, during the Summer-season, so as not to hang in very great Disorder, and in Winter to get a Gardener to prune them, it is sufficient: but this is a very great Mistake; for the greatest Care ought to be employed about them in the Spring, when the Trees are in vigorous Growth; which is the only proper

Season to procure a Quantity of good Wood in the different Parts of the Tree, and to displace all useless Branches, as soon as they are produced, whereby the Vigour of the Tree will be intirely distributed to such Branches only, as are designed to remain; which will render them strong, and more capable to produce good Fruit; whereas, if all the Branches are permitted to remain, which are produced, some of the more vigorous will attract the greatest Share of the Sap from the Tree, whereby they will be too luxuriant for producing Fruit; and the greatest Part of the other Shoots will be starved, and rendered so weak, as not to be able to produce any thing else but Blossoms and Leaves (as hath been before-mentioned); so that it is impossible for a Person, let him be ever so well skilled in Fruit-trees, to reduce them into any tolerable Order by Winter-pruning only, if they are wholly neglected in the Spring.

There are others, who do not intirely neglect their Trees during the Summer-season, as those before-mentioned; but yet do little more Good to them by what they call *Summer-pruning*; for these Persons neglect their Trees at the proper Season, which is in *May*, when their Shoots are produced, and do only about *Michaelmas* go over them, nailing in all their Branches, except such as are produced fore-right from the Wall, which they cut out; and at the same time often shorten most of the other Branches: all which is intirely wrong Practice; for those Branches which are intended for bearing the succeeding Year, should not be shortened during the time of their Growth, which will cause them to produce two lateral Shoots from the Eyes
below

below the Place where they were stopped, which Shoots will draw much of the Strength from the Buds of the first Shoot, whereby they are often flat, and do not produce their Blossom; and if those two lateral Shoots are not intirely cut away at the Winter-pruning, they will prove injurious to the Tree. And in this Method, suffering those luxuriant Shoots to remain upon the Tree until *Midsummer* before they are displaced, they will exhaust a great Share of the Nourishment from the other Branches (as was before observed); and by shading the Fruit all the Spring-season, when they are cut away, and the other Branches fastened to the Wall, the Fruit, by being so suddenly exposed, will receive a very great Check, which will cause their Skins to grow tough, and thereby render them less delicate. This is to be chiefly understood of Stone-fruit and Grapes; but Pears and Apples, being much hardier, do not suffer so much, though it is a great Disadvantage to those also to be thus managed.

It must also be remarked, that Peaches, Nectarines, Apricocks, Cherries, and Plums, are always in the greatest Vigour, when they are the least maimed by the Knife; for where these Trees have large Amputation, they are very subject to gum and decay; so that it is certainly the most prudent Method, carefully to rub off all useless Buds when they are first produced, and pinch others, where new Shoots are wanted to supply the Vacancies of the Wall; by which Management Trees may be so ordered, as to want but little of the Knife in Winter-pruning, which is the surest way to preserve these Trees healthful, and is

performed with less Trouble than the common Method.

The Management of Pears and Apples is much the same with these Trees in Summer, but in Winter they must be very differently pruned; for as Peaches and Nectarines, for the most part, produce their Fruit upon the former Year's Wood, and therefore must have their Branches shortened according to their Strength, in order to produce new Shoots for the succeeding Year; so, Pears and Apples, on the contrary, producing their Fruit upon Curfons or Spurs, which come out of the Wood of five, six, or seven Years old, should not be shortened, because thereby those Buds which were naturally disposed to form these Curfons or Spurs, would produce Wood-branches, whereby the Trees would be filled with Wood, but never produce much Fruit: and as it often happens, that the Blossom-buds are first produced at the Extremity of the last Year's Shoot, so, by shortening the Branches, the Blossoms are cut away, which should always be carefully avoided.

There are several Authors who have written on the Subject of Pruning in such a prolix manner, that it is impossible for a Learner to understand their Meaning: these have described the several Sorts of Branches, which are produced on Fruit-trees; as Wood-branches, Fruit-branches, irregular Branches, false Branches, and luxuriant Branches; all which they assert, every Person who pretends to Pruning, should distinguish well: whereas there is nothing more in all this, but a Parcel of Words to amuse the Reader, without any real Meaning; for all these are comprehended under the Description already given of luxuriant or

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useless

useless Branches, and such as are termed useful or fruit-bearing Branches; and where due Care is taken in the Spring of the Year, to displace these useless Branches (as was before directed), there will be no such thing as irregular, false, or luxuriant Branches, at the Winter-pruning; therefore it is to no purpose to amuse People with a Cant of Words, which, when fully understood, signify just nothing at all.

But since I have explained the different Methods of pruning the several Sorts of Fruits, under their respective Articles, I shall forbear repeating it again in this Place; but shall only give some general Hints for the pruning of Standard Fruit-trees, and so conclude.

First, you should never shorten the Branches of these Trees, unless it be where they are very luxuriant, and grow irregular on one Side of the Tree, attracting the greatest Part of the Sap of the Tree, where the other Parts are unfurnished with Branches, or are rendered very weak; in which Case the Branch should be shortened down so low, as is necessary, in order to obtain more Branches to fill up the Hollow of the Tree; but this is only to be understood of Pears and Apples, which will produce Shoots from Wood of three or four Years old; whereas most Sorts of Stone-fruit will gum and decay, after such Amputations.

But from hence I would not have it understood, that I would direct the reducing of these Trees into an exact spherical Figure, since there is nothing more detestable, than to see a Tree (which, if permitted, will grow as it is naturally disposed, with its Branches produced at proportionable Distances, according to the Size of the Fruit), by endeavouring to

make it exactly regular in its Head, so crowded with small weak Branches, as to prevent the Air from passing between them; which will render it incapable to produce Fruit. All that I intend by this stopping of luxuriant Branches, is only when one or two such happen on a young Tree, where they intirely draw all the Sap from the weaker Branches, and starve them; and then it is proper to use this Method, which should be done in time, before they have exhausted the Roots too much.

Whenever this happens to Stone-fruit, which suffer much more by cutting than the former Sorts, it should be remedied by stopping or pinching those Shoots in the Spring, before they have obtained too much Vigour, which will cause them to push out Side-branches, whereby the Sap will be diverted from ascending too fast to the leading Branch (as hath been directed for Wall-trees); but this must be done with Caution, as before.

You must also cut out all dead or decaying Branches, which cause their Heads to look very ragged; especially at the time when the Leaves are upon the Tree, these, being destitute of them, have but a despicable Appearance; besides, these will attract noxious Particles from the Air, which are injurious to the Trees; therefore the sooner they are cut out, the better. In doing of this, you should observe to cut them close down to the Place where they were produced; otherwise that Part of the Branch left, will decay, and prove equally hurtful to the Tree; for it seldom happens, that when a Branch begins to decay, it does not die quite down to the Place where it was produced; and if permitted to remain long uncut, does

does often infect some of the other Parts of the Tree. If the Branches are large which you cut off, it will be very proper, after having smoothed the cut Part exactly even with a Knife, Chissel, or Hatchet, to put on a Plaister of grafting Clay, which will prevent the Wet from soaking into the Tree, at the wounded Part.

All such Branches as run cross each other, should also be cut out; for these not only occasion a Confusion in the Head of the Tree, but by lying over each other, do rub off their Bark by their Motion, and very often cause them to canker; to the great Injury of the Tree; and on old Trees (especially Apples) there are often young vigorous Shoots produced from the old Branches near the Trunk, which grow upright into the Head of the Trees; these therefore should carefully be cut out every Year, lest by being permitted to grow they fill the Tree too full of Wood, which should always be guarded against, since it is impossible for such Trees to produce so much, or so good Fruit, as those Trees, whose Branches grow at a farther Distance; whereby the Sun and Air will freely pass between them, in every Part of the Tree.

These are all the general Directions which are proper to be given in this Place, since not only the particular Methods, but also the proper Seasons, for pruning all the different Kinds of Fruit, are fully exhibited under their several Articles.

PRUNUS, The Plum-tree.

The Characters are;

The Flower consists of five Leaves, which are placed in a circular Order, and expand in form of a Rose; from whose Flower-cup rises the Pointal, which afterward becomes an oval or globular Fruit, having a soft fleshy Pulp, surrounding an hard oblong Stone,

for the most part, pointed: to which should be added, The Foot-stalks are long and slender, and have but a single Fruit upon each.

The Species are;

1. *PRUNUS fructu parvo præcoci. Tourn.* The Jean-hâtive, or White Primordian. This is a small white Plum, of a clear yellow Colour, covered over with a white Flew, which easily wipes off; it is a pretty good Bearer, and for its coming very early, deserves a Place in every good Garden of Fruit. This ripens the Beginning of July.

2. *PRUNUS fructu magno crasso subacido. Tourn. Damas noir hâtive, i. e.* The early black Damask, commonly called, *The Morocco Plum.* This is a pretty large Plum of a round Shape, divided with a Furrow in the Middle (like Peaches): the Outside is of a dark black Colour, covered with a light Violet-bloom; the Flesh is yellow, and parts from the Stone. It ripens in the Middle of July.

3. *PRUNUS fructu parvo dulci atro-cæruleo. Tourn.* The little black Damask Plum. This is a small black Plum, covered over with a Violet-bloom; the Juice is richly sugared, the Flesh parts from the Stone, and it is a good Bearer. Ripe the Middle of July.

4. *PRUNUS fructu magno dulci atro-cæruleo. Tourn. Gros. Damas Violet de Tours, i. e.* Great Damask Violet of Tours. This is a pretty large Plum, inclining to an oval Shape; the Outside is of a Dark-blue, covered with a Violet-bloom; the Juice is richly sugared, and the Flesh parts from the Stone. Ripe the Middle of July.

5. *PRUNUS fructu rotundo atro-rubente.* The Orleans Plum. This Fruit is so well known to almost every Person, that it is needless to

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describe it; it is a very plentiful Bearer, which has occasioned its being so generally planted by those Persons who supply the Markets with Fruit; but it is an indifferent Plum.

6. *PRUNUS fructu oblongo atrovibente.* The *Fotheringham* Plum. This Fruit is somewhat long, deeply furrowed in the Middle; the Flesh is firm, and parts from the Stone; the Juice is very rich. This ripens about the Middle of *July*.

7. *PRUNUS fructu nigro, carne dura.* *Tourn.* The *Perdrigon* Plum. This is a middle-sized Plum, of an oval Shape: the Outside is of a very dark Colour, covered over with a Violet-bloom; the Flesh is firm, and full of an excellent rich Juice; this is greatly esteemed by the Curious. Ripe the Latter-end of *July*.

8. *PRUNUS fructu magno e violaceo rubente suavissimo saccharato.* *Tourn.* The violet *Perdrigon* Plum. This is a large Fruit, rather round than long, of a bluish-red Colour on the Outside; the Flesh is of a yellowish Colour, pretty firm, and closely adheres to the Stone; the Juice is of an exquisite rich Flavour. This ripens the End of *July*.

9. *PRUNUS fructu ovato, ex albo flavescente.* The white *Perdrigon* Plum. This is a middling Plum, of an oblong Figure; the Outside is yellow covered with a white Bloom; the Flesh is firm and well-tasted: it is a very good Fruit to eat raw, or for Sweet-meats, having an agreeable Sweetness, mixed with an Acidity.

10. *PRUNUS fructu ovato magno rubente.* *Tourn.* The red Imperial Plum, sometimes called, *The red Bonum Magnum*. This is a large oval-shaped Fruit, of a deep-red Colour, covered with a fine Bloom;

the Flesh is very dry, and very indifferent to be eaten raw; but is excellent for making Sweet-meats: this is a great Bearer. Ripe the End of *July*.

11. *PRUNUS fructu ovato magno flavescente.* *Tourn.* White Imperial Bonum Magnum; white Holland or Mogul Plum. This is a large oval-shaped Fruit, of a yellowish Colour, powdered over with a white Bloom; the Flesh is firm, and adheres closely to the Stone; the Juice is of an acid Taste, which renders it unpleasant to be eaten raw: but it is very good for Baking or Sweet-meats: it is a great Bearer, and is ripe towards the End of *August*.

12. *PRUNUS fructu ovato cæruleo.* The *Cheston* Plum. This is a middle-sized Fruit, of an oval Figure; the Outside is of a Dark-blue, powdered over with a Violet-bloom; the Juice is rich, and it is a great Bearer. Ripe the End of *July*.

13. *PRUNUS fructu maximo rotundo flavo & dulci.* *Tourn.* *Prune d' Abricot*, i. e. The Apricock Plum. This is a large round Fruit of a yellow Colour on the Outside, powdered over with a white Bloom; the Flesh is firm and dry, of a sweet Taste, and comes clean from the Stone. This ripens the End of *July*.

84. *PRUNUS fructu subrotundo, ex rubro & flavo mixto.* The *Maitre Claude*. This is a middle-sized Fruit, rather round than long, of a fine mixed Colour, between Red and Yellow; the Flesh is firm, and parts from the Stone, and has a delicate Flavour. Ripe the End of *July*.

15. *PRUNUS fructu rubente dulcissimo.* *Tourn.* *La Roche-courbon*, or *Diaprée rouge*, i. e. The red Di-

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aper Plum. This is a large round Fruit, of a reddish Colour, powdered over with a Violet-bloom; the Flesh adheres closely to the Stone, and is of a very high Flavour. Ripe in the Beginning of *August*.

16. *PRUNUS fructu rotundo flavescente*. La Reine Claude, *i. e.* Queen Claudia. This is a small round Fruit, of a yellowish Colour, powdered over with a pearl-coloured Bloom; the Flesh is firm and thick, quits the Stone, and its Juice is richly sugared. Ripe the Middle of *August*.

17. *PRUNUS fructu rotundo nigro-purpureo majori dulci*. Tourn. Myrobalan Plum. This is a middle-sized Fruit, of a round Shape; the Outside is a Dark-purple, powdered over with a Violet-bloom; the Juice is very sweet. It is ripe the Middle of *August*.

18. *PRUNUS fructu rotundo e viridi flavescente, carne dura suavissima*. The green Gage Plum. This is one of the best Plums in *England*; it is of a middle Size, round, and of a yellowish-green Colour on the Outside; the Flesh is firm, of a deep-green Colour, and parts from the Stone; the Juice has an exceeding rich Flavour; and it is a great Bearer: ripe the End of *July*. This is called *Gros Damas verd*, *i. e.* The great green Damask, in *France*.

18. *PRUNUS fructu amygdalino*. Tourn. Rognon de Coq, *i. e.* Cock's Testicles. This is an oblong Fruit, deeply furrowed in the Middle, so as to resemble the Testicles; it is of a whitish Colour on the Outside, streaked with Red; the Flesh of it adheres firmly to the Stone, and it is late ripe.

19. *PRUNUS fructu rotundo flavo dulcissimo*. Drap d'Or, *i. e.* The Cloth

of Gold Plum. This is a middle-sized Fruit, of a bright-yellow Colour, spotted or streaked with Red on the Outside; the Flesh is yellow, and full of an excellent Juice; it is a plentiful Bearer, and ripens about the End of *July*.

20. *PRUNUS fructu cerei coloris*. Tourn. Prune de Sainte Catherine, *i. e.* St. Catharine Plum. This is a large oval-shaped Fruit, somewhat flat; the Out-side is of an Amber-colour, powdered over with a whitish Bloom; but the Flesh is of a bright-yellow Colour, is dry and firm, adheres closely to the Stone, and has a very agreeable sweet Taste. This ripens at the End of *August*, and is very subject to dry upon the Tree, when the Autumn proves warm and dry. This makes fine Sweet-meats, and is a plentiful Bearer.

21. *PRUNUS fructu ovato rubente dulci*. The Royal Plum. This is a large Fruit of an oval Shape, drawing to a Point next the Stalk; the Outside is of a light-red Colour, powdered over with a whitish Bloom; the Flesh adheres to the Stone, and has a fine sugary Juice. This ripens the End of *July*.

22. *PRUNUS fructu parvo e viridi flavescente*. Tourn. La Mirabelle. This is a small round Fruit, of a greenish Yellow on the Outside; the Flesh parts from the Stone, is of a bright-yellow Colour, and has a fine sugary Juice. This is a great Bearer, and ripens the Beginning of *August*.

23. *PRUNUS Brignoniensis, fructu suavissimo*. Tourn. Prune de Brignole, *i. e.* The Brignole Plum. This is a large oval-shaped Fruit, of a yellowish Colour, mixed with Red on the Outside; the Flesh is of a bright-yellow Colour, is dry, and of an excellent rich Flavour. This ripens

ripens the Middle of *August*, and is esteemed the best Plum for Sweetmeats yet known.

24. *PRUNUS fructu magno, e violaceo rubente, serotino. Tourn.* Imperatrice, *i. e.* The Empress. This is a large round Fruit, of a violet-red Colour; very much powdered with a whitish Bloom; the Flesh is yellow, cleaves to the Stone, and is of an agreeable Flavour. This ripens about the Middle of *September*.

25. *PRUNUS fructu ovato maximo flavo. Tourn.* Prune de Monsieur, *i. e.* The Monsieur Plum. This is sometimes called the *Wentworth* Plum. It is a large oval-shaped Fruit, of a yellow Colour both within and without, very much resembling the Bonum Magnum; but the Flesh of this parts from the Stone, which the other doth not. This ripens towards the Latter-end of *August*, and is very good to preserve, but the Juice is too sharp to be eaten raw: it is a great Bearer.

26. *PRUNUS fructu majori rotundo rubro. Tourn.* Prune Cerizette, *i. e.* The Cherry Plum. This Fruit is commonly about the Size of the Ox-heart Cherry, is round, and of a red Colour; the Stalk is long, like that of a Cherry, which this Fruit so much resembles, as not to be distinguished therefrom at some Distance. The Blossoms of this Tree come out very early in the Spring, and being tender, are very often destroyed by Cold: but it affords a very agreeable Prospect in the Spring; for these Trees are generally covered with Flowers, which open about the same time as the Almonds, so that when they are intermixed therewith, they make a beautiful Appearance before many

other Sorts put out: but where the Fruit is desired, they should have a South-east Wall.

27. *PRUNUS fructu albo oblongiusculo acido. Tourn.* The white Pear-plum. This is a good Fruit for Preserving, but is very unpleasant, if eaten raw; it is very late ripe, and seldom planted in Gardens, unless for Stocks to bud some tender Sorts of Peaches upon; for which Purpose it is esteemed the best amongst all the Sorts of Plums.

28. *PRUNUS mytilina. Park.* The Muscle Plum. This is an oblong flat Plum, of a dark-red Colour; the Stone is large, and the Flesh but very thin, and not well-tasted, so that its chief Use is for Stocks, as the former.

29. *PRUNUS fructu parvo violaceo.* The St. Julian Plum. This is a small Fruit, of a dark-violet Colour, powdered over with a mealy Bloom; the Flesh adheres closely to the Stone, and in a fine Autumn will dry upon the Tree. The chief Use of this Plum is for Stocks, to bud the more generous Kinds of Plums and Peaches upon, as also for the *Bruxelles* Apricock, which will not thrive so well upon any other Stock.

30. *PRUNUS sylvestris major. J. B.* The black Bullace-tree. This grows wild in the Hedges in divers Parts of *England*, and is rarely cultivated in Gardens.

31. *PRUNUS sylvestris, fructu majore albo. Raii Syn.* The white Bullace-tree. This grows wild as the former, and is seldom cultivated in Gardens.

32. *PRUNUS sylvestris. Ger. Emac.* The Black-thorn, or Sloe-tree. This is very common in the Hedges almost every-where; the chief Use of this Tree is to plant for Hedges,

as

as White-thorn, &c. and being of quick Growth, is very proper for that Purpose.

All the Sorts of Plums are propagated by budding or grafting them upon Stocks of the Muscle, White-pear, St. Julian, Bonum Magnum, or any other Sorts of free-shooting Plums. The Manner of raising these Stocks hath been already exhibited under the Article of *Nurseries*; therefore need not be repeated again in this Place: but I would observe, that Budding is much preferable to Grafting for these Sorts of Fruit-trees, which are very apt to gum, where-ever there are large Wounds made on them.

The Trees should not be more than one Year's Growth from the Bud, when they are transplanted; for if they are older, they seldom succeed so well, being very subject to canker; or if they do take well to the Ground, commonly produce only two or three luxuriant Branches; therefore it is much more advisable to chuse young Plants.

The Manner of preparing the Ground (if for Walls) is the same as for Peaches, as is also the pruning the Roots and planting; and therefore I shall forbear repeating it again. The Distance which these Trees should be planted at, must not be less than fourteen or sixteen Feet; and if the Wall is low, they should be placed eighteen Feet asunder.

Plums should have a middling Soil, neither too wet and heavy, nor over-light and dry; in either of which Extremes they seldom do well: and those Sorts which are planted against Walls, should be placed to an East or South-east Aspect, which is more kindly to these Fruits than a full South Af-

pect, on which they are subject to shrivel, and be very dry; and many Sorts will be extremely mealy, if exposed too much to the Heat of the Sun; but most Sorts will ripen very well on the Espaliers, if rightly managed.

There are some Persons who plant Plums for Standards, in which Method some of the ordinary Sorts will bear very well; but then the Fruit will not be near so fair as those produced on Espaliers, and will be more in Danger of being bruised or blown down by strong Winds. The Distance of placing them for Espaliers, must be the same as against Walls, as must also their Pruning and Management; so that whatever may be hereafter mentioned for one, should be also understood for both.

Plums do not only produce their Fruit upon the last Year's Wood, but also upon Cursons or Spurs, which come out of Wood that is two or three Years old; so that there is not a Necessity of shortening the Branches, in order to obtain new Shoots annually, in every Part of the Tree (as in Peaches, Nectarines, &c. hath been directed), since the more these Trees are pruned, the more luxuriant they grow, until the Strength of them be exhausted, and then they gum and spoil: therefore the safest Method to manage these Trees is, to lay in their Shoots horizontally, as they are produced, at equal Distances, in proportion to the Length of their Leaves; and where there is not a sufficient Quantity of Branches to fill up the Vacancies of the Tree, there the Shoots may be pinched the Beginning of *May* (in the manner as hath been directed for Peaches, &c.), which will cause them to produce some lateral Branches

Branches to supply those Places ; and during the growing Season, all foreright Shoots should be displaced, and such as are to remain must be regularly trained in to the Wall or Espalier, which will not only render them beautiful, but also give to each an equal Advantage of Sun and Air : and hereby the Fruit will be always kept in a ductile, growing State, which they seldom are, when overshadowed with Shoots some Part of the Season, and then suddenly exposed to the Air, by the taking off or training those Branches in their proper Position.

With thus carefully going over these Trees in the growing Season, there will be but little Occasion for cutting them in Winter-pruning, which (as I before have said) is of ill Consequence to all Sorts of Stone-fruit : besides, many of these Fruits produce Blossom-buds at the Extremity of their former Years Shoots ; so that when those are shortened, the Fruit is cut away, and hereby the Number of Shoots is increased : for whenever a Branch is shortened, there are commonly two or more Shoots produced from the Eyes immediately below the Cut ; so that by thus unskilfully Pruning, many Persons crowd their Trees with Branches, and thereby render what little Fruit the Trees produce, very small and ill-tasted ; which is very commonly found in too many Gardens, where the Manager, perhaps, thinks himself a complete Master of his Business. For nothing is more common, than to see every Branch of a Fruit-tree pass the Discipline of the Knife, however agreeable it be to the several Sorts of Fruits.

Those few Rules before laid down, will be sufficient, if due Observation

be joined therewith, to instruct any Person in the right Management of these Sorts of Fruit-trees : therefore I shall not say any more on that Subject, lest, by multiplying Instructions, it may be rendered more obscure to a Learner.

PSEUDOCACIA, Virginian Acacia ; vulgo.

The Characters are ;

It hath a papilionaceous Flower, from whose Flower-cup rises the Pointal, wrapped up in a fimbriated Membrane, which afterward becomes a Pod, opening into two Parts, in which are contained several kidney-shaped Seeds.

The Species are ;

1. **PSEUDOCACIA vulgaris. Tourn.** Common Virginian Acacia.

2. **PSEUDOCACIA Americana latifolia, flore roseo. Plum.**

3. **PSEUDOCACIA Americana, flore pyramidato coccineo. Plum. Cat.** False Acacia of America, with scarlet Flowers, growing in a Pyramid.

4. **PSEUDOCACIA Americana, siliquis alatis. Plum. Cat.** False Acacia of America, with winged Pods.

5. **PSEUDOCACIA Americana latifolia, floribus purpureis. Plum. Cat.** False Acacia of America, with a broad Leaf, and purple Flowers.

6. **PSEUDOCACIA Americana ingens, fructu coccineo, nigra macula notato. Plum. Cat.** False Acacia of America, with a scarlet Fruit, marked with black Spots.

7. **PSEUDOCACIA Americana, fraxini folio, floribus violaceis, Plum. Cat.** False Acacia of America, with an Ash-leaf, and violet-coloured Flowers.

The first of these Trees is very common in England, especially in the Gardens near London, where are several very large old Trees, which

which have been for some Years standing : but the second Sort is, at present, rare in *England*.

These Trees may be propagated by sowing their Seeds in the Spring, upon a Bed of light fresh Earth ; and when the Plants are come up, they should be carefully cleared from Weeds ; and in very dry Weather, if they be refreshed with Water, it will greatly promote their Growth ; in this Bed the Plants should remain until the Latter-end of *March* following, at which time they should be transplanted out into a Nursery, in Rows, three Feet asunder, and the Plants eighteen Inches Distance in the Rows, observing to lay a little Mulch upon the Surface of the Ground about their Roots, to prevent the Earth's drying too fast : during the Summer-season you should carefully clear them from Weeds, and if they produce irregular Branches, they should be pruned off, while young. The Spring following, the Ground between the Rows should be carefully dug, that the Roots of the Trees may the more easily extend themselves every Way ; and in Summer, the Weeds should be constantly hoed down, to prevent their injuring the Plants.

When the Trees have remained in this Nursery three Years, they should be transplanted where they are designed to grow ; for if they are permitted to remain in the Nursery too long, they will not bear transplanting, their Roots creeping very far just under the Surface of the Earth, which, when too much cut, do seldom abide long in Vigour.

These Trees are very hardy, in respect to Cold ; but they will not endure to be exposed too much to strong Winds, which continually break their brittle Branches, and

render them unfightly ; so that many People have neglected to cultivate these Trees on that Account : but when they are intermixed with other large-growing Trees, in great Wildernesses, they make a beautiful Variety ; and in *June* they are covered with large Bunches of sweet-smelling Flowers.

Indeed I cannot recommend them for planting Avenues, which was the great Use they were formerly applied to, since in such Places they would be greatly exposed to the Wind, which would cause them to have a ragged Appearance, by the continual snapping of their Branches : nor are they very proper to plant in Gardens, because their Roots extend to a great Distance, and emaciate the Soil ; and the Numbers of Suckers, which they are apt to produce, render them very troublesome in open Gardens ; but for large Wildernesses, they are very proper ; where, if the Soil be moist, they will grow to a considerable Magnitude.

I have seen some of these Trees upwards of fifty Feet high, which have divided at a little Distance from the Ground, into three or four Branches, each of which have been equal to a large Tree ; so that it should not be planted too near other Trees, lest, by its great Growth, it overshadow and destroy them. In many Gardens near *London*, these Trees have produced good Seeds, from whence a great Number of Plants have been raised.

The third, fifth, and seventh Sorts, grow plentifully about *Carthogena* in *New-Spain*, as also at *Campechy* : in both these Places they were observed by the late Dr. *William Housloun*, who sent Seeds of these Kinds to *England*.

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The fourth Sort grows plentifully in all the low Lands of *Jamaica*, and is called by the Inhabitants *Dogwood*. The Bark of this Tree, bruised and thrown into standing Waters, where Fish are, will intoxicate them for a time, so that they turn up their Bellies, and float on the Surface of the Water; by which Method the *Indians* and *Negroes* take great Quantities of Fish, which, when caught after this manner, are esteemed very wholesome.

The sixth Sort is also pretty common in most of the *English* Settlements in the *West-Indies*, and in the *Spanish West-Indies* it is very common. The Seeds of this Tree are of a beautiful scarlet Colour, having a large black Spot on the Eye. This was formerly brought into *England*, by the Name of *Anacook*.

These five Sorts of false *Acacia* being very tender Plants, will not thrive in this Country, unless they are preserved in Stoves. They may be propagated by Seeds, which should be sown early in the Spring, in Pots filled with rich Earth, and plunged into an Hot-bed of Tanners Bark; and when the Plants are come up, they should be each transplanted into a separate Pot, filled with rich Earth, and plunged again into the Hot-bed, being careful to shade them until they have taken new Root; after which time they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season, and they must be frequently watered in warm Weather. With this Management the Plants will make good Progress, so that towards the End of *July* they will have filled the Pots with their Roots; when they should be shifted into other Pots somewhat larger, and may be plunged into the Hot-bed

again, where they may remain till toward *Michaelmas*, when they should be removed into the Stove, and plunged into the Bark-bed, where they must be kept warm during the Winter-season, and should be frequently refreshed with Water; but it must be given to them in small Quantity in cold Weather. The following Spring these Plants should be shifted into fresh Earth, and if they have made good Progress, they will require Pots a little larger than the former: the Hot-bed in the Stove should also be refreshed with some new Tan at this Season, to renew its Heat, and the Plants plunged therein; which will cause them to push early in the Summer, so that they will have time to make good Progress before Winter. During the Summer-season, the Plants should have a large Share of free Air in warm Weather, and require plenty of Water; their Leaves should also be frequently washed to cleanse them from Filth, otherwise they will not grow very fast. In two or three Years these Plants will produce their Flowers, when they will make an agreeable Variety amongst other tender Exotic Plants in the Stove.

The Seeds of the fourth Sort are so hard as often to remain a whole Year in the Ground, before the Plants appear, especially if the Earth in the Pots be not constantly watered; so that if the Pots are not preserved in a proper Temperature of Heat in Winter, the Seeds will rot: therefore the best Method to make the Seeds vegetate in a short time, is to lay them under a Pot of Earth in the Tan-bed, as hath been directed for the *Bonduc*, and other hard *Indian* Seeds.

PSEUDODICTAMNUS, Bastard-dittany.

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The *Characters* are ;

It hath a labiated Flower consisting of one Leaf, whose Upper-lip or Helmet is arched, and generally cut into two Segments ; but the Under-lip (or Beard) is divided into three Parts. Out of the funnel-shaped Flower-cup rises the Pointal, attended with four Embryoes, which afterward become so many oblong Seeds, inclosed in the Flower-cup.

The *Species* are ;

1. PSEUDODICTAMNUS *acetabulis moluccæ*. C. B. P. Bastard-dittany with the Pan or Hollow of Molucca-balm.

2. PSEUDODICTAMNUS *Hispanicus scrophulariæ folio*. Tourn. Spanish Bastard-dittany, with a Figwort-leaf.

3. PSEUDODICTAMNUS *Hispanicus, amplissimo folio, candicante & villoso*. Tourn. Spanish Bastard-dittany, with a large hoary and hairy Leaf.

4. PSEUDODICTAMNUS *verticillatus inodorus*. C. B. P. Whorled Bastard-dittany, without Smell.

5. PSEUDODICTAMNUS *orientalis, foliis circinatis*. T. Cor. Eastern Bastard-dittany, with round Leaves.

There are several other Varieties of this Plant, which are preserved in Botanic Gardens ; but as they have little Beauty or Use, it will be needless to enumerate them in this Place.

All these Plants may be propagated by Seeds, parting their Roots, or Cuttings ; but the two last being the most expeditious Methods, are generally practised. The best Time to transplant and part their Roots is in the Spring, before they begin to grow, that the Off-sets may take Root before the dry Weather. These should be planted in a poor dry Soil, where they will endure

the Cold much better than if planted in a richer Ground. There is no great Beauty in these Plants ; but as they are sometimes preserved by curious Persons, I thought it proper to mention them in this Place.

PSYLLIUM, Flea-wort.

The *Characters* are ;

This Plant agrees with Plautain, and Bucks-horn Plantain, in every respect, excepting that this rises up with leafy Stalks, and divides into many Branches ; whereas both the others produce their Flowers upon naked Pedicles.

The *Species* are ;

1. PSYLLIUM *majus erectum*. C. B. P. Greater upright Flea-wort.

2. PSYLLIUM *majus supinum*. C. B. P. Greater Flea-wort, whose Branches spread to the Ground.

3. PSYLLIUM *Indicum, foliis crenatis*. J. B. Indian Flea-wort, with notched Leaves.

There are several other Varieties of these Plants, distinguished by Writers in Botany ; but since they are of little Use and Beauty, I shall pass them by without naming.

These Plants may be propagated by sowing their Seeds in the Spring, on a Bed of light Earth ; and when they are come up, they should be cleared from Weeds, pulling out at the same time some of the Plants, where they stand too close, leaving the remaining ones about eight or nine Inches asunder ; after which, they will require no farther Care, but to clear them from Weeds ; and in June they will flower, and their Seeds will ripen in Autumn.

The second Sort will abide two or three Years, provided they are on a poor dry Soil ; but the other two Sorts perish every Year.

The first Sort, which is the most common, is used in Medicine ; but the

the othes two are never used in England.

PTARMICA, Sneezwort.

The Characters are ;

It hath radiated Flowers, whose Disk consists of many Florets, but the Borders are composed of Half-florets : the Embryoes are lodged in the Flower-cup, which is scaly, each of which becomes one slender Seed.

The Species are ;

1. *PTARMICA vulgaris, folio longo serrato, flore albo.* J. B. Common Sneezwort, with a long serrated Leaf, and a white Flower.

2. *PTARMICA vulgaris, flore pleno.* Clus. Hist. Common Sneezwort, with a double Flower, by some called, *Double Pellitory.*

3. *PTARMICA foliis profunde serratis, late viridibus, elatior.* H. L. Taller Sneezwort, with broad green Leaves deeply serrated.

4. *PTARMICA Alpina, incanis serratis foliis.* H. L. Alpine Sneezwort, with hoary serrated Leaves.

5. *PTARMICA incana, pinnulis cristatis.* T. Cor. Hoary Sneezwort, with crested Leaves.

6. *PTARMICA incana humilis, foliis laciniatis, absinthii æmulis.* H. L. Dwarf hoary Sneezwort, with jagged Leaves, resembling Wormwood.

7. *PTARMICA Alpina, foliis angustis, partim serratis, partim integris.* Bocc. Mus. Alpine Sneezwort, with narrow Leaves, Part of which are sawed on their Edges, and the other Part are whole.

8. *PTARMICA Cretica frutescens, santolinæ facie.* Inst. R. H. Shrubby Sneezwort of Crete, with the Appearance of Lavender-cotton.

9. *PTARMICA orientalis, foliis cristatis.* Tourn. Cor. Eastern Sneezwort, with crested Leaves.

10. *PTARMICA orientalis, foliis cristatis longioribus, & capitulis ma-*

ioribus. Tourn. Cor. Eastern Sneezwort, with longer crested Leaves, and larger Heads.

11. *PTARMICA orientalis, santolinæ folio, flore majore.* Tourn. Cor. Eastern Sneezwort, with a Lavender-cotton-leaf, and a larger Flower.

12. *PTARMICA orientalis, santolinæ folio, flore minore.* Tourn. Cor. Eastern Sneezwort, with a Lavender-cotton-leaf, and a smaller Flower.

13. *PTARMICA orientalis, foliis tanacetii incanis, flore aureo.* Tourn. Cor. Eastern Sneezwort, with hoary Tansey-leaves, and a golden Flower.

14. *PTARMICA orientalis, foliis tanacetii incanis, semisfoculis florum pallide luteis.* Tourn. Cor. Eastern Sneezwort, with hoary Tansey-leaves, whose Half-florets are of a pale-yellow Colour.

15. *PTARMICA orientalis, foliis tanacetii incanis, semisfoculis florum brevioribus.* Tourn. Cor. Eastern Sneezwort, with hoary Tansey-leaves, whose Half-florets are very short.

16. *PTARMICA orientalis, santolinæ folio, radice repente.* Eastern Sneezwort, with a Lavender-cotton-leaf, and a creeping Root.

17. *PTARMICA orientalis, tanacetii folio & facie, flore minimo.* Tourn. Cor. Eastern Sneezwort, with the Leaf and Face of Tansey, and the least Flower.

18. *PTARMICA orientalis incana, foliis pennatis, semisfoculis florum vix conspicuis.* Tourn. Cor. Hoary Eastern Sneezwort, with winged Leaves, and the Half-florets scarcely discernible.

19. *PTARMICA orientalis, foliis argenteis conjugatis.* Tourn. Cor. Eastern Sneezwort, with silvery conjugated Leaves.

The first of these Plants is very common upon Heaths, and in shady Places, in divers Parts of England; and

and is rarely cultivated in Gardens. This is the Sort directed for Medicinal Use in the *College Dispensatory*.

The second Sort is a Variety of the first, which was accidentally obtained: the Flowers of this Kind are very double, and generally produced in large Bunches; which, together with its long Continuance in Flower, renders it worthy of a Place in every good Garden. This Sort propagates itself very fast by its Roots, which spread very far under ground, so that it should not be planted too near other Plants, lest it over-run and destroy them.

The best Time to transplant these Roots is in Autumn, that they may take Root before Winter; so that they will be in no Danger of suffering from Drought the Spring following, and will be capable of producing stronger Stalks, and a greater Quantity of Flowers.

This Plant always makes the best Appearance when its Roots are confined; because, when they are suffered to spread, the Stalks come up thin and straggling; and the greatest Beauty of it is, to see it grow close in large Tufts; for which Reason many Persons chuse to plant it in Pots, filled with light sandy Earth, in which, if they are duly watered in dry Weather, they will thrive exceedingly, and make a very handsome Appearance. It is also very proper to plant on such Borders as are gravelly and poor (on which few other things will thrive); where the Roots of this Plant will be confined, more than if planted in a better Soil, and they will flower very well.

The third and fourth Sorts are seldom preserved in Flower-gardens, being Plants of little Beauty. These may be propagated by parting their Roots, either in Spring or Autumn;

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and will grow upon almost any Soil, or in any Situation.

The fifth Sort was brought from the *Levant* by Monsieur *Tournefort*, but was known long before. Many of the old Botanists were of Opinion, that the Seed of this Plant was the *Semen Santonicum* of the Shops; tho' it is now generally believed to be the Seed of some other Plant of that Kind. But, however, this Plant deserves a Place in every good Garden for the Variety of its silver-coloured Leaves, together with its long Continuance in Flower.

It may be propagated by planting Cuttings, during any of the Summer-months, upon a Bed of light fresh Earth, observing to water and shade them until they have taken Root; after which they will require no farther Care, but only to clear them from Weeds, until *September* following; when they should be carefully taken up, preserving a Ball of Earth to the Roots of each Plant, and planted in a warm dry Situation; and if it be on a poor gravelly or rubbishing Soil, they will endure the Cold better, and make much more beautiful Plants. This Sort seldom perfects Seeds in *England*.

All the other Sorts of *Ptarmica* are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry lean Soil; for when they are in a moist rich Soil, they grow very luxuriant in the Summer, and are filled with Juice, which renders them less capable to resist the Cold, than when they are more stunted and woody; and they make a much better Appearance, when they grow slowly, than if they were greatly encouraged in their Growth; because they appear more hoary, and produce a greater Number of Flowers.

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They may be all (except the sixteenth Sort) propagated by Cuttings in the Summer-months, which should be planted in a shady Border of fresh Earth, and must be constantly watered, until they have taken Root; after which time they will require no farther Care, but to keep them clear from Weeds, until *Michaelmas*, when they should be carefully taken up, and transplanted where they are designed to remain; which must be done so early in the Autumn, that they may have time to get good Roots, before the Frost comes on, otherwise they will be in Danger of suffering greatly. The sixteenth Sort propagating itself by its creeping Roots very fast, requires to be confined; otherwise it will spread and intermix with whatever Plants grow near it. This is also a very hardy Plant; but being of humble Growth, makes no very good Figure in a Garden; wherefore it is seldom preserved, but by those Persons who are curious in Botany, for the sake of Variety.

Altho' these Plants do not produce very beautiful Flowers, yet they may be disposed in large Gardens, so as to make a very agreeable Diversity; for their hoary Leaves of different Shapes, when intermixed with other hardy Plants of the same Growth, on small Hillocks, will have a pretty Effect; and as they retain their Leaves all the Winter, so at that Season they add to the Variety: and in Summer, when their Flowers are produced, they alter the Prospect so as to be very agreeable.

They are all of them low Plants: the tallest and most shrubby of them seldom rises above two Feet high, and the other not half so high; so that they should not be mixed with larger Plants, because those would overbear and destroy them. When

these Plants are well rooted, they require no other Culture, but to keep them clear from Weeds; for their Roots will abide many Years, provided they are not destroyed by very severe Frosts, which seldom happen in *England*.

PULEGIUM, *Peny-royal* or *Pudding-grafs*.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip (or Crest) is intire, but the Lower-lip (or Beard) is divided into three Parts; out of the Flower-cup rises the Pointal, attended by four Embryoes, which afterward become so many Seeds: to which may be added, That the Flowers grow in short thick Whorles.

The Species are;

1. **PULEGIUM latifolium**. *C. B. P.* Common or broad-leaved *Peny-royal*.

2. **PULEGIUM Hispanicum erectum**, *flaminibus florum extantibus*. Upright *Spanish Peny-royal*, whose Stamina stand out from the Flowers.

3. **PULEGIUM angustifolium**. *C. B. P.* Narrow-leaved *Peny-royal*.

4. **PULEGIUM angustifolium, flore albo**. *H. R. Par.* Narrow-leaved *Peny-royal*, with a white Flower.

The first of these Plants is very common on moist Heaths in divers Parts of *England*. This is the Sort recommended by the Physicians for Medicinal Use: but the second Sort, although not a Native of *England*, hath obtained in the Gardens, where Medicinal Plants are cultivated, so much as to have quite superseded the other in the Markets, for its upright Growth, early Flowering, and more beautiful Appearance; but whether it is equally good for Use, I shall leave to those to whose Province it more immediately belongs to examine.

The third Sort is also recommended to be used in Medicine: this is not

of

of English Growth, but is very hardy, and will thrive very well, if planted on a moist Soil; as will also the fourth Sort, which is only a Variety of the third, from which it differs in nothing but the Colour of its Flowers.

All these Plants propagate themselves very fast by their Branches trailing upon the Ground, which emit Roots at every Joint, and fasten themselves into the Earth, and send forth new Branches; so that no more is required in their Culture, than to cut off any of these rooted Branches, and plant them out in fresh Beds, allowing them at least a Foot from Plant to Plant every Way, that they may have room to grow.

The best Time for this Work is in September, that the Plants may be rooted before Winter; for, if the old Roots are permitted to remain so close together, as they generally grow in the Compass of a Year, they are subject to rot in Winter; besides, the young Plants will be much stronger, and produce a larger Crop the succeeding Summer, than if they were removed in the Spring. These Plants all love a moist strong Soil, in which they will flourish exceedingly.

PULMONARIA, Lungwort.

The Characters are;

The Flower consists of one Leaf, which is shaped like a Funnel, whose Upper-part is cut into several Segments: from its fistulous Flower-cup, which is for the most part pentagonal, rises the Pointal, encompassed by four Embryoes, which after-ward become so many Seeds inclosed in the Flower-cup.

The Species are;

1. PULMONARIA vulgaris, maculoso folio. Clus. Hist. Common spotted Lungwort, by some called, Sage of Jerusalem, and Jerusalem Cowslip.
2. PULMONARIA major non maculosa. J. B. Greater Lungwort, without Spots.

3. PULMONARIA foliis ecbii. Lob. Ic. Lungwort with Leaves like Vipers-bugloss.

4. PULMONARIA maxima, foliis quasi saccharo incrustatis. Pluk. Phyt. Greatest Lungwort, with Leaves very much spotted.

5. PULMONARIA vulgaris latifolia, flore albo. Inst. R. H. Common broad-leaved Lungwort, with a white Flower.

6. PULMONARIA Alpina, foliis mollibus subrotundis, flore cœruleo. Inst. R. H. Alpine Lungwort, with soft roundish Leaves, and a blue Flower.

7. PULMONARIA angustifolia, cœruleo flore. J. B. Narrow-leaved Lungwort, with a blue Flower.

8. PULMONARIA Alpina, angustifolio, Italica. Bocc. Mus. Narrow-leaved Alpine Lungwort.

9. PULMONARIA mitis, fragariae odore. Bocc. Mus. Mild Lungwort smelling like Strawberries.

10. PULMONARIA Cretica annua, calyce vescario. Inst. R. H. Annual Lungwort of Candy, with a bladder Flower-cup.

11. PULMONARIA viridi, subrotundo, non maculato folio. Bocc. Mus. Green Lungwort, with a roundish unspotted Leaf.

12. PULMONARIA Cbia, ecbii folia verrucoso, calyce vescario, flore albo. Tourn. Cor. Lungwort of the Island Scio, with a warted Vipers-bugloss-leaf, a bladdered Flower-cup, and a white Flower.

13. PULMONARIA Lesbica, ecbii folio verrucoso, calyce vescario, flore cœruleo. Tourn. Cor. Lungwort of Lesbos, with a warted Vipers-bugloss-leaf, a bladdered Flower-cup, and a blue Flower.

14. PULMONARIA orientalis, calyce vescario, foliis ecbii, flore purpureo insundibuliformi. Tourn. Cor. Eastern Lungwort, with a bladdered Flower.

Flower-cup, a Vipers-bugloss-leaf, and a purple funnel-shaped Flower.

15. *PULMONARIA orientalis, calyce vesicario, foliis ecbii, flore albo infundibuliformi.* Tourn. Cor. Eastern Lungwort, with a bladdered Flower-cup, a Vipers-bugloss-leaf, and a white funnel-shaped Flower.

The first Sort is used in Medicine as a vulnerary Herb; but is by many People preserved in Gardens, as are also the three other Sorts, for the Variety of their spotted Leaves, and pretty Bunches of blue Flowers.

These Plants may be cultivated by parting of their Roots, which may be done either in the Spring or Autumn; but if the Ground be moist into which they are planted, it is better to be done in the Spring, otherwise the Autumn is the most preferable Season, that the Plants may be well-rooted before the dry Weather comes on in the Spring, which will cause them to flower much stronger.

The Soil in which they are planted, should not be rich, but rather a fresh light sandy Ground, in which they will thrive much better than in a richer Soil, in which they are very subject to rot in Winter. The fourth Sort makes the best Appearance of all the Kinds, is very hardy, and will grow either in Sun or Shade; and, taking up little room, is worthy of a Place in every good Garden for the sake of Variety.

The fifth, sixth, seventh, eighth, ninth, and tenth Sorts are abiding Plants, which may be propagated by parting of their Roots: the best time for doing of this is in Autumn, that they may be rooted before the Frost comes on. They should have a shady Situation, and a fresh undunged Soil, in which they will thrive better than in a rich Soil.

The other Sorts, being annual, are propagated only by Seeds. The best

time to sow these is in Autumn, soon after they are ripe; for the Plants will resist the Cold of our Winters very well, and flower early the following Summer, when good Seeds may be obtained; whereas those which are sown in the Spring, do sometimes miscarry. These Seeds should be sown where they are designed to remain; for the Plants do not succeed very well, when they are transplanted. When the Plants come up, they require no other Culture, but to keep them clear from Weeds, and, where they are too close, to thin them. If they are permitted to scatter their Seeds, they will come up, and be better than when they are sown. All these Plants are preserved by the Curious in Botany; but as they have no great Beauty, they are not often kept in other Gardens.

PULSATILLA, Pasque-flower.

The Characters are;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose; out of the Middle of which rises a Pointal, beset, for the most part, with Chives; which afterward becomes a Fruit, in which the Seeds are gathered, as it were, into a little Head, each ending in a small Hair: to which must be added, Some little Leaves encompassing the Pedicel below the Flower, as in the *Anemone*; from which the Pasque-flower differs in the Seed ending in a Tail.

The Species are;

1. *PULSATILLA folio crassiflora, & majore flore.* C.B.P. Pasque-flower with thicker Leaves, and a larger Flower.

2. *PULSATILLA flore violaceo duplici fimbriato.* H. R. Par. Pasque-flower with a double-fringed violet-coloured Flower.

3. *PUL-*

3. PULSATILLA *flore minore nigricante*. C. B. P. Pasque-flower with a smaller darker Flower.

4. PULSATILLA *flore rubro obtuso*. C. B. P. Red Pasque-flower.

5. PULSATILLA *flore albo*. C. B. P. White Pasque-flower.

6. PULSATILLA *lutea, apii hortensis folio*. C. B. P. Yellow Pasque-flower, with a Leaf of garden Parsley.

7. PULSATILLA *lutea Alpina hispidior*. C. B. P. Yellow hairy Pasque-flower of the Alps.

8. PULSATILLA *folio tenuius incisio, & flore minore, sive palustris*. C. B. P. Marsh Pasque-flower, with fine-cut Leaves, and a smaller Flower.

9. PULSATILLA *folio tenuius incisio, seu palustris, flore dilutione*. H. R. Par. Marsh Pasque-flower, with a fine-cut Leaf, and a pale Flower.

10. PULSATILLA *apii folio, vernalis, flore majore*. C. B. P. Spring Pasque-flower, with a Smallage-leaf, and a larger Flower.

11. PULSATILLA *apii folio, vernalis, flore minore*. C. B. P. Spring Pasque-flower, with a Smallage-leaf, and a smaller Flower.

12. PULSATILLA *apii folio, autumnalis*. C. B. P. Smallage-leaved Pasque-flower, of the Autumn.

13. PULSATILLA *folio anemones secundae, sive subrotunda*. C. B. P. Pasque-flower with a roundish Leaf.

14. PULSATILLA *Pyrenaica, flore albo duplici*. H. R. Par. Pasque-flower of the Pyrenees, with a double white Flower.

15. PULSATILLA *lutea, pastinacae sive vestris folio*. C. P. B. Yellow Pasque-flower, with a wild Parsnep-leaf.

16. PULSATILLA *orientalis, tenuissimae divisa & villosa, flore rubro*.

Tourn. Cor. Eastern Pasque-flower, with an hairy finely-divided Leaf and a red Flower.

17. PULSATILLA *Africana, multifido flore, apii folio rigido*. Raii Supp. African Pasque-flower, with a multifid Flower, and a stiff Smallage-leaf.

The first of these Plants is common in divers Parts of England; it grows in great Plenty on Gogmagog-hills, on the Left-hand of the Highway leading from Cambridge to Elyveril, just on the Top of the Hill; also about Hildersbam, six Miles from Cambridge; and on Bernack-heath, not far from Stamford; and on Southrop-common, adjoining thereto; also on mountainous and dry Pastures, just by Leadstone-ball, near Pentefract in Yorkshire. It flowers about the End of March, or Beginning of April.

The other Sorts are less common in England, being all of them Natives of other Countries; and are only to be met with in some curious Gardens in England, where they are cultivated for the Beauty of their Flowers.

These Plants may be propagated by Seed, which should be sown in Boxes or Pots, filled with very light sandy Earth; observing not to cover the Seeds too deep with Mould, which will prevent their Rising; for they require no more than just to be covered. These Boxes should be placed where they have the morning Sun until Ten of the Clock, but must be screened from it in the Heat of the Day; and, if the Season proves dry, the Earth should be often refreshed with Water. The best Time for sowing of these Seeds is in July, soon after they are ripe; for, if they are kept till Spring, they seldom grow.

The Boxes or Pots, in which the Seeds are sown, should remain in this shady Situation until the Beginning of *October*, when they should be removed where they may enjoy the full Sun during the Winter-season: about the Beginning of *March* the Plants will begin to appear, at which time the Boxes should be again removed where they may have only the forenoon Sun; for, if they are too much exposed to the Heat, the young Plants will die away: they should also be refreshed with Water in dry Weather, which will greatly promote their Growth; and they must be carefully preserved from Weeds, which, if suffered to grow amongst them, will in a short time destroy them.

When the Leaves of these Plants are intirely decayed (which is commonly in *July*), you should then take up all the Roots; which being nearly of the Colour of the Ground, will be difficult to find while small; therefore you should pass the Earth through a fine Wire Sieve, which is the best Method to separate the Roots from the Earth (but notwithstanding all possible Care taken, yet there will be more small Roots left: so that the Earth should either be put into the Boxes again, or spread upon a Bed of light Earth, to see what Plants will arise out of it the succeeding Year). The Roots, being taken up, should be immediately planted again on Beds of light, fresh, sandy Earth, about three or four Inches asunder, covering them about three Inches thick with the same light Earth. The Spring following, most of these Plants will produce Flowers; but they will not be so large and fair, as in the succeeding Years, when the Roots are larger.

They may also be propagated by parting of their Roots; the best Time

for which is in *July* or *August*, when their Leaves are intirely decayed; for, if they are removed while their Leaves remain fresh, the Roots do commonly rot. These Roots, being somewhat like those of Anemones, may be divided into several Tubers or Heads; but should not be parted too small, which will occasion their Flowers to be very weak, and but few in Number: they must always be planted in a fresh undunged Soil, and should have an open Situation; nor should the Roots be transplanted oftener than every other Year, if you design to have them produce strong Flowers: but the Earth upon the Surface of the Beds should be refreshed at least once a Year, which will greatly encourage the Roots.

All these Sorts (except the last) are very hardy Plants, which may be propagated by Seeds, in the same manner as is directed above. These should have a pretty strong loamy Soil, and a moist Situation, where they will thrive, and produce their Flowers.

The last Sort is a tender Plant, which must be sheltered in Winter, otherwise it will not live in this Climate. This is also propagated by Seeds, which should be sown soon after it is ripe, in Boxes or Pots, which should be placed in a shady Situation, and frequently refreshed with Water. In Autumn the Plants will come up, when they should be removed into a Situation where they may have more Sun, and in dry Weather they must be frequently watered. Towards the Middle or Latter-end of *October*, when the Nights begin to be cold, the Plants must be removed and placed under an Hot-bed Frame, where they may be screened from hard Frosts; but in mild Weather they should have as much free Air as possible. In the following Spring

Spring the Plants should be removed each into a separate Pot filled with fresh undunged Earth, and placed where they may enjoy the morning Sun, where they should remain all the Season while they are exposed; and in dry Weather they must be frequently watered; and every Winter they should be sheltered under a Frame as before. With this Management the Plants will thrive and flower every Year, and sometimes will produce good Seeds.

PUMPKION; *vide* Pepo.

PUNICA, The Pomegranate-tree.

The Characters are;

The Flower consists of many Leaves placed in a circular Order, which expand in form of a Rose, whose bell-shaped multifid Flower-cup afterward becomes a globular Fruit, having a thick, smooth, brittle Rind; and is divided into several Cells, which contain oblong hardy Seeds, surrounded with a soft Pulp.

The Species are;

1. PUNICA *quæ malum granatum fert.* *Cæsalp.* The common Pomegranate.

2. PUNICA *fructu dulci.* *Tourn.* The sweet Pomegranate.

3. PUNICA *sylvestris.* *Cord. Hist.* The wild Pomegranate.

4. PUNICA *flore pleno majore.* *Tourn.* The double-flowered Pomegranate.

5. PUNICA *Americana nana, seu humillima.* *Tourn.* The American dwarf Pomegranate.

The first of these Trees is now pretty common in the *English* Gardens, where formerly it was nursed up in Cases, and preserved in Green-houses with great Care (as was also the double-flowering Kind); but they are both hardy enough to resist the severest Cold of our Climate in the open Air; and, if planted against

warm Walls, in a good Situation, the first Sort will often produce Fruit, which in warm Seasons will ripen tolerably well: but as these Fruits do not ripen till late in the Autumn, they are seldom well tasted in *England*; for which Reason the Sort with double Flowers is commonly preferred to it: the Sort with sweet Fruit, as also the wild Sort, is less common in the *English* Gardens, than the former two.

These Plants may be easily propagated by laying down their Branches in the Spring, which in one Year's time will take good Root, and may then be transplanted where they are designed to remain. The best Season for transplanting of these Trees is in Spring, just before they begin to shoot: they should have a strong rich Soil, in which they flower much better, and produce more Fruit, than if planted on a dry poor Earth. But, in order to obtain these in Plenty, there should be Care taken in the pruning of the Trees; for want of which, we often see these Trees very full of small Shoots, but do not find many Flowers produced upon them: therefore I shall set down Directions for pruning of these Trees, so as to obtain a great Quantity of Flowers and Fruit.

The Flowers of this Tree are always produced at the Extremity of the Branches which were produced the same Year: this therefore directs, that all weak Branches of the former Year should be cut out, and that the stronger should be shortened in proportion to their Strength, in order to obtain new Shoots in every Part of the Tree. These Branches may be laid in against the Wall, about four or five Inches asunder; for, as their Leaves

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are small, there is not a Necessity of allowing them a greater Distance. The best Time for this Work is about *Michaelmas*, or a little later, according to the Mildness of the Season; but, if they are left until Spring before they are pruned, they seldom put out their Shoots so early; and the earlier they come out, the sooner the Flowers will appear, which is of great Consequence where Fruit is desired. In Summer they will require no other dressing, but to cut off very vigorous Shoots, which grow from the Wall, and never produce Flowers (for they are the middling Shoots only which are fruitful); and when the Fruit is formed, the Branches on which they are, should be fastened to the Wall to support them; otherwise the Weight of the Fruit, when grown large, will be apt to break them down.

Though, as I said before, the Fruit of this Tree seldom arrives to any Perfection in this Country, so as to render it valuable; yet for the Beauty of its scarlet Colour, together with the Variety of its Fruit, there should be one Tree planted in every good Garden, since the Culture is not great which they require: the chief Care is to plant them upon a rich strong Soil, and in a warm Situation. Upon some Trees, which had these Advantages, I have observed a great Quantity of Fruit, which have arrived to their full Magnitude, tho' I can't say they were well-flavoured; but however, they made a very handsome Appearance upon the Trees.

The double-flowering Kind is much more esteemed than the other in this Country, for the sake of its large, beautiful, double Flowers, which are of a most beautiful scar-

let Colour; and if the Trees are supplied with Nourishment, they will continue to produce Flowers for near three Months successively, which renders it one of the most valuable Flowering-trees yet known. This must be pruned and managed in the same manner as hath been already directed for the fruit-bearing Kind; but this Sort may be rendered more productive of its beautiful Flowers, by grafting it upon Stocks of the single Kind, which will check the Luxuriancy of the Trees, and cause them to produce Flowers upon almost every Shoot; by which Method I have had a low Tree, which was planted in the open Air, extremely full of Flowers, which made a very fine Appearance.

The dwarf Sort was brought into *Europe* from the warmest Parts of *America*, where the Inhabitants cultivate it in their Gardens for the Beauty of its Flowers, together with its continuing to produce Flowers and Fruit most Part of the Year, and it seldom grows above three Feet high. The Fruit of this Kind is rarely much larger than a Walnut, and not very pleasant to the Taste; so that it is rather cultivated for Shew, than for the sake of its Fruit.

This Plant may be propagated by Layers, in the same manner as the former Sorts; but must be planted in Pots filled with rich Earth, and preserved in a Stove, otherwise it is too tender to endure the Cold of our Winters; and in the Summer, when the Flowers begin to appear, if the Plants are exposed to the open Air, the Buds will fall off, and never open; so that they should seldom be removed into the open Air, but be constantly preserved in the Stove with other Plants of the same Country;

Country; observing never to place them too near the Heat, which will cause them to produce long Shoots, tho' no Flowers will appear upon them; but rather let them have a moderate Warmth, in which they will thrive better than in a greater Heat.

I have heard of a Sort of Pomegranate with double-striped Flowers, and have seen it mentioned in some Foreign Catalogues; but have not seen the Plant growing, though I believe it may be easily procured from Italy.

PURSLAIN; *vide* Portulaca.

PYRACANTHA; *vide* Mespilus.

PYROLA, Winter-green.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed circularly: out of whose Cup rises the Pointal ending in a Proboscis, which afterward turns to a roundish Fruit, which is chaneled, generally umbellated, and consisting of five Cells, which are commonly full of small Seeds.

The Species are;

1. PYROLA *rotundifolia major*.
C. B. P. Great round-leaved Winter-green.
2. PYROLA *rotundifolia minor*.
C. B. P. Small round-leaved Winter-green.
3. PYROLA *folio mucronato serrato*. C. B. P. Winter-green with a pointed Leaf, sawed on the Edges.
4. PYROLA *frutescens, arbuti folio*. C. B. P. Shrubby Winter-green, with an Arbutus-leaf.

The first Sort grows wild in many Places in the North of England, on mossy Moors and Heaths, as also in shady Woods, so that it is very difficult to preserve in Gardens, in the Southern Parts.

The Leaves of the first Sort are shaped like those of the Pear-tree, from whence the Name was given to it: these Leaves are of a deep-green Colour, and continue most Part of the Year; but there is no great Beauty in their Flowers, tho' for Variety they are admitted into many curious Gardens.

This Sort is ordered by the College of Physicians to be used in Medicine, and is generally brought over from Switzerland, together with other vulnerary Plants; amongst which Class this Plant is ranged, and by some hath been greatly commended.

The other three Sorts are Natives of the Hills, in Germany, Italy, and Hungary. These are all of them very difficult to cultivate in Gardens; for as they grow on very cold Hills, and in a mossy moorish Soil, so when they are removed to a better Soil, and in a warmer Situation, they seldom continue long. The best time to remove these Plants into Gardens, is about Michaelmas; when they should be taken up with Balls of Earth to their Roots, and planted in a shady Situation, and on a moist undunged Soil, where they should be frequently watered in dry Weather, otherwise they will not thrive. Some of these Plants may be set in Pots, which should be filled with Earth as nearly resembling that in which they naturally grow as possible; and place them in a shady Situation, where, if they are constantly watered in dry Weather, they will thrive very well.

PYRUS, The Pear-tree.

The Characters are;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose;

Rose; whose Flower-cup afterward becomes a fleshy Fruit, which is more produced toward the Foot-stalk than the Apple, but is hollowed like a Navel at the extreme Part; the Cells, in which the Seeds are lodged, are separated by soft Membranes, and the Seeds are oblong.

The Species are;

1. *PYRUS sativa, fructu aestivo parvo racemoso odoratissimo. Tourn. Petit Muscat, i. e. Little Musk Pear, commonly called, The Supreme.* This Fruit is generally produced in large Clusters; it is rather round than long; the Stalk short, and when full-ripe, the Skin is of a yellow Colour; the Juice is somewhat musky, and if gathered before it is too ripe, is an excellent Pear. This ripens the Beginning of July, and will continue good but for a few Days.

2. *PYRUS sativa, fructu aestivo minimo odoratissimo. Tourn. Poire de Chio, i. e. The Chio Pear, commonly called, The little Bastard Musk Pear.* This is smaller than the former, but is in Shape pretty much like that; the Skin, when ripe, has a few Streaks of Red on the Side next the Sun, and the Fruit doth seldom hang in Clusters, as the former, but in other respects is nearly like it.

3. *PYRUS sativa, fructu aestivo parvo, e viridi albedo. Tourn. Poire Hâtiveau, i. e. The Hasting Pear, commonly called, The green Chiffel.* This is a larger Pear than either of the former, and is more produced toward the Pedicle; the Skin is thin, and of a whitish-green Colour when ripe; the Flesh is melting, and if not too ripe, of a sugary Flavour. This ripens in the Middle of July.

4. *PYRUS sativa, fructu aestivo,*

partim saturate rubente, partim flavescente. Tourn. Muscadelles Rouges, i. e. The red Muscadelle. It is also called *La Bellissime, i. e. The Fairest.* This is a large early Pear, of great Beauty; the Skin is of a fine yellow Colour, when ripe, beautifully striped with Red; the Flesh is melting, and has a rich Flavour, if gathered before it be too ripe. This generally produces two Crops of Fruit in a Year; the first is commonly ripe about the Middle of July, and the second ripens in September; but this late Crop is seldom well-tasted.

5. *PYRUS sativa, fructu aestivo parvo flavescente moscato. Tourn. Petit Muscat, i. e. The little Muscat.* This is a small Pear, rather round than long; the Skin is very thin, and when ripe, of a yellowish Colour; the Flesh is melting, and of a rich musky Flavour, but will not keep long when ripe. This comes the Middle of July.

6. *PYRUS sativa, fructu aestivo oblongo ferrugineo, carne tenera moscata. Tourn. Jargonelle.* This is a very fine Pear, of a pyramidal Shape, having a long Foot-stalk; the Skin is pretty thick, of a russet-green Colour from the Sun, but towards the Sun it is inclined to the iron Colour; the Flesh is breaking, and has a rich musky Flavour. Ripe the Middle of July. This is one of the best Summer Pears yet known, and is certainly what all the French Gardeners did formerly call the *Cuisse Madame*, as may be easily observed by their Description of this Pear; but how that Name came to be applied to another Fruit in this Country, which is vastly inferior to it, I can't say.

7. *PYRUS sativa, fructu oblongo, e viridi flavescente. The Windsor Pear.*

Pear. This is an oblong Fruit, which is produced toward the Crown, but near the Stalk is drawn toward a Point; the Skin is smooth, and when ripe, of a yellowish-green Colour; the Flesh is very soft, and if it be permitted to hang but two or three Days after it is ripe, it grows mealy, and is good for nothing.

8. *PYRUS sativa, fructu æstivo oblongo, e viridi albo; Cuisse Madame, vulgo.* This, I am apt to believe, is what the French Gardeners call the *Jargonelle*; which Name, as I before observed, is now given to another Fruit, which is much preferable to this: so that the two Names are changed: for the *Jargonelle* is always placed amongst those which the French call bad Fruit, and the *Cuisse Madame* is set down amongst their best Fruit: which is certainly the Reverse with us, as they are now named. This Pear is somewhat like the *Windsor*, but is more produced toward the Crown, and is smaller toward the Stalk; the Skin is smooth, of a pale-green Colour: the Flesh is apt to be mealy, if it stands to be ripe.

9. *PYRUS sativa, fructu æstivo globofo sessili moschato, maculis nigris consperso. Tourn.* Orange Musquee, *i. e.* The Orange Musk. This is a middle-sized Pear, of a short globular Form; the Skin is of a yellowish Colour, spotted with black; the Flesh is musky, but is very apt to be a little dry and choaky. It ripens the End of July.

10. *PYRUS sativa, fructu æstivo albido majori. Tourn.* Gros Blanquet, *i. e.* Great Blanket. This is also called *La Mustette d'Anjou*, *i. e.* The Bagpipe of *Anjou*. This is a large Pear, approaching to a round Form; the Skin is smooth, and of a pale-

green Colour; the Flesh is soft, and full of Juice, which hath a rich Flavour. The Stalk is short, thick, and spotted; the Wood is slender, and the Leaf is very much like that of the Tree called the *Jargonelle*. This ripens the End of July.

11. *PYRUS sativa, fructu æstivo albido saccharato odoratissimo. Tourn.* The *Blanquette*, or Musk *Blanquette*; the little Blanket Pear. This Pear is much less than the former, and more pinched in near the Stalk, which is also short, but slenderer than that of the former; the Skin is soft, and of a pale-green Colour; the Flesh is tender, and full of a rich musky Juice. The Wood of this Tree is much stronger than is that of the former, and the Shoots are commonly shorter. This ripens the End of July.

12. *PYRUS sativa, fructu æstivo albido, pediculo longo donato. Tourn.* *Blanquette à longue queue, i. e.* Long-stalked Blanket Pear. This Pear is in Shape somewhat like the former, but the Eye is larger, and more hollow at the Crown; towards the Stalk it is somewhat plumper, and a little crooked; the Skin is very smooth, white, and sometimes toward the Sun is a little coloured; the Flesh is between melting and breaking, and is full of a rich sugary Juice. This ripens the Beginning of August.

13. *PYRUS sativa, fructu æstivo oblongo frutescente saccharato. Tourn.* *Poire sans Peau, i. e.* The skinless Pear. It is also called *Fleur de Guigne*, *i. e.* Flower of Guigne, and *Roufflet bâtif*, *i. e.* The early Rufflet. This is a middle-sized Fruit of a long Shape, and a reddish Colour, somewhat like the Rufflet; the Skin is extremely thin; the Flesh is melting, and full of a rich sugary

Sugary Juice. This ripens the End of July.

14. *PYRUS sativa, fructu æstivo turbinato, carne tenera saccharata.* *Tourn.* Muscat Robine, *i. e.* The Musk Robin Pear. This is also called *Poir à la Reine, i. e.* The Queen's Pear; *Poire d'Ambre, i. e.* The Amber Pear; and *Pucelle de Xaintenge, i. e.* The Virgin of Xaintenge. This is a small round Pear, of a yellowish Colour when ripe; the Flesh is melting, and has a rich musky Flavour. It is a great Bearer, and ripens the End of July.

15. *PYRUS sativa, fructu æstivo turbinata moschato.* *Le Bourdon* Musque, *i. e.* The Musk Drone Pear. This is a middle-sized round Fruit, whose Skin is of a yellowish Colour when ripe; the Flesh is melting, and full of an high musky Juice; but it must not hang too long on the Tree, for it is subject to grow mealy in a short time. This ripens the End of July.

16. *PYRUS sativa, fructu æstivo globofo sessili, e viridi purpurascente, saccharato odorato.* *Tourn.* Orange verte, *i. e.* The green Orange Pear. This Pear hath been the most common of all the Sorts in France, which was occasioned by the general Esteem it was in some Years since. This is a middle-sized round Fruit, of a greenish Colour; but the Side next the Sun changes to a purple Colour when ripe; the Flesh is melting, and the Juice is sugared with a little Perfume; the Eye is very hollow, and the Stalk is short. This ripens the Beginning of August.

17. *PYRUS sativa, fructu æstivo oblongo minari cinerea odorata.* *Tourn.* Cassiolette. This is so called from its being shaped like a Perfuming-

pot. It is a long Fruit, in Shape like the Jargonelle, of an Ash-colour; its Flesh is melting, and full of a perfumed Juice, but is very apt to rot in the Middle as soon as ripe, otherwise it would be esteemed an excellent Pear. It is ripe the Beginning of August.

18. *PYRUS sativa, fructu æstivo turbinato, e viridi albido.* *Poire* Magdalene, *i. e.* The Magdalene Pear. This is a large round Pear, in Shape like a Burgamot; the Skin is green, and the Flesh is melting; but it is very subject to rot upon the Tree, which renders it not near so valuable as some others. It ripens the End of July.

19. *PYRUS sativa, fructu æstivo globofo, e viridi purpurascente.* *Tourn.* Gros Oignonet, *i. e.* The great Onion Pear: it is also called *Amirroux, i. e.* Brown-admired; and *Rey d'Esté, i. e.* King of Summer. This is a middle-sized round Pear, of a brownish Colour next the Sun; the Flesh is melting, and the Juice is passably good. This ripens the End of July.

20. *PYRUS sativa, fructu æstivo globofo sessili, ex albido flavescente, saccharato odorato.* *Tourn.* Robine. It is also called, *Muscat d'August, i. e.* The August Muscat; *Poire d'Averat, i. e.* The Averat Pear; and *Poire Royale, i. e.* The Royal Pear. This is a roundish flat Pear, in Shape very like a Burgamot; the Stalk is long, strait, and a little spotted, and the Eye is a little hollowed; the Skin is smooth, and of a whitish-yellow Colour; the Flesh is breaking, but not hard, and its Juice is richly sugared and perfumed: it is a great Bearer, and is esteemed one of the best Summer Pears yet known. It ripens in August.

21. *PYRUS sativa, fructu æstivo globofo*

globoso sessili odorato. Tourn. Poire-rose, i. e. The Rose Pear. This is a short round Fruit, of a yellowish-green Colour, but a little inclining to Red on the Side next the Sun; the Stalk is very long and slender; the Flesh is breaking, and the Juice is musky. This ripens in August.

22. *PYRUS sativa, fructu aestivo globoso albido saccharato. Tourn. Poire du Bouchet. This is a large round whitish Pear, shaped somewhat like the Besidery; the Flesh is soft and tender, and the Juice is sugary. This ripens the Middle of August.*

23. *PYRUS sativa, fructu aestivo turbinato sessili saturatius rubente, punctato. Tourn. Poire de Parfum, i. e. The perfumed Pear. This is a middle-sized round Fruit, whose Skin is somewhat thick and rough, and of a deep-red Colour, spotted with Brown; the Flesh is melting, but dry, and has a perfumed Flavour. This ripens the Beginning of August.*

24. *PYRUS sativa, fructu aestivo oblongo magno, partim rubro, partim albido, odorato. Tourn. Bon Chrétien d'Esté, i. e. The Summer Bonchrétien, or Good Christian. This is a large oblong Fruit, whose Skin is smooth and thin; the Side next the Sun is of a beautiful red Colour, but the other Side is of a whitish Green; the Flesh is between breaking and tender, and is very full of Juice, which is of a rich perfumed Flavour. It ripens the End of August.*

25. *PYRUS sativa, fructu aestivo globoso, ex rubro albidoque flavescente, saccharato odorato. Tourn. Salvati. This Pear is pretty large, round and flat, very much like the Besidery in Shape, but not in Colour;*

the Stalk is very long and slender, and the Fruit is a little hollowed both at the Eye and Stalk; the Colour is red, and yellow next the Sun, but on the other Side is whitish; the Skin is rough, the Flesh is tender, but a little soft; the Juice is sugary, and perfumed, somewhat like the Robine, but is not near so moist. This ripens the End of August.

26. *PYRUS sativa, fructu aestivo globoso sessili rufescente odorato. Caillot-rosat, i. e. Rose-water Pear. This is a large round Pear, somewhat like the Messire-Jean, but rounder; the Stalk is very short, and the Fruit is hollowed like an Apple where the Stalk is produced; the Skin is rough, and of a brown Colour; the Flesh is breaking, and the Juice is very sweet. This ripens the End of August.*

27. *PYRUS sativa, fructu aestivo longo, acerbitate strangulationem mitante. Tourn. Poire d'Etranguillon, i. e. The choaky Pear. This is seldom preserved in Gardens; wherefore there needs no Description of it.*

28. *PYRUS sativa, fructu aestivo oblongo, e ferrugineo rubente, nunquam maculato. Poire de Rouffelet, i. e. The Ruffelet Pear. This is a large oblong Pear; the Skin is brown, and of a dark-red Colour next the Sun; the Flesh is tender and soft, without much Core; the Juice is agreeably perfumed, if gathered before it be too ripe. This produces larger Fruit on an Espalier than on Standard-trees. It ripens the End of August.*

29. *PYRUS sativa, fructu aestivo subrotundo, partim rubro, partim flavescente, odorato. Poire de Prince, i. e. The Prince's Pear. This is a small roundish Pear, of a bright-red*

red Colour next the Sun, but of a yellowish Colour on the opposite Side; the Flesh is between breaking and melting: the Juice is very high-flavoured, and it is a great Bearer. This ripens the End of *August*; but will keep a Fortnight good, which is what few Summer Fruits will do.

30. *PYRUS sativa, fructu æstivo globofo viridi, in ore liquefcente.* Gros Mouille-bouche, *i. e.* The great Mouth-water Pear. This is a large round Pear, with a smooth green Skin: the Stalk is short and thick; the Flesh is melting, and full of Juice, if gathered before it be too ripe, otherwise it is apt to grow mealy. This ripens the middle of *August*.

31. *PYRUS sativa, fructu æstivo rotundo sessili saccharato, e viridi flavescente.* Bergamotte d'Esté, *i. e.* Summer Burgamot. This is by some called the *Hambden's Burgamot*. This is a pretty large round flat Pear, of a greenish-yellow Colour, and hollowed a little at both Ends like an Apple; the Flesh is melting, and the Juice is highly perfumed. This ripens the middle of *August*.

32. *PYRUS sativa, fructu autumnali sessili saccharato odorato, e viridi flavescente, in ore liquefcente.* Tourn. Bergamotte d'Automne, *i. e.* The Autumn Burgamot. This is a smaller Pear than the former, but is nearly of the same Shape; the Skin is of a yellowish Green, but changes to a faint Red on the Side next the Sun; the Flesh is melting, and its Juice is richly perfumed; it is a great Bearer, and ripens the middle of *September*.

33. *PYRUS sativa, fructu autumnali turbinato viridi, striis sanguineis distincta.* Tourn. Bergamotte de

Suisse, i. e. The *Swiss Burgamot*. This Pear is somewhat rounder than either of the former; the Skin is tough, of a greenish Colour, striped with Red; the Flesh is melting, and full of Juice; but it is not so richly perfumed as either of the former. This ripens the End of *September*.

34. *PYRUS sativa, fructu autumnali suavissimo, in ore liquefcente.* Tourn. Beurre rouge, *i. e.* The red Butter-pear; it is called *l'Amboise*, and in *Normandy* *Jambert*; as also *Beurre gris, i. e.* The grey Butter: and *Beurre vert, i. e.* The green Butter-pear. All these different Names of *Beurres* have been occasioned by the Difference of the Colours of the same Sort of Pear, which is either owing to the different Exposure where they grew, or from the Stock; those upon *Quince-stocks* being commonly of a browner Colour than those which are upon *Free-stocks*; whence some Persons have supposed them to be different Fruits; though, in reality, they are the same. This is a large long Fruit, for the most part of a brown Colour; the Flesh is very melting, and full of a rich sugary Juice; it ripens the End of *September*, and, when gathered from the Tree, is one of the very best Sort of Pears we have.

35. *PYRUS sativa, fructu autumnali turbinato sessili flavescente, & in ore liquefcente.* Tourn. Le Doyenné, *i. e.* The Dean's Pear. It is also called by all the following Names; *Saint Michel, i. e. Saint Michael*; *Beurre blanc d'Automne, i. e. The white Autumn Butter-pear*; *Poire de Neige, i. e. The Snow-pear*; *Bonne Ente, i. e. A good Graft*; the *Carlisle* and *Valentia*. This is a large fair Fruit, in Shape somewhat like the

the grey Beurte, but is shorter and rounder; the Skin is smooth, and, when ripe, changes to a yellowish Colour; the Flesh is melting, and full of Juice; but it will not keep good a Week after it is gathered, being very subject to grow mealy. This is a great Bearer, and ripens the End of September.

36. *PYRUS sativa, fructu autumnali longo, viridique, odorato, in ore liquescente. Tourn.* La Verte longue, *i. e.* The long green Pear: it is also called *Mouille-bouche d'Automne, i. e.* The Autumn Mouth-water Pear. This is a long Fruit, which is very green when ripe; the Flesh is melting, and very full of Juice, which, if it grows upon a dry warm Soil, and upon a Free-stock, is very sugary; otherwise it is but a very indifferent Pear. It ripens the Beginning of October.

37. *PYRUS sativa, fructu autumnali tuberoso sessili saccharato, carne dura. Tourn.* Messire-Jean blanc & gris, *i. e.* The white and grey Monsieur-John. These, although made two Sorts of Fruit by many Persons, are indubitably the same, the Difference of their Colour proceeding from the different Soils and Situations where they grow, or the Stocks on which they are grafted. This Pear, when grafted on a Free-stock, and planted on a middling Soil, neither too wet, nor over-dry, is one of the best Autumn Pears yet known; but when it is grafted on a Quince-stock, it is very apt to be stony; or if planted on a very dry Soil, is very apt to be small, and good for little, unless the Trees are watered in dry Seasons: which has rendered it less esteemed by some Persons, who have not considered the Cause of its Hardness; for when it is rightly

managed, there is not any Pear in the same Season to be compared with it. This is a large roundish Fruit; the Skin is rough, and commonly of a brown Colour; the Flesh is breaking, and very full of a rich sugared Juice. It ripens the Beginning of October, and will continue good most Part of the Month.

38. *PYRUS sativa, fructu autumnali globoso ferrugineo, carne tenera sapidissima. Tourn.* Muscat fleuri, *i. e.* The flowered Muscat. It is also called *Muscat à longue queue d'Automne, i. e.* The long-stalked Muscat of the Autumn. This is an excellent Pear, of a middling Size, and round; the Skin is of a dark-red Colour; the Flesh is very tender, and of a delicate Flavour. It ripens in the middle of October.

39. *PYRUS sativa, fructu autumnali globoso ferrugineo, carne viscida. Tourn.* Poire de Vigne, *i. e.* The Vine-pear. This is a round Fruit, of a middling Size; the Skin is of a dark-red Colour; the Flesh is very melting, and full of a clammy Juice; the Stalk is very long and slender. This Fruit should be gathered before it be full ripe, otherwise it grows mealy, and soon rots. It ripens the middle of October.

40. *PYRUS sativa, fructu autumnali oblongo, dilute rufescente, saccharato odoratissimo. Tourn.* Poire Rouffeline, *i. e.* The Rouffeline Pear. It is also called in *Touraine, Le Muscat à longue-queue de la fin d'Automne, i. e.* The long-stalked Muscat of the End of Autumn. This is by some *English* Gardeners called, the *Brute-bonne*; but that is a very different Fruit from this. It is shaped somewhat like the Ruffelet;

Ruffelet; but the Skin of this is smooth, and of a greenish Yellow from the Sun; but the Side next the Sun is of a deep-red Colour, with some Spots of Grey; the Flesh is very tender and delicate; the Juice is very sweet, with an agreeable Perfume. It ripens the Beginning of October, but must not be long kept, lest it rot in the middle.

41. *PYRUS sativa, fructu autumnali oblongo majori cinereo.* Tourn. Poire Pendar, i. e. The Knave's Pear. This is very like the Cassolette Pear, but is somewhat larger; the Flesh is fine and tender; the Juice is very much sugared. It ripens the End of October.

42. *PYRUS sativa, fructu autumnali turbinato tuberoso viridi saccharato, in ore liquefcente.* Tourn. Sucre-vert, i. e. The green Sugar-pear. This Pear is shaped like the Winter-thorn, but is smaller; the Skin is very smooth and green; the Flesh is very buttery; the Juice is sugared, and of an agreeable Flavour; but it is sometimes subject to be stony in the middle, especially if grafted on a Quince-stock.

43. *PYRUS sativa, fructu autumnali tuberoso sessili, e viridi flavescente, maculis nigris consperso, carne tenera saccharata.* Tourn. La Marquise, i. e. The Marquis's Pear. This is often of two different Shapes, according to the Nature of the Soil where it is planted; for when the Soil is dry, the Fruit very much resembles a fine Blanket; but when the Soil is very rich and moist, it grows much larger: it is a well-shaped Pear, flat at the Top, the Eye is small, and hollowed; the Skin is of a greenish Yellow, a little inclining to Red on the Side next the Sun: if this Pear does

not change yellow in ripening, it is seldom good; but if it does, the Flesh will be tender and delicate, very full of Juice, which is sugared. It ripens the End of October.

44. *PYRUS sativa, fructu autumnali oblongo, partim albido, partim rufescente.* The Chat brûlé, i. e. The burnt Cat. It is also called *Pucelle de Xaintonge*, i. e. The Virgin of Xaintonge. This is a small oblong Pear, shaped much like the Martin-sec, but differs from it in Colour; this being of a pale Colour on one Side, but of a dark-brown on the other; the Skin is smooth, the Flesh is tender, but dry; and if kept a short time, is apt to grow mealy. It is in eating the latter-end of October.

45. *PYRUS sativa, fructu autumnali globoso sessili, ex albido flavescente.* Le Besidéry. It is so called from *Heri*, which is a Forest in *Bretagne* between *Rennes* and *Nantes*, where this Pear was found. This is a middle-sized round Pear, of a pale Green, inclining to a yellowish Colour; the Stalk is very long and slender; the Flesh is dry, and but very indifferent for eating, though it bakes well. It ripens the End of October.

46. *PYRUS sativa, fructu brumali sessili e viridi flavescente, maculato, atrinque umbilicato, in ore liquefcente.* Tourn. The Crasane or Burgamot Crasane. It is also called *Beurre plat*, i. e. The flat Butter-pear. This is a middle-sized round Pear, hollowed at both Ends like an Apple; the Stalk is very long and crooked; the Skin is rough, of a greenish-yellow Colour when ripe, covered over with a russet Coat; the Flesh is extremely tender and buttery, and is full of a rich sugared

gared Juice. This is in eating the Beginning of November.

47. *PYRUS sativa, fructu brumali turbinato sessili flavescente saccharato odorato, in ore liquescente. Tourn.* Lanfac ou la Dauphine, *i. e.* The Lanfac or Dauphin-pear. This Pear is commonly about the ordinary Size of a Burgamot, of a roundish Figure, flat towards the Head, but a little produced towards the Stalk; the Skin is smooth, and of a yellowish-green Colour; the Flesh is yellow, tender, and melting; the Juice is sugared, and a little perfumed; the Eye is very large, as is also the Flower, and the Stalk is long and strait. When this Pear is upon a Free-stock, and planted on a good Soil, it is one of the best Fruits of the Season; but when it is on a Quince-stock, or upon a very dry Soil, the Fruit will be small, stony, and worth little. It ripens the Beginning of November.

48. *PYRUS sativa, fructu brumali oblongo, partim intense, partim dilute ferrugineo, saccharato odorato. Tourn.* Martin-sec, *i. e.* The dry Martin. This is sometimes called *The dry Martin of Champagne*, to distinguish it from another dry Martin of *Burgundy*. This Pear is almost like the Ruffelet in Shape and Colour, which has occasioned some Persons to give it the Name of *Winter Ruffelet*. It is an oblong Pear, whose Skin is of a deep-ruffet Colour of one Side, but the other Side is inclining to a Red; the Flesh is breaking and fine; the Juice is sugared, with a little Perfume, and if grafted on a Free-stock, is an excellent Pear; but if it be on a Quince-stock, it is very apt to be stony. It is in eating the Middle of November; but if it be permitted to hang its full time on the Tree, it will keep good two Months.

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49. *PYRUS sativa, fructu brumali magno sessili, e cinereo flavescente. Tourn.* La Villaine d'Anjou, *i. e.* The Villain of Anjou. It is also called, *Poire Tulipée, i. e.* The Tulip-pear; and *Bigarrade, i. e.* The great Orange. This is a large round Pear, with a very long slender Stalk; the Skin is of a pale-yellow Colour; the Flesh is breaking, but not very full of Juice. This is in eating the middle of November.

50. *PYRUS sativa, fructu brumali flavescente odoratissimo, pediculo crassiori. Tourn.* Poire de gros Queüe, *i. e.* The large-stalked Pear. This is a large roundish Pear, with a yellow Skin; the Stalk is very thick, from whence it had the Name; the Flesh is breaking and dry, and has a very musky Flavour; but it is apt to be stony, especially if it be planted in a dry Soil, or grafted on a Quince-stock, as are most of the perfumed Pears.

51. *PYRUS sativa, fructu brumali turbinato rufescente odorato. L'Amadote, i. e.* The Amadot Pear. This is a middle-sized Pear, somewhat long, but flat at the Top; the Skin is generally rough, and of a ruffet Colour; the Flesh is dry, and high-flavoured, if grafted on a Free-stock. The Wood of this Tree is generally thorny, and is esteemed the best Sort of Pears for Stocks to graft the melting Pears upon, because it gives them some of its fine musky Flavour. It is in eating the End of November, but will keep good six Weeks.

52. *PYRUS sativa, fructu brumali globoso, dilute virente, tuberoso punctato, in ore liquescente. Tourn.* Petit-oin, *i. e.* Little-lard Pear. It is also called *Bouvar*, and *Rouffette d'Anjou, i. e.* The Ruffet of Anjou; and *Amadont*; and *Merveille d'Hyver, i. e.* The Wonder of the

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Winter.

Winter. This Pear is of the Size and Shape of the *Ambret* of *L'Echasserie*; but the Skin is of a clear-green Colour, and a little spotted; the Stalk is pretty long, and slender; the Eye is large, and deeply hollowed; the Flesh is extremely fine and melting; the Juice is much sugared, and has an agreeable musky Flavour. It is in eating the End of *November*, and most Part of *December*, and is esteemed one of the best Fruits in that Season.

53. *PYRUS sativa, fructu brumali longo, e viridi albicante, in ore liquescente.* Tourn. *Louise-bonne, i. e.* The good Lewis Pear. This Pear is shaped somewhat like the *St. Germain*, or the Autumn *Verte-longue*, but is not quite so much pointed; the Stalk is very short, fleshy, and somewhat bent; the Eye and the Flower are small; the Skin is very smooth; the Colour is green, inclining to a White when ripe; the Flesh is extremely tender, and full of Juice, which is very sweet, especially when it grows upon a dry Soil, otherwise it is apt to be very large and ill-tasted. It is in eating the Latter-end of *November*, and the Beginning of *December*.

54. *PYRUS sativa, fructu brumali tuberoso, e viridi flavescente, punctato saccharato.* Tourn. *Poire de Colmar, i. e.* The Colmar Pear. It is also called *Poir Manne*, the Manna Pear; the *Bergamotte tardive*, the late Burgamot. This Pear is somewhat like a *Bonchrétien* in Shape, but the Head is flat; the Eye is large, and deeply hollowed; the Middle is larger than the Head, and is sloped toward the Stalk, which is short, large, and a little bent; the Skin is green, with a few yellowish Spots, but is sometimes a little coloured on the Side next the Sun; the Flesh is very tender, and the

Juice is greatly sugared. It is in eating the Latter-end of *November*, but will often keep good till *January*, and is esteemed one of the best Fruits of that Season.

55. *PYRUS sativa, fructu brumali globofo citriformi flavescente punctato, in ore liquescente, saccharato odoratissimo.* Tourn. *L'Echasserie.* It is also called, *Verte-longue d'Hyver, i. e.* The Winter long-green Pear; and *Besidery Landri, i. e.* The Landry Wilding. This Pear is shaped like a Citron; the Skin is smooth, and of a green Colour, with some Spots while it hangs on the Tree; but as it ripens, it becomes of a yellowish Colour; the Stalk is strait and long; the Eye is small, and not hollowed; the Flesh is melting, and buttery; the Juice is sugared with a little Perfume. It is in eating the Latter-end of *November*, and continues good till *Christmas*.

56. *PYRUS sativa, fructu brumali longo, e viridi flavescente, in ore liquescente, saccharato.* Tourn. *La Virgoulé, or La Virgoleuse.* It is also called *Bujaleuf*, and *Chambrette*; and *Poire de Glasse, i. e.* The Ice Pear, in *Gascoigne*; but it is called *Virgoulé*, from a Village of that Name in the Neighbourhood of *St. Leonard* in *Limousin*, where it was raised, and sent to *Paris* by the Marquis of *Chambret*. This Pear is large, long, and of a green Colour, inclining to Yellow as it ripens; the Stalk is short, fleshy, and a little bent; the Eye is of a middling Size, and a little hollowed; the Skin is very smooth, and sometimes a little coloured towards the Sun; the Flesh is melting, and full of a rich Juice. It is in eating the Latter-end of *November*, and will continue good till *January*, and is esteemed one of the best Fruits of the Season; but the Tree is very apt to produce vigorous

vigorous Shoots, and the Blossoms being generally produced at the extreme Part of the Shoot, where they are shortened, the Fruit will be entirely cut away, which is the Reason it is condemned as a bad Bearer; but when it is grafted on a Free-stock, it ought to be allowed at least thirty Feet to spread; and if upon a Quince-stock, it should be allowed upwards of twenty Feet, and the Branches trained in against the Espaller or Wall, at full Length, in an horizontal Position, as they are produced. Where this Tree is thus treated, it will bear very plentifully.

57. *Pyrus sativa spinosa, fructu globoso sessili ferrugineo, in ore liquescente, saccharato odoratissimo.* Tourn. Poire d'Ambrette. This is so called from its musky Flavour, which resembles the Smell of the sweet Sultan-flower, which is called *Ambrette* in France. This Pear is like the *L'Echafferie* in Shape, but is of a russet Colour; the Eye is larger, and more hollowed; the Flesh is melting, and the Juice is richly sugared and perfumed; the Seeds are large and black, and the Cells in which they are lodged are very large; the Wood is very thorny, especially when grafted on Free-stocks. The Fruit is in eating the Latter-end of November, and continues good till the Latter-end of January, and is esteemed a very good Fruit by most People.

58. *Pyrus sativa, fructu brumali magno pyramidato albido, in ore liquescente, saccharato odorato.* Tourn. Epine d'Hyver, i. e. Winter-thorn Pear. This is a large fine Pear, nearly of a pyramidal Figure; the Skin is smooth, and of a pale-green Colour, inclining to Yellow as it ripens; the Stalk is short and slender; the Flesh is melting and

buttery; the Juice is very sweet, and, in a dry Season, is highly perfumed; but when it is planted on a moist Soil, or the Season proves wet, it is very insipid, so that it should never be planted on a strong Soil. It ripens the End of November, and will continue good two Months.

59. *Pyrus sativa, fructu brumali longo e viridi flavescente, in ore liquescente.* Tourn. La Saint Germain, i. e. The Saint Germain Pear. It is also called *L'Inconnu de La Fare*, i. e. The Unknown of La Fare; it being first discovered upon the Banks of a River which is called by that Name, in the Parish of *St. Germain*. This is a large long Pear, of a yellowish-green Colour when ripe; the Flesh is melting, and very full of Juice, which, in a dry Season, or if planted on a warm dry Soil, is very sweet; but when it is planted on a moist Soil, the Juice is very apt to be harsh and austere, which renders it less esteemed by some Persons, though in general it is greatly valued. This is in eating the End of November, but will many times continue good till Christmas.

60. *Pyrus sativa, fructu brumali tuberoso subacido flavescente punctato.* Tourn. Saint Augustine. This is about the Size of a middling *Virgoulé* Pear, but is somewhat shorter, and slenderer near the Stalk; the Skin is of a fine Citron-colour, spotted with Red on the Side next the Sun; the Flesh is tender, but not buttery; and is pretty full of Juice, which is often a little sharp, which to some Persons is disagreeable; but others value it on that account. This is in eating in December, and will continue good two Months.

61. *Pyrus sativa, fructu brumali pyramidato, partim purpureo, punctis*

panctis nigris consperso, partim flavescens. Tourn. Bon Chrétien d'Espagne, *i. e.* The Spanish Bonchrétien. This is a large Pear of a pyramidal Form; of a fine red or purple Colour on the Side next the Sun, and full of small black Spots; the other Side is of a pale-yellow Colour; the Flesh is breaking, and when it is on a light rich Soil, and grafted on a Free-stock, its Juice is very sweet. It ripens in the Beginning of December, and will continue good a Month or six Weeks. If this be grafted on a Quince-stock, it is very apt to be dry and stony.

62. *PYRUS sativa, fructu brumali magno oblongo turbinato ferrugineo, utrinque umbilicato.* Tourn. Poire de Livre, *i. e.* The Pound Pear. This is a very large Pear, each of which does commonly weigh a Pound or more; the Skin is rough, and of an obscure red Colour on the Side next the Sun, but somewhat paler on the other Side; the Stalk is very short, and the Eye is greatly hollowed. This is not fit for eating, but bakes or stews exceeding well, and is in Season from November to Christmas.

63. *PYRUS sativa, fructu brumali parvo flavescens, maculis rubris consperso.* Tourn. Besi de Cassoy, *i. e.* The Wilding of Cassoy, a Forest in Britany, where it was discovered, and passes under the Name of Rouffet d'Anjou. It is also called Petit Beurre d'Hyver, *i. e.* Small Winter Butter-pear. This is a small roundish Pear, of a yellowish Colour, spotted with Red; the Flesh is melting, and the Juice is very rich. It is in eating in December and January. This is a prodigious Bearer, and commonly produces its Fruit in large Clusters, provided it be not too much pruned; for it generally produces its Blossom-

buds at the Extremity of its Shoots, which if shortened, the Fruit would be cut away. There was a Tree of this Kind in the Gardens of Camden-house near Kensington, which generally produced a great Quantity of Fruit.

64. *PYRUS sativa, fructu brumali turbinato inaequali, ventre tumido, partim purpureo, partim flavescens.* Tourn. Ronville. It is also called Hocrenaille, and Martin-fire, *i. e.* The Lord Martin Pear. This Pear is about the Size and Shape of a large Russet; the Eye is of a middling Size, and hollowed a little; the Middle of the Pear is generally swelled more on one Side than on the other, but is equally extended towards the Stalk; the Skin is very smooth and soft, and is of a lively red Colour next the Sun; but on the other Side it changes yellow as it ripens; the Flesh is breaking, and full of Juice, which is very sweet, and a little perfumed; but if grafted on a Quince-stock, is very apt to be small and stony.

65. *PYRUS sativa, fructu brumali citriformi flavescens duro moschato odoratissimo.* Tourn. Citron d'Hyver, *i. e.* The Winter-citron Pear. It is also called the Musk-orange Pear, in some Places. This is a pretty large Pear, in Shape and Colour very like a Citron, from whence it had its Name; the Flesh is hardy and dry, and very subject to be stony; for which Reasons it is not valued as an eating Pear, but will bake very well. It is in Season from December to March.

66. *PYRUS sativa, fructu brumali oblongo, e viridi flavescens, saccharato, saporis austeri.* Tourn. Rosselet d'Hyver, *i. e.* The Winter Rosselet. This is by some supposed to be the same Pear as is called the Dry Martin; but it is very different from

from that in several Particulars : the Colour of this is a greenish Yellow ; the Stalk is long and slender, and the Flesh is buttery and melting, and generally full of Juice, which is very sweet ; but the Skin is apt to contain an austere Juice ; so that if it be not pared, it will be disagreeable to many Persons Palates. It is in eating in *January* and *February*.

67. *PYRUS sativa Pistaviensis, fructu brumali globofo sessili saccharato odorato. Tourn. Poire Portail, i. e. The Gate-pear.* This Pear was discovered in the Province of *Poitou*, where it was so much esteemed, that they preferred it to most other Fruit ; tho', in the Opinion of the most curious Judges, it does not deserve the great Character which is given to it ; for it rarely happens, that it proves good for eating, being generally dry, stony, and hard, unless in extraordinary Seasons, and upon a very good Soil. This must always be grafted on a Free-stock, and should be planted on a light rich Soil, and in very dry Seasons the Trees should be watered, otherwise the Fruit will be stony. It is in Season from *January* to *March*, and bakes well.

68. *PYRUS sativa, fructu brumali magno globofo flavescente, punctis rufis consperso. Tourn. Franc-real.* It is also called *Fin Or d' Hyver, i. e. The Golden End of Winter.* This is a very large Pear, almost of a globular Figure ; the Skin is yellow, spotted with Red ; the Stalk is short, and the Wood of the Tree mealy : the Flesh of this Pear is dry, and very apt to be stony ; but it bakes exceeding well, and continues good from *January* till *March*.

69. *PYRUS sativa, fructu brumali turbinato sessili subacido flavescente, punctis asperioribus consperso. Tourn. Bergamotte Bugi :* it is also

called *Bergamotte de Pasque, i. e. The Easter Burgamot.* It is a large Pear, almost round ; but is a little produced in Length toward the Stalk ; the Eye is flat, and the Skin is green, having many rough Protuberances like Spots dispersed all over ; but as it ripens, it becomes yellowish ; the Flesh is breaking, and in a good Season the Juice is sweet ; but it must have a Free-stock, a South-east Wall, and a good Soil, otherwise it is apt to be stony and austere. It is in eating from *February* till *April*.

70. *PYRUS sativa, fructu brumali magno pyramidato, e flavo nonnihil rubente. Tourn. Bonchrétien d' Hyver, i. e. The Winter Bonchrétien Pear.* This Pear is very large and long, of a pyramidal Figure ; the Skin is of a yellowish Colour, but the Side next the Sun inclines to a soft Red ; the Flesh is tender and breaking, and is very full of rich sugared Juice. This is esteemed in *France* one of the best Winter Pears ; but in *England* it is seldom so good : though I am fully satisfied, if it were grafted on a Free-stock, and planted in a good Soil, against a Wall exposed to the South-east, and the Branches trained at full Length, it might be rendered more acceptable than it is at present in *England*.

71. *PYRUS sativa, fructu brumali magno, cydoniæ facie, partim flavo, partim purpureo. Tourn. Cattillac or Cadillac.* This is a large Pear, shaped somewhat like a Quince ; the Skin is, for the most part, of a yellow Colour, but changes to a deep Red on the Side next the Sun : the Flesh is hard, and the Juice austere ; but it is one of the best Fruits for Baking yet known, and being a plentiful Bearer, deserves a Place in every good Collection of Fruit. It

will be good from *Christmas* to *April*, or longer.

72. *PYRUS sativa, fructu brumali oblongo flavescente, punctis rubris consperso.* La Pastourelle. This Pear is of the Size and Shape of a fine Ruffelet; the Stalk is short and crooked; the Skin is somewhat rough, of a yellowish Colour, spotted with Red; the Flesh is tender and buttery; and when it grows on a dry Soil, the Juice is very sweet; but on a wet Soil, or in moist Years, it is subject to have an austere Taste. This Pear is in eating in *February* and *March*.

73. *PYRUS sativa, fructu brumali sessili, partim flavescente, partim purpurascente.* Tourn. La double Fleur, *i. e.* The double-flowering Pear. This is so called, because the Flowers have a double Range of Petals or Leaves. It is a large short Pear; the Stalk is long and strait: the Skin is very smooth, and of a yellowish Colour; but the Side next the Sun is commonly of a fine red or purple Colour. This is by some esteemed for eating, but it is generally too austere in this Country for that Purpose. It is the best Pear in the World for Baking or Composts. It is good from *February* to *May*.

74. *PYRUS sativa, fructu brumali oblongo, partim flavescente, partim purpurascente.* St. Martial. It is also called in some Places *Poire angelique*, *i. e.* The angelic Pear. This Pear is oblong, and has a very long Stalk; the Skin is smooth and yellowish, but on the Side next the Sun, it turns to a purplish Colour; the Flesh is tender and buttery, and the Juice is very sweet. This is in eating in *February* and *March*.

75. *PYRUS sativa, fructu brumali oblongo, partim albido, partim purpureo, odorato saccharato.* La

Poire Chaumontelle, or Bess de Chaumontelle, i. e. The Wilding of Chaumontelle. This Pear is in Shape somewhat like the Autumn Beurre, but is flatter at the Crown: the Skin is a little rough, of a pale-green Colour, but turns to a purplish Colour next the Sun; the Flesh is melting, the Juice is very rich, and a little perfumed. It is in eating from *March* to *June*, and is esteemed the best late Pear yet known.

76. *PYRUS sativa, fructu brumali globofo sessili cinereo, maculis amplis obscurioribus consperso.* Tourn. Carmelite. This is a middle-sized Pear, of a roundish Form; the Skin is of a grey Colour on one Side, but is inclining to a Red on the other, having some broad Spots of a dark Colour all over; the Flesh is commonly hard and dry, so that it is not very much esteemed. It is in Season in *March*.

77. *PYRUS sativa, fructu brumali maximo pyramidato, dilute vivente.* The Union Pear; otherwise called, *Dr. Uvedale's St. Germain*. This is a very large long Pear, of a deep-green Colour; but the Side next to the Sun doth sometimes change to a Red, as it ripens. This is not fit for eating, but bakes very well; and being a great Bearer, and a very large Fruit, deserves a Place in every good Collection. It is in Season from *Christmas* to *April*.

78. *L'AUROURATE; i. e.* The Aurate, is an excellent Pear: it ripens the middle of *July*. It is a large Pear shaped like the Muscat, but is red on the Side next the Sun; this is at present very rare in *England*.

79. *L'ÉPARQUE, ou BEAU-PRÉSENT; i. e.* The fine Present; it is also called *Saint Samson*. This is a large long green Pear, with a Blush of Red next the Sun. The Flesh is breaking;

breaking; it hath a very long Stalk, and ripens the Beginning of *August*.

80. LE ROUSSELET DE REIMS; it is an excellent Pear, about the Size of the Catharine, or a little larger; it is russet on the Side next the Sun, and of a brownish-yellow Colour on the other Side. It ripens the End of *August*.

81. L'ÉPINE D'ÉTÉ; *i. e.* The Summer Thorn. This is a large long Pear, with a smooth green Skin: the Flesh is melting, and somewhat perfumed. This is placed amongst the good Pears. It ripens the Beginning of *September*.

82. LA POIRE D'ŒUF; *i. e.* The Egg Pear, so named from the Figure of its Fruit, which is shaped like an Egg. This is a large good Pear of a greenish Colour, striped with Red on the Side next the Sun; the Flesh is tender and half-buttery, and hath an high Flavour. This comes from *Germany*, where it is greatly esteemed. It ripens the Beginning of *September*.

83. L'ORANGE TULIPÉE. The Orange Tulip is a large round Pear, which is very red on the Side next the Sun, but greenish on the other Side: the Flesh is half-breaking, and a little stony, but hath an agreeable Flavour. It ripens the Beginning of *September*.

84. LA MANSUETTE. This Pear greatly resembles the Winter Bonchrésien in its Fruit, Wood, and Leaves, but is smaller at the Eye. It is half-breaking, and hath an agreeable Flavour. It ripens the End of *September*. This Pear is greatly esteemed in *Flanders*.

85. LE MUSCAT D'ALLEMAN, *i. e.* The German Muscat. This is an excellent Pear, more long than round, of the Shape of the Winter-royal; but is less toward the Eye, and is more russet, and of a red

Colour next the Sun; it is buttery, melting, and a little musty. This is in eating in *March*, *April*, and sometimes in *May*, if it keeps so long.

86. LA BERGAMOTTE DE HOLLANDE; *i. e.* The *Holland* Burgamot; it is large and round, of the Shape of the ordinary Burgamot. The Colour is greenish, the Flesh is half-buttery and tender; the Juice is highly flavoured. This is a very good Pear, and will keep till *May*.

87. LA POIRE DE NAPLES; *i. e.* The Pear of *Naples*. This is a pretty large, long, greenish Pear; the Flesh is half-breaking, the Juice is sweet, and a little vinous. It is in eating in *March*. I am in Doubt whether this Pear is not in some Places taken for a Saint Germain; for there is a Pear in some Gardens very like the Saint Germain, which will keep till *April*, and this Pear agrees with the Characters of that.

There are many other Sorts of Pears, which are still continued in some old Gardens; but as those here mentioned are the best Sorts known at present, it would be needless to enumerate a great Quantity of ordinary Fruit, since every one who intends to plant Fruits, will rather choose those which are the most valued, the Expence and Trouble being the same for a bad Sort of Fruit as a good one. Indeed I have inserted many more than are really worth planting, in order to please such as are fond of a great Variety; but whoever hath a mind to make Choice of such only as are good, may easily distinguish them, by attending to the Account given of each Sort, and hereby every Person is at Liberty to please himself; for it is not every one who prefers a Beurre Pear,

Pear, tho' that is generally esteemed the very best in its proper Season: there are some who admire the Messire-Jean, for the Firmness of its Flesh, which to others is a great Objection against it; so that as some esteem the breaking, and others the melting Pears, I have distinguished them by their Descriptions in such a manner, that every one may make Choice of the Kinds of Fruits which are agreeable to their Palates; and the different Seasons in which each Kind is in eating, being exhibited (allowing a little for the Difference of Seasons, which are earlier some Years than others), it is not very difficult for a Person to make a Collection of good Pears to succeed each other throughout the Season of these Fruits, both for Eating and Baking.

Pears are propagated by budding or grafting them upon Stocks of their own Kind, which are commonly called *Free-stocks*, or upon *Quince-stocks*, or *White-thorn*; upon all which these Fruits will take; but the latter Sort of Stock is now seldom used, because they rarely keep Pace in their Growth, with the Fruit budded or grafted upon them; as also because the Fruit upon such Stocks are commonly drier, and more apt to be mealy, than when they are upon Pear-stocks. *Quince-stocks* are greatly used in the Nurseries for all Sorts of Pears which are designed for Dwarfs or Walls, in order to check the Luxuriance of their Growth, so that they may be kept within Compass better than upon *Free-stocks*: but against the general Use of these Stocks, for all Sorts of Pears indifferently, there are very great Objections: 1st, Because some Sorts of Pears will not thrive upon these Stocks, but in two or three Years will decay, or,

at most, will but just keep alive. 2dly, All the Sorts of hard-breaking Pears are rendered stony, and good for little; so that whenever any of these Sorts are injudiciously raised, the Fruit, altho' the Kind be ever so good, is condemned as good for nothing by such as are not well acquainted with it, when the Fault is intirely owing to the Stock on which it was grafted. On the contrary, all melting buttery Pears are greatly improved by being upon *Quince-stocks*, provided they are planted on a strong Soil: but if the Ground be very dry and gravelly, no Sort of Pear will do well upon *Quince-stocks* in such Places.

These general Directions being given, there is no Occasion to repeat any Part of the Method in which these Stocks are raised, and the Fruits budded or grafted thereon; which has been already mentioned under the Article of *Nurseries*.

The Distance which these Trees should be planted either against Walls or *Espaliers*, must not be less than twenty Feet; but if they are planted twenty-five Feet, it will be better; because, if they have not room to spread on each Side, it will be impossible to preserve them in good Order (especially those on *Free-stocks*); for the more these Trees are pruned, the more they will shoot; and, as I before said, many Sorts of Pears produce their Blossom-buds first at the Extremity of the former Year's Shoots, so that when they are shortened, the Fruit will be cut away; and this cannot be avoided, where the Trees have not room allowed in their first planting.

The Manner of preparing these Trees for Planting is the same as hath been directed for other Fruit-trees; *viz.* To cut off all the small
Fibres

Fibres from the Roots, and to shorten some of the longest Roots, and cut off all the bruised ones, or such as shoot downright: this being done, you should plant them in the Places intended at the before-mentioned Distance. The best Time to plant these Trees (if upon a middling or dry Soil) is in *October*, leaving their Heads on till Spring, which should be fastened to the Walls or Stakes, to prevent the Wind from disturbing their Roots; and in the Beginning of *March* their Heads should be cut off, in the manner already directed for Peaches, and other Fruit-trees; observing also to lay some Mulch upon the Surface of the Ground about their Roots when they are planted, as hath been several times already directed for other Trees.

The first Summer after planting, the Branches should be trained to the Wall or *Espalier* (against which they are planted) in an horizontal Position, as they are produced without shortening of them; and the *Michaelmas* following these Shoots will be shortened down to five or six Eyes, in order to obtain a sufficient Quantity of Branches to furnish the lower Part of the Wall or *Espalier*: but when this is done, the Shoots ought not to be shortened, unless where there is want of Branches to fill a Vacancy; for whenever the Shoots are stopped, it occasions the Buds immediately below the Cut, to send forth two or more Shoots; whereby there will be a Confusion of Branches, and rarely any Fruit is produced with this Management.

The Distance which the Branches of Pears should be trained, must be proportioned to the Size of their Fruit: such Sorts whose Fruit are small, may be allowed five or six

Inches; but the larger Sorts must not be less than seven or eight Inches asunder. If this be duly observed, and the Branches carefully trained horizontally as they are produced, there will be no Occasion for so much cutting as is commonly practised on these Trees; which, instead of checking their Growth, does, on the contrary, cause them to shoot the stronger.

It is very surprizing to read the tedious Methods which most of the Writers on Fruit-trees have directed for Pruning of these Trees: for by their prolix and perplexed Methods, one would imagine they had endeavoured to render themselves as unintelligible as possible: and this, I am sure, may be affirmed, that it is next to impossible for a Learner ever to arrive at any tolerable Skill in Pruning, by the tedious and perplexed Directions, which are published by Monsieur *Quintiney*, and those who have copied from him: for these have all set out wrong in the Beginning, by allowing their Trees less than half the Distance at which they should be planted; and then have prescribed Rules to keep them within that Compass, which is what cannot be effected, where Persons are desirous of having Plenty of Fruit.

I shall therefore only lay down a few necessary Directions for the Pruning and Managing of these Trees, which shall be done in as few Words as possible, that a Learner may the more easily understand it, and which (together with proper Observations) will be sufficient to instruct any Person in the right Management of them.

Pear-trees generally produce their Blossom-buds first at the Extremity of the last Year's Shoots, so that if these are shortened, the Blossoms

are cut off: but this is not all the Damage, for (as I before said) this occasions the Buds immediately below the Cut to put forth two or more Shoots; whereby the Number of Branches will be increased, and the Tree crowded too much with Wood; besides, those Buds which by this Management do produce Shoots, would have only produced Curfons and Spurs, upon which the Blossom-buds are produced, if the leading Branch had not been shortened; therefore these should never be stopped, unless to furnish Wood to fill a Vacancy.

It is not necessary to provide a new Supply of Wood in Pear-trees, as must be done for Peaches, Nectarines, &c. which only produce their Fruit upon young Wood; for Peaches produce their Fruit upon Curfons or Spurs, which grow upon Branches which are three or four Years old, and these Curfons continue fruitful many Years; so that where these Trees have been skilfully managed, I have seen Branches which have been trained horizontally, upward of twenty Feet from the Trunk of the Tree, and have been fruitful their whole Length. And if we do but carefully observe the Branches of an healthful Standard-tree, which has been permitted to grow without Pruning, we shall find many that are ten or twelve Years old, or more, which are very full of these Curfons, upon which is annually a good Number of Fruit produced.

During the Summer-season these Trees should be often looked over, to train in the Shoots, as they are produced regularly, to the Wall or Espaliers, and to displace fore-right and luxuriant Branches, as they shoot out; whereby the Fruit will be equally exposed to the Air and Sun,

which will render them more beautiful, and better tasted, than when they are shaped by the Branches; and by thus managing the Trees in Summer, they will always appear beautiful, and in Winter they will want but little Pruning.

Where Pear-trees are thus regularly trained, without stopping of their Shoots, and have full room for their Branches to extend on each Side, there will never be any Occasion for disbarking of the Branches, or cutting off the Roots (as hath been directed by several Writers on Gardening); which Methods, however they may answer the Intention for the present, yet will certainly greatly injure the Trees, as must all violent Amputations, which should ever be avoided, as much as possible, on Fruit-trees; and this, I am sure, can never be wanted, where Trees have been rightly planted, and regularly trained, while young.

The Season for pruning of these Trees, is any time after the Fruits are gathered, until the Beginning of *March*; but the sooner it is done, after the Fruit is gathered, the better, for Reasons already given for Pruning of Peach-trees; tho' indeed, the deferring of these until Spring, where there are large Quantities of Trees to prune, is not so injurious to them, as to some more tender Fruits.

All the Sorts of Summer Pears will ripen very well, either on Standards, Dwarfs, or Espaliers; as will all the Autumn Pears, upon Dwarfs or Espaliers: but where a Person is very curious in his Fruit, I would always advise the Planting them against Espaliers, in which Method they take up but little Room in a Garden; and if they are well managed, appear very beautiful, and the Fruit is larger and better tasted than those produced on

Dwarfs, as have been already observed. But all the Sorts of Winter Pears must be planted against East, South-east, or South-west Walls, otherwise they seldom ripen well in *England*.

In the gathering of Pears, great regard should be had to the Bud which is formed at the Bottom of the Foot-stalk, for the next Year's Blossoms, which, by forcing off the Pear, before it be mature, is many times spoiled, for during the Time the Fruit is growing, there is always a Bud formed by the Side of the Foot-stalk, upon the same Spur, for the next Year's Fruit; so that when the Pears are ripe, if they are gently turned upward, the Foot-stalk will readily part from the Spur without injuring of the Bud.

The Season for gathering all Summer Pears, is just as they ripen; for none of these will remain good above a Day or two after they are taken from the Tree; nor will many of the Autumn Pears keep good above ten Days or a Fortnight after they are gathered. But the Winter Fruits should hang as long upon the Trees as the Season will permit; for they must not receive the Frost, which will cause them to rot, and render their Juices flat and ill-tasted; but if the Weather continues mild until the Middle of *October*, it will then be a good Season for gathering them in; which must always be done in dry Weather, and when the Trees are perfectly dry.

In the doing of this you ought carefully to avoid bruising them: therefore you should have a broad flat Basket to lay them in as they are gathered; and when they are carried into the Store-room, they should be taken out singly, and each Sort laid up in a close Heap,

on a dry Place, in order to sweat, where they may remain for eight or ten Days: during which time the Windows should be open, to admit the Air, in order to carry off all the Moisture which is perspired from the Fruit; after this, the Pears should be taken singly, and wiped dry with a woollen Cloth, and then packed up in close Baskets, observing to put some sweet Wheat-straw in the Bottoms and round the Sides of the Baskets, to prevent their bruising against the Basket; you should also observe to put but one Sort of Fruit into a Basket, lest by their different Fermentations, they should rot each other; but if you have enough of one Sort to fill a Basket which holds two or three Bushels, it will be still better. After you have filled the Baskets, you must cover them over with Wheat-straw, very close, and fasten them down: then place these Baskets in a close Room, where they may be kept dry, and from Frost; but the less Air is let into the Room, the better the Fruit will keep: it will be very necessary to fix a Label to each Basket, denoting the Sort of Fruit therein contained, which will save the Trouble of opening them, whenever you want to know the Sorts of Fruit; besides, they ought not to be opened before their Season to be eaten; for the oftener they are opened, and exposed to the Air, the worse they will keep. I don't doubt but this will be objected to by many, who imagine Fruit can't be laid too thin; for which Reason they make Shelves to dispose them singly upon, and are very fond of admitting fresh Air, whenever the Weather is mild, supposing it very necessary to preserve the Fruit; but the contrary of this

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is found true, by those Persons who have large Stocks of Fruit laid up in their Store-houses in London, which remain closely shut up for several Months, in the manner before related; and when these are opened, the Fruit is always found plumper and sounder, than any of those Fruits which were preserved singly upon Shelves. For, as Mr. Boyle observes, the Air is the Cause of Putrefaction; and in order to prove this, that Honourable Person put Fruits of several Kinds into Glasses where the Air was exhausted, in which Places they remained sound for several Months; but upon being exposed to the Air, rotted in a very short time; which plainly shews the Absurdity of the common Method now used to preserve Fruit.



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QUAMOCLIT, Bindweed,
The Characters are;
The Flower consists of one Leaf, shaped like a Funnel, and divided at the Top into several Segments; from the Flower-cup rises the Pointal, which afterward becomes a roundish Fruit, inclosing several oblong Seeds.

We have but one Species of this Plant in England; which is,

QUAMOCLIT foliis tenuiter incisè & pennatis. Tourn. Quamoclit with very fine-cut winged Leaves, commonly called in Barbados, Sweet-William.

This Plant is very common in Jamaica, Barbados, and the Caribbee Islands, where it climbs upon Bushes, Hedges, or whatever grows near it, and produces great Quantities

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of beautiful scarlet Flowers, almost of the Figure of a small Convolvulus-flower; but the Tube being much larger, and the Seeds being of a different Figure from those of the Convolvulus, Monsieur Tournefort hath separated it from that Genus. The Seeds of this Plant are generally brought into England, every Spring, from the West-Indies: they should be sown on an Hot-bed in March, and when the Plants are come up, they must be planted each into a small Pot filled with light sandy Earth, and plunged into a fresh Hot-bed, to bring the Plants forward: as the Plants advance in Height, they should be removed into larger Pots, and Sticks placed down by them, for them to climb upon; they must also be removed to a fresh Hot-bed, when the old one has lost its Heat; and when the Plants are too high to be contained under Frames, they should be removed into the Stove, where, if they are plunged into a moderate Hot-bed of Tanners Bark, and not too much drawn, they will produce a great Quantity of beautiful scarlet Flowers, and ripen their Seeds very well; but if they are exposed to the open Air, they seldom flower in this Country. This Plant continues but one Year, the Root perishing soon after the Seeds are ripe.

QUERCUS, The Oak-tree,

The Characters are;

It hath male Flowers (or Katkins) which consist of a great Number of small slender Threads; the Embryos, which are produced at remote Distances from these, on the same Tree, do afterward become Acorns, which are produced in hard scaly Cups: to which may be added, The Leaves are sinuated.

The

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The Species are;

1. *QUERCUS latifolia*. Park. Theat. The common Oak.
2. *QUERCUS latifolia mas, quæ brevi pedicula est*. C. B. P. Oak with the Acorns on short Foot-stalks.
3. *QUERCUS latifolia, foliis ex albo eleganter variegatis*. The striped Oak.
4. *QUERCUS latifolia, perpetuo vivens*. C. B. P. The broad-leaved ever-green Oak.
5. *QUERCUS calyce echinato, glande majore*. C. B. P. Oak with large Acorns, having prickly Cups.
6. *QUERCUS humilis, gallis binis, ternis aut pluribus simul junctis*. C. B. P. Dwarf Oak, vulgo.
7. *QUERCUS Virginiana, rubris venis muricata*. Pluk. Phyt. The Virginian scarlet Oak.
8. *QUERCUS castaneæ foliis, pro-cera arbor Virginiana*. Pluk. Phyt. Virginian Oak, with Chestnut-leaves.
9. *QUERCUS alba Virginiana*. Park. Theat. The white or iron Oak of Virginia.
10. *QUERCUS Virginiana, salicis longiore folio, fructu minimo*. Pluk. Amalth. Virginian willow-leaved Oak.
11. *QUERCUS pumilis, castaneæ folio, Virginiensis*. Pluk. Almag. The Chinquapin Oak.
12. *QUERCUS parva sive Phayus Græcorum, & Esculus Plinii*. C. B. P. The sweet Oak.
13. *QUERCUS calyce hispido, glande minore*. C. B. P. Oak with small Acorns, having a prickly Cup.
14. *QUERCUS Burgundiaca, calyce hispido*. C. B. P. The Burgundy Oak, whose Acorns have prickly Cups.
15. *QUERCUS pedem vix superans*. C. B. P. Dwarf Oak.
16. *QUERCUS foliis molli lanugine*

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pubescentibus. C. B. P. Oak with soft woolly Leaves.

17. *QUERCUS gallam exigue nucis magnitudine ferens*. C. B. P. Oak which bears small Galls not larger than Nuts.
18. *QUERCUS foliis muricatis, non lanuginosis, galla superiori simili*. C. B. P. Oak with prickly Leaves, which are not woolly, bearing Galls like the former.
19. *QUERCUS foliis muricatis, minor*. C. B. P. Smaller Oak, with prickly Leaves,
20. *QUERCUS latifolia, magno fructu, calyce tuberculis obfito*. Tourn. Cor. Broad-leaved Oak, with large Acorns, whose Cups are beset with Tubercles.
21. *QUERCUS orientalis, glande cylindriciformi, longo pediculo infidente*. Tourn. Cor. Eastern Oak, with cylindrical Acorns growing on long Foot-stalks.
22. *QUERCUS orientalis, castaneæ folio, glande recondita in cupula crasse & squamosa*. Tourn. Cor. Eastern Oak, with a Chestnut-leaf, whose Acorns are closely shut up in a thick scaly Cup.
23. *QUERCUS orientalis angustifolia, glande minori, cupula crinita*. Tourn. Cor. Eastern Oak, with a narrow Leaf, and a smaller Acorn, whose Cup is hairy.
24. *QUERCUS orientalis latifolia, glande maxima, cupula crinita*. Tourn. Cor. Eastern Oak with a broad Leaf, and the largest Acorn, whose Cup is hairy.
25. *QUERCUS orientalis latifolia, foliis ad costam pulchre incisiss, glande maxima cupula crinita*. Tourn. Cor. Eastern broad-leaved Oak, whose Leaves are finely cut to the Stalks, and a very large Acorn, whose Cup is hairy.
26. *QUERCUS orientalis, folio subrotundo minori, glande magna striata*. Tourn.

Tourn. Cor. Eastern Oak, with a smaller roundish Leaf, and a large striated Acorn.

27. *QUERCUS orientalis, folio subrotundo, lewiter inciso, fructu minori cylindricoformi.* *Tourn. Cor.* Eastern Oak, with a roundish Leaf, lightly cut in, and a smaller cylindrical Fruit.

28. *QUERCUS, an potius, Ilex Marilandica, folio longo angusto salicis.* *Raii Hist.* The swamp willow Oak of *Maryland*.

29. *QUERCUS semper wirens, foliis oblongis non sinuatis.* *Baniff.* Live Oak.

30. *QUERCUS (forte) Marilandica, folio trifido, ad sassafras accedente.* *Raii Hist.* The black Oak of *Maryland*.

31. *QUERCUS folio non serrato, in summitate triangulo.* *Catesb. Hist. Nat. Carolin.* The Water Oak.

32. *QUERCUS Caroliniensis, virginitibus venis muricata.* *Catesb. Hist. Nat. Carolin.* The white Oak of *Carolina*.

33. *QUERCUS humilior, salicis foliis brevior.* *Catesb. Hist. Nat. Carolin.* Dwarf Highland willow Oak.

34. *QUERCUS esculi diversifera, foliis amplioribus aculeatis.* *Pluk. Phyt.* Red Oak of *Maryland*.

35. *QUERCUS Mariana, oleae folio glande parva compresso, ad apiculam eleganter radiato.* *Pluk. Mantiff.* Swamp Spanish Oak.

36. *QUERCUS Mariana, muricatis castanea foliis subtus villosis.* *Pluk. Mant.* Champion Chestnut-oak of *Maryland*.

The two first Sorts are common in *England*; but the Sort whose Acorns grow on short Foot-stalks, is less frequent than the other. I have seen several Trees of that Kind near *Dulwich* in *Surrey*; but whether the Acorns of this Sort will pro-

duce Trees of the same Kind, I cannot determine. The Sort with striped Leaves was obtained by Accident, but may be propagated by budding or grafting it upon the common Oak; the Leaves of this are generally variegated with White in a most beautiful manner, and the Tree is esteemed a great Curiosity by such as delight in variegated Plants.

The fourth Kind deserves a Place in Wildernesses, amongst other Sorts of ever-green Trees, where it will make a beautiful Appearance; but the Timber is not near so good as that of the common Sort.

The fifth Kind was originally brought into *England* from *Spain*, but is hardy enough to endure the Cold of our Winters very well. This is preserved by such as are curious in collecting the several Kinds of Trees.

The eight next-mentioned Sorts grow on the Hills in *Spain, Portugal, Germany, and Hungary*; from whence their Acorns may be obtained. Altho' some of these Sorts naturally grow in Countries which are warmer than *England*, yet they will thrive as well as the common Sort in the open Air.

The next eight Sorts were discovered by *Dr. Tournefort* in the *Levant*; and some of the Sorts have been introduced into the *English* Gardens, where they thrive, and are as hardy as the common Sort.

The other Sorts have been brought from *America* (where there are a Variety of different Oaks), and are very hardy: many of them are of quicker Growth than the common Sort; and although their Timber is not so good, yet they deserve a Place in large Wildernesses, where they will afford an agreeable Variety. As these Trees are propagated from

Acorns,

Acorns, those Persons who are desirous to cultivate them, should endeavour to obtain the Acorns fresh from *America*, which must be put up in Sand, to preserve them during their Passage; and when they arrive in *England*, they should be put into the Ground immediately, otherwise they will seldom grow.

When the Acorns arrive, they should be planted as soon as possible; for if they are good, it will be near two Months from the time of Sowing to the appearing of the Plants; and the earlier these come up in the Spring, the more time they will have to get Strength before Winter, and will be in less Danger of suffering from the Cold. For while these Plants are very young and tender, they are often injured by severe Frost; tho', when they have obtained Strength, they will endure the greatest Cold of our Winters extremely well. Therefore, if the first Winter after the Plants come up from Acorns, should prove very severe, it will be proper to screen them from the Frost; which may be done by laying some Branches of Oak with the decayed Leaves on them, or some dry Fern or Furze over them, which will prevent the Frost from penetrating very deep in the Ground; and these lying hollow, will admit a sufficient Quantity of Air to the Plants, to prevent their taking the Mould, which is very injurious to them. After the first Year, these Sorts may be treated in the same manner as the common Oak, by transplanting them into Nurseries, or the Places where they are to remain.

These Sorts of Oak, being all of them inferior to the common Sort of our own Growth, in regard to their Timber, should not be cultivated

for that Purpose: but as some of them have large beautiful Leaves, they make an agreeable Variety, when mixed with other Trees in Gardens, and other small Plantations. And as some of these Sorts are of very humble Growth, they may be planted for Underwood, in such Plantations, where they will have a good Effect; and many of the Sorts continue green throughout the Year, which renders them more valuable; and those Sorts whose Leaves are downy underneath, make a most agreeable Prospect, when viewed at a Distance; for as the Wind turns up the Leaves, they appear to be covered over with Silver; and these Trees rise to a great Height. There is one of the sixteenth Sort growing at *Ragnal* near *Tucksford* in *Nottinghamshire*, which is upward of forty Feet high, and produces a great Number of Acorns almost every Year, from whence several Plants have been raised. But these Acorns, being so closely shut up in their Caps, do not ripen well in a cold wet Season.

All the Sorts of Oaks are propagated from Acorns, which should be sown as soon as possible, when they are ripe; for if they are kept long out of the Ground, they seldom grow.

The Manner of sowing these Acorns (if designed for a small Plantation, to be removed) is, to prepare a Bed or two of fresh Earth, neither too strong and heavy, nor too light and dry; in these Beds you should place the Acorns about two Inches asunder, covering them about two Inches thick, with the same fresh Earth, observing to leave none of them uncovered, to entice the Vermin, which may, in a short time, destroy all the Seeds.

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In the Spring, when the Plants begin to appear, you must carefully clear them from Weeds; and if the Season proves dry, you should refresh them now-and-then with a little Water, which will greatly promote their Growth. In these Beds the Plants should remain until the following Spring (observing constantly to keep them clear from Weeds), at which time you should prepare a Spot of good fresh Earth, (in Size proportionable to the Quantity of Plants) which should be well trenched and levelled; then toward the Middle or Latter-end of *March*; you should carefully take up the Plants, so as not to injure their Roots, and plant them out in Rows three Feet asunder, and eighteen Inches Distance Plant from Plant, observing never to suffer the Plants to abide long out of the Ground, because their Roots would dry, and endanger the Growth of the Plants.

When they are planted, you should lay a little Mulch upon the Surface of the Ground, near their Roots, to prevent the Earth from drying too fast; and if the Season be very dry, you should give them a little Water to settle the Earth to their Roots.

If these Things are carefully observed, there will not so many of the Plants miscarry, as do generally in the common Method: for few Persons consider either the proper Method or Season for removing these Trees; most People imagining it may be performed with equal Success, any time after the Leaves begin to decay: but this is a very wrong Opinion; for, from several Experiments which I have made, in transplanting of these Trees in various Seasons, I find they always succeed best when they are transplanted just before they begin to shoot; at which Season there will

very few fail, provided they are removed with Care.

When the Plants have taken Root in this Nursery, they will require little more Care than to keep them clear from Weeds, and dig the Ground between the Rows every Spring; in doing of which you should cut off such Roots as extend very far from the Trunk of the Trees, which will render them better for transplanting again: you should also prune off such Side-branches as extend themselves very far, and would retard the upright Shoot; but you should by no means cut off all the small lateral Branches, some of which are absolutely necessary to be left on, to detain the Sap for the Augmentation of the Trunk; for I have often observed, where Trees have been thus closely pruned, that their Heads have overgrown their Bodies, so that they have bent downward and become crooked.

When these Trees have remained in the Nursery three or four Years, they will then be large enough to transplant to the Places where they are to continue; for it is not proper to let them grow very large before they are planted out, because these are very hazardous Trees to remove when old, or after they have taken deep Root.

The Season for this Work is (as I said) just before they begin to shoot in the Spring, at which time, if they are carefully taken up, there will be little Danger of their succeeding. When they are planted, the Surface of the Ground should be mulched about their Roots, to prevent its drying too fast; and if the Season is very dry, they should be watered, to settle the Earth to their Roots, which may be repeated two or three times in very dry Weather; but you must carefully avoid giving them

them too much Water, which is very injurious to these Trees, when newly removed.

You should also stake them, to prevent their being shaken and disturbed by the Winds, which would retard their Rooting. In transplanting these Trees, you should by no means cut their Heads, which is too much practised; all that should be done, must be only to cut off any bruised or ill-placed Branches, which should be taken off close to the Place where they are produced; but there can be no greater Injury done to these Trees, than to shorten their Shoots; for when the leading Bud (which is absolutely necessary to draw and attract the Nourishment) is taken off, the Branch often decays intirely, or at least down to the next vigorous Bud.

The Trees thus raised and managed will (if planted in a proper Soil) grow to a considerable Magnitude, and are very proper for a Wilderness in large Gardens, or to plant in Clumps in Parks, &c. but if they are designed for Timber, it is by much the better Method to sow the Acorns in the Places where they are to remain; in order to which, you should provide yourself in Autumn with a sufficient Quantity of Acorns, which should be always taken from strait upright vigorous growing Trees: these should be gathered from under the Trees as soon as may be, after they are fallen, and, if possible, in a dry time, laying them thin in some open Room to dry; after which they may be put up in dry Sand, and preserved in a dry Place until the End of *January*, when you should prepare the Ground for planting them.

The Manner of doing this, when the Plantation is very large, should

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be, to dig square Spots about two Feet over, at every ten Feet Distance, into each of which you should put four or five sound Acorns, about two Inches deep, being careful to cover them all over, lest by leaving any of them above-ground, the Vermin should be enticed, and thereby the greatest Part of the Plantation should be destroyed. When the whole Plantation is finished, it will be of great Service to stick into each Plot a few small Bushes, which will protect the Plants when they appear above-ground, from Cattle, and also from the Injury of Weather; and when the Plants are come up, the Weeds should be carefully cleaned away from them during the growing Season, which will greatly promote their Growth; and the following Spring, just before the Plants begin to shoot, you should take them all up, except two of the most thriving out of each Plot (which may be transplanted into another Place, if you have occasion for them); but in doing of this, you should be very careful not to disturb the Roots of the remaining Plants; and it will be very necessary to renew the Bushes about them where they are lost, to protect them from Cattle; and the following Summer they should be kept clear from Weeds.

In this manner they may remain three or four Years, observing every Spring to dig and loosen the Earth about their Roots, which will be of great Service to them; by which time you will easily judge which of the two Plants left in each Plot is likely to make the best Tree, so that the other should now be taken away, being very careful how you dig near the remaining Plants, lest you should injure their Roots; and if at this time you find

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any of them with very crooked un-
 rightly Stems, you may cut them
 down near the Surface of the
 Ground; and if their Roots are
 strong, they will send forth strait vi-
 gorous Shoots the following Summer,
 and make kindly handsome Plants.

When these Plants are advanced
 out of the Reach of Cattle, they
 will require but little more Care,
 except to prune off any strong
 lateral Branches, where they are
 produced, in order to strengthen
 the leading Shoot; but you should
 by no means be too busy in pruning
 these Trees, which will greatly re-
 tard their Growth. The Expence
 of such Plantations is but small,
 especially where Labour is cheap;
 and the Profits which must arise
 from them to the Successors of
 those who are so beneficent to their
 Posterity, as to lay out a small Share
 of their Fortune this way, will be
 very great: tho', as this hath been
 fully treated of by Mr. Evelyn, I
 shall not repeat it in this Place; but
 refer the Curious to his valuable
 Treatise of Forest-trees, where they
 will find enough said to encourage
 all Gentlemen of Estates to lay out
 some of their present Fortune to
 enrich their Families.

QUICK delights in a Ground
 that is more dry than wet (for wa-
 tery Places it abhors). Plant Quick
 in the following manner:

Let the first Rows of Sets be
 placed in a Trench of about half a
 Foot deep, even with the Top of
 the Ditch, in somewhat a sloping
 or inclining Posture; then having
 raised the Bank near a Foot upon
 them, plant another Row so as their
 Tops may just peep out over the
 Middle of the Spaces of the first
 Row: these cover again to the
 Height and Thickness of the other,
 and place a third Rank opposite to

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the first, and then finish the Bank to
 its intended Height.

The Distances of the Plants should
 not be above one Foot, and the
 Season to do the Work in may be
 from the Beginning of *February*
 till the End of *March*, or else in
September to the Beginning of *De-*
cember.

When this is finished, you must
 guard both the Top of the Bank,
 and the utmost Verge of the Ditch,
 with a sufficient dry Hedge inter-
 woven from Stake to Stake into
 the Earth (which commonly they
 do on the Bank), to secure the
 Quick from the Spoil of Cattle.

You must also be careful to re-
 pair such as decay, the following
 Spring, by supplying the dead, and
 trimming the rest; and after three
 Years Growth, intermix some Tim-
 ber-trees amongst them, such as
 Oak, Ash, Beech, Maple, Fruit, or
 the like; which being drawn young
 out of the Nurseries, may be very
 easily inserted.

Some, indeed, object against scat-
 tering these Mafts and Keys among
 Fences, which being grown, over-
 top the Hedge that grows under it,
 and may prejudice it with their
 Shade and Drip: but this may be
 prevented by planting Hollies (which
 are Proof against these Impedi-
 ments) in the Line or Trench
 where you would raise Standards,
 as far as they usually spread in
 many Years; and which, if placed
 at good Distances, how close so-
 ever to the Stem, would (besides
 their stout Defence) prove a great
 Decoration to large and ample In-
 closures.

In *February* or *October*, with a
 sharp Hand-bill, cut away all super-
 fluous Sprays and Stragglers; then
 search out the principal Stems, and
 with a keen and light Hatchet cut
 them

them slant-wise close to the Ground hardly three quarters through, or rather so far only as till you can make them comply handsomely, lest you rift the Stem; and so lay it from you sloping as you go, folding in the lesser Branches, which spring from them; and ever within five or six Feet Distance, where you find an upright Set (cutting off only the Top to the Height of your intended Hedge), let it stand as a Stake, to fortify your Work, and to receive the twining of those Branches about it.

Lastly, at the Top (which should be about five Feet above-ground) take the longest, most slender and flexible Twigs which you reserved; and (being cut as the former, where Need requires) bind in the Extremities of all the rest; and thus your Work is finished.

This being done very close and thick, makes an impregnable Hedge in few Years; for it may be repeated as you see Occasion; and what you so cut away, will help to make your dry Hedges for your young Plantations, or will be useful for the Oven, and make good Bavin, especially the extravagant Side-branches, which will spring upright, till the newly-wounded are healed.

There are some who would have no Stakes cut from the Trees, save here-and-there one, so as to leave half the Head naked, and the other standing; but the over-hanging Boughs will kill what is under them, and ruin the Tree, so pernicious is this Half-topping.

There is nothing more prejudicial to under-growing young Trees, than when newly trimmed and pruned, to have their (as yet raw) Wounds poisoned with continual dripping.

Thomas Franklin, Esq; has given the following Account of his Method of Planting Quick:

He first set out the Ground for Ditches and Quick ten Feet in Breadth; he subdivided that, by marking out two Feet and an half on each Side (more or less at Pleasure) for the Ditches, leaving five in the Middle between them; then digging up two Feet in the Middle of that five Feet, he planted the Sets in; which although it required more Labour and Charge, he says, he soon found it repaid the Cost: this done, he began to dig the Fosses, and to set up one Row of Turfs on the Outside of the said five Feet; namely, one Row on each Side thereof, the green Side outmost, a little reclining, so as the Grass might grow.

After this, returning to the Place he began at, he ordered one of the Men to dig a Spit of the under Turf-mould, and lay it between the Turfs placed edgewise, as before described, upon the two Feet, which was purposely dug in the Middle, and prepared for the Sets; which the Planter set with two Quicks upon the Surface of the Earth almost upright, whilst another Workman laid the Mould forwards about twelve Inches, and then set two more, and so continued.

This being finished, he ordered another Row of Turfs to be placed on each Side upon the Top of the former, and filled the Vacancy between the Sets and Turfs as high as their Tops, always leaving the Middle, where the Sets were planted, hollow, and somewhat lower than the Sides of the Banks by eight or ten Inches, that the Rain might descend to their Roots; which is of great Advantage to their Growth, and by far better than by the old

ways, where the Banks are too much sloping, and the Roots of the Set are seldom wetted even in a moist Season the Summer following: but if it prove dry, many of the Sets, especially the late-planted, will perish; and even few of those that had been planted in the Latter-end of *April* (the Summer happening to be somewhat dry), escaped.

The Planting being thus advanced, the next Care is Fencing; by setting an Hedge of about twenty Inches high upon the Top of the Bank on each Side thereof, leaning a little outwards from the Sets, which will protect them as well, if not better than a Hedge of three Feet, standing on the Surface of the Ground, so as no Cattle can approach the dead Head to prejudice it, unless they set their Feet in the Ditch itself, which will be at least a Foot deep; and from the Bottom of the Foss to the Top of the Hedge, about four Feet and an half, which they can hardly reach over to crop the Quick, as they might in the old way; and besides, such an Hedge will endure a Year longer.

He says, he had an Hedge which had stood five Years. And though nine or ten Feet were sufficient for both Ditches and Banks, yet where the Ground is but indifferent, it is better Husbandry to take twelve Feet, which will allow of a Bank at least six Feet broad, and gives more Scope to place the dead Hedges farther from the Sets; and the Ditches, being shallow, will, in two Years time, graze.

As to the Objection, that taking twelve Feet wastes too much Ground, he affirms, That if twelve Feet in Breadth be taken for a Ditch and Bank, there will no more Ground be wasted than by the common way; for in that a Quick

is rarely set but there are nine Feet between the dead Hedges, which is intirely lost all the Time of fencing; whereas with double Ditches there remain at least eighteen Inches on each Side where the Turfs were set on Edge, that bear more Grass than when it lay on the Flat.

But admitting it did totally lay waste three Feet of Ground, the Damage were very inconsiderable, forty Perch in Length being two hundred and twenty Yards, which makes Perches 7, 25, 9, or 7 Pole $\frac{1}{2}$; which, at 13*s.* and 4*d.* the Acre, amounts not to 7*d.* $\frac{1}{2}$ per Annum.

Now, that this is not only the best, but cheapest way of Quick-setting, will appear by comparing the Charge of both.

In the usual way the Charge of a three-foot Ditch is four Pence per Pole, the Owner providing Sets; if the Workman finds them, he will have for making the said Ditch, and setting them, eight Pence per Pole, and for Hedging, two Pence, that is, for both Sides, four Pence the Pole; which renders the Charge of Hedging, Ditching, and Sets, twelve Pence the Pole, that is, for forty Rod in Length, forty Shillings.

Then the Load of Wood out of the Copse costs (with Carriage, tho' but two or three Miles Distance) ten Shillings, which will seldom hedge above eight Pole (single Hedge); but allowing to do ten, to fence forty Pole, there must be at least eight Load of Wood, which costs four Pounds, making the whole Expence for ditching, fencing and Setting forty Pole, to be six Pounds, reckoning with the least; for scarce any will undertake to do it for less than three Shillings and

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and six Pence *per* Pole, and then the forty Pole costs seven Pounds.

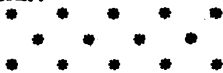
Whereas with double Ditches, both of them Setting, and Sets, will be done for eight Pence the Pole, and the Husbandman get as good Wages as with the single Ditch (for though the Labour about them is more, yet the making the Table is saved); which costs one Pound six Shillings and eight Pence; and the Hedges being low, they will make better Wages at Hedging for a Peny a Pole, than at two Pence for common Hedges; which comes to six Shillings and eight Pence for hedging forty Pole on both Sides: thus, one Load of Wood will fence thirty Pole at least, and forty hedged with two Thirds of Wood less than in the other way, and cost but one Pound six Shillings and eight Pence; which makes the other whole Charge of Sets, Ditching, Fencing, and Wood, but three Pounds.

QUICK BEAM; *vide* Scorbus sylvestris.

QUINCE-TREE; *vide* Cydonia.

QUINCUNX ORDER is a Plantation of Trees, disposed originally in a Square, consisting of five Trees, one at each Corner, and a fifth in the Middle; which Disposition, repeated again and again, forms a regular Grove, Wood, or Wilderness: and when viewed by an Angle of the Square or Parallelogram, presents equal or parallel Alleys.

Trees planted in *Quincunx* are such as are planted in the following Form:



QUINQUEFOLIUM, Cinquefoil.

There are many Species of this Plant, which are preserved in Bo-

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tanic Gardens for Variety (some of which grow wild in divers Parts of *England*); but as they are never propagated either for Use or Beauty, I shall not trouble the Reader with an Enumeration of their several Names.



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RADISH; *vide* Raphanus.
RADISH, HORSE; *vide* Cochlearia.

RAMPIONS; *vide* Campanula radice esculenta.

RANDIA.

The Characters are;

It hath a Flower consisting of one Leaf, whose lower Part is tubulous, but the upper Part is expanded, and for the most part divided into five Segments; the Flower is succeeded by an oval Fruit, having but one Cell, which is filled with flat cartilaginous Seeds surrounded by a Pulp.

There is but one Species of this Plant at present known; *viz.*

RANDIA frutescens, spinis bijugis, foliis subrotundis, floribus albis. *Houss.* Shrubby Randia, with Spines growing two at a Joint, roundish Leaves, and white Flowers.

This Plant is figured and described by Sir *Hans Sloane* in his History of *Jamaica*, under the Title of *Lycium forte, foliis subrotundis integris, spinis & foliis ex adverso fitis*, Vol. I. p. 40.

This Shrub grows plentifully about *La Vera Cruz*, from whence the Seeds were sent by the late Dr. *William Houstoun*, who gave this Name to it, in Honour to Mr. *Isaac Rand*, a curious Botanist.

This Shrub rises to the Height of ten or twelve Feet in the Country of its Growth, and divides into a great Number of Branches, which are always produced by Pairs opposite, as are also the Leaves and Spines. The Flowers are small, and of a white Colour, which are succeeded by hard oval-shaped Fruit, about the Size of a large *Spanish Nut*, which is full of flat Seeds inclosed in a soft blackish Pulp.

It is propagated by Seeds, which should be sown early in the Spring, in Pots filled with light fresh Earth, and plunged into an Hot-bed of Tanners Bark, observing to water the Earth frequently to promote the Vegetation of the Seeds. When the Plants come up, they must have fresh Air admitted to them every Day, when the Weather is warm, and they must be often refreshed with Water. In about a Month's time after the Plants come up, they will be fit to transplant; when they should be carefully shaken out of the Pots, and each planted into a separate small Pot filled with light fresh Earth, and then plunged into the Hot-bed again; where they must be screened from the Sun until they have taken new Root, after which time they must have Air and Moisture in proportion to the Warmth of the Season. The Plants may remain in the Hot-bed till toward *Michaelmas*, when the Nights begin to be cold: at which time they should be removed into the Stove; and if they are plunged in the Bark-bed, it will greatly forward their Growth, tho' they will live in the dry Stove, if they are kept in a moderate Temperature of Heat, and are frequently watered. During the two first Seasons, while the Plants are young, it will be proper to keep them constantly in the Stove (but then their

Leaves must be washed, whenever they contract Filth); which will bring them forward: but after the Plants have obtained Strength, they may be exposed every Summer to the open Air, provided they are placed in a warm Situation: but in Winter they must be constantly placed in a Stove, and kept in a moderate Warmth; otherwise they will not live in this Country.

The Leaves of this Plant continue green throughout the Year, which renders the Plant valuable, because it makes an agreeable Variety in the Winter-season, when mixed with other tender Plants. Sir *Hans Sloane* found this Plant in the Island of *Barbados*.

RANUNCULUS, Crowfoot.

The Characters are;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose; having, for the most part, a many-leaved Empalement or Flower-cup; out of the Middle of the Flower rises the Pointal, which afterward becomes a Fruit, either round, cylindrical, or spiked; to the Axis of which, as a Placenta, adhere many Seeds, for the most part, naked.

The Species are;

1. RANUNCULUS *bortensis ere-Aus, flore pleno*. C. B. P. Common yellow Crowfoot, with a double Flower.

2. RANUNCULUS *repens, flore pleno*. J. B. Common creeping Crowfoot, with a double Flower.

3. RANUNCULUS *montanus, aconiti folio, albus, flore minore*. C. B. P. Mountain Crowfoot, with a white Flower.

4. RANUNCULUS *folio aconiti, flore albo multiplici*. C. B. P. Crowfoot with a Monk's-hood-leaf, and a double white Flower, commonly called, *The fair Maid of France*.

5. *RANUNCULUS bulbosus, flore pleno. C. B. P.* Common bulbous-rooted Crowfoot, with a double Flower.

6. *RANUNCULUS Constantinopolitanus, flore sanguineo pleno. J. B.* Common Ranunculus, with a double bloody Flower.

7. *RANUNCULUS asphodeli radice, prolifera miniatus. C. B. P.* Ranunculus with an Asphodel-root, and childing Carmine-flowers, commonly called, *Turks Turban.*

8. *RANUNCULUS Asiaticus polyclonus, sive grumosa radice, secundus. J. B.* Asiatic Ranunculus, with many Heads, and a grumose Root, commonly called *Sphericus.*

9. *RANUNCULUS asphodeli radice, flore sanguineo maximo. H. R. Par.* Asphodel-rooted Ranunculus, with a very large red Flower, commonly called, *The Monster.*

10. *RANUNCULUS asphodeli radice, flore subphœnicio rubente. C. B. P.* Asphodel-rooted Ranunculus, with purplish-red Flowers, commonly called, *Marvelia.*

11. *RANUNCULUS asphodeli radice, flore luteo variegato. H. R. Par.* Asphodel-rooted Ranunculus, with a yellow variegated Flower.

12. *RANUNCULUS Alepus, grumosa radice, flore lineis rubris & luteis striato. H. R. Par.* Grumose-rooted Crowfoot, with a Flower striped with red and yellow Lines, commonly called, *Ranunculus of Aleppo.*

13. *RANUNCULUS asphodeli radice, flore flavo, venis rubris distincto, Bosvel dictus. H. R. Par.* Crowfoot with an Asphodel-root, and yellow Flower with red Veins, commonly called *Bosvel.*

14. *RANUNCULUS Alepus, grumosa radice, flore miniato, per oras luteo. H. R. Par.* *Aleppo* Crowfoot, with a grumose Root, and a

Carmine-flower bordered with Yellow.

15. *RANUNCULUS flore pleno flavescente, & rubris lineis elegantissime variegato. H. R. Par.* Crowfoot with a double yellow Flower, curiously striped with red Lines, commonly called *Aurora.*

16. *RANUNCULUS asphodeli radice, flore pleno albo parvo, rubris striis distincto. H. R. Monsp.* Crowfoot with an Asphodel-root, and a small double white Flower striped with Red.

17. *RANUNCULUS asphodeli radice, flore pleno magno lacteo, superius lituris rubris eleganter picto. Boerb. Ind.* Crowfoot with an Asphodel-root, and a large double white Flower, marked above with red Spots, commonly called, *The Seraphic.*

These are most of them old Flowers, which have been long cultivated in the *English* Gardens. The five first-mentioned Sorts are very hardy Plants, and will thrive extremely well in shady Borders; these require no other Culture, but to take up their Roots every other Year, when their Leaves decay, and part them, planting out the Off-sets in other Borders, lest by permitting them to grow too large, they rot each other. The creeping Sort will require to be oftener transplanted, otherwise it will spread over every thing that grows near it. These do all produce handsome double Flowers, which continue long in Beauty, and afford an agreeable Variety, and being hardy, are worthy of a Place in every good Garden.

The other Sorts were originally brought from *Turky*, and were formerly in great Esteem in *England*; but of late Years there have been introduced many other Sorts of a different Kind, from *Persia*; amongst

which are many with semi-double Flowers, which produce Seeds, from which there are such prodigious Varieties of new Flowers annually obtained, which are so large, and of such Variety of beautiful Colours, as to exceed all other Flowers of that Season, and even vie with the most beautiful Carnations: these are, many of them, finely scented; and the Roots, when strong, generally produce eight, ten, or twelve Flowers upon each, which succeeding each other, continue in Beauty a full Month, or longer, according to the Heat of the Season, or the Care taken to defend them from the Injuries of the Weather; all which excellent Qualities have rendered them so valuable, that the old Sorts here named are almost disregarded, except in some old Gardens; but however, as they are still preserved by some Persons, I shall briefly set down their Management, before I proceed to treat of the new Kinds, which must be treated in a different manner from these.

All these very double Flowers do never produce Seeds; so that they are only multiplied by Off-sets from their Roots, which they generally produce in good Plenty, if planted in a good Soil, and duly attended in Winter. The Season for planting their Roots is any time in *October*; for, if they are planted sooner, they are apt to come up in a short time, and grow pretty rank before Winter, whereby they will be in greater Danger of suffering by Frost; and, if they are planted much later, they will be in Danger of perishing underground; so that if you keep them out of the Ground any longer than the Beginning of *November*, it will be the better way to defer the Planting of them till the Latter-end of *January*, or the Beginning

of *February*, after the great Frosts are past.

The Beds in which these Roots are planted, should be made with fresh light sandy Earth, at least a Foot deep: the best Soil for these Roots may be composed in the following manner; *viz.* Take a Quantity of fresh Earth from a rich Upland Pasture, about six Inches deep, together with the Green-sward; this should be laid in an Heap to rot for twelve Months before it is used, observing to run it over very often, to sweeten it, and break the Clods; to this you should add a proportionable Quantity of Sea or Drift-sand, according as the Earth is lighter or stiffer; if it be light, and inclining to a Sand, one Load of Sand will be sufficient for four Loads of Earth; but if the Earth is strong and heavy, the Sand should be mixed in equal Quantity therewith; but you should often turn it over, in order to unite their Parts well together, before it is put into the Beds.

The Depth which this should be laid in the Beds, as was before said, must be about a Foot: this should be below the Surface, in proportion to the Driness or Moisture of the Place where they are situated; which in dry Ground should be eight Inches below the Surface, and the Beds raised four Inches above; but in a moist Place, they should be six Inches below, and six above the Ground: and in this Case it will be very proper to lay some Rubbish and Stones in the Bottom of each Bed, to drain off the Moisture. This Earth I would by no means have screened very fine; but only in turning it over each time, you should be careful to break the Clods, and throw out all large Stones, which will be sufficient; for if it is made very fine, when the great Rains in Winter come

come on, it will cause the Earth to bind into one solid Lump, whereby the Moisture will be detained, and the Roots, not being able to extend their tender Fibres, will rot. Of this I have seen many Examples, but one particularly to my Cost: When I had procured a fine Parcel of these Roots from abroad, and being desirous of having them thrive very well, I took great Pains to screen the Earth of my Beds very fine, which I laid near two Feet deep, and planted a good Part of my Roots therein; but the Season advancing, and having a great deal of other Business upon my Hands, I did not screen the Earth of all my Beds, but planted some of them without doing any thing more than raking them; and the Success was, that the Roots in those Beds which were screened, did, great Part of them, intirely rot, and the remaining Part were so weak, as not to produce any good Flowers; whereas those which were planted in the Beds which were not screened, did thrive and flower very well, and scarce any of the Roots failed, though the Earth of all the Beds was the same, and were in the same Situation, both with regard to Wind and Sun; so that the Damage which those Roots sustained, was owing intirely to the Fineness of the Earth; and this I have several times since observed in other Gardens.

The Beds, being thus prepared, should lie a Fortnight to settle, before the Roots are planted, that there may be no Danger of the Earth settling unequally after they are planted, which would prejudice the Roots, by having hollow Places in some Parts of the Bed, to which the Water would run and lodge, and so rot the Roots in such Places. Then having leveled the Earth, laying the Surface

a little rounding, you should mark out the Rows by a Line, at about four Inches Distance each Way, so that the Roots may be planted every Way in strait Lines; then you should open the Earth with your Fingers, at each Cross, where the Roots are to be planted, about two Inches deep, placing the Roots exactly in the Middle, with their Crowns upright: then with the Head of a Rake you should draw the Earth upon the Surface of the Bed level, whereby the Top of the Roots will be about an Inch covered with Earth, which will be sufficient at first: this Work should be done in dry Weather, because the Earth will then work better, than if it were wet: but the sooner after Planting there happens to be Rain, the better it will be for the Roots; for, if it should prove dry Weather long after, and the Earth of the Beds be very dry, the Roots will be subject to mould and decay; therefore in such a Case it will be proper to give a little Water to the Beds, if there should be no Rain happen in a Fortnight's time, which is very rare at that Season of the Year; so that they will seldom be in Danger of suffering that way.

When the Roots are thus planted, there will no more be required until toward the Middle of *November*; by which time they will begin to heave the Ground, and their Buds appear; when you should lay a little of the same fresh Earth, of which the Beds were composed, about an Inch thick all over the Beds, which will greatly defend the Crown of the Root from Frost: and when you perceive the Buds to break through this second Covering, if it should prove a very hard Frost, it will be very proper to arch the Beds over with Hoops, and cover them with Mats, especially in the Spring, when the
Flowers

Flower-buds will begin to appear; for, if they are exposed to too much Frost or blighting Winds at that Season, their Flowers do seldom open fairly, and many times the Roots are destroyed: but this happens more frequently to the *Persian* Kinds, which are tenderer, than to these Sorts, which are pretty hardy; for which Reason these are often planted in open Borders, intermixed with other Flowers, tho' in very hard Winters these are apt to suffer, where there is not Care taken to guard off the Frost.

In the Beginning of *March* the Flower-stems will begin to rise, at which time you should carefully clear the Beds from Weeds, and stir the Earth with your Fingers between the Roots, being very careful not to injure them. This will not only make the Beds appear handsome, but also greatly strengthen their Flowers. When the Flowers are past, and the Leaves are withered, you should take up the Roots, and carefully clear them from the Earth; then spread them upon a Mat to dry, in a shady Place; after which they may be put up in Bags or Boxes in a dry Room, until the *October* following, which is the Season for planting them again.

Thus having directed how these Sorts are to be cultivated, I shall proceed to treat of the *Persian* Kinds; in which I shall only mention in what Particulars these are to be treated different from those already mentioned.

These Flowers are not only propagated by Off-sets from the old Roots, as the former; but are also multiplied by Seeds, which the semi-double Kinds do produce in Plenty. Therefore whoever are desirous to have these in Perfection, should annually sow their Seeds, from which

new Varieties will be every Year produced; but, in order hereto, you should be careful in saving the Seed, or in procuring it from such Persons as understand how to save it; that is, who will be careful not to leave any Flowers for Seeds, but such as have three or four Rows of Petals at least, and are well-coloured; for, since these Flowers increase so plentifully, it is not worth the Trouble to sow any indifferent Seeds, because there can be but little Hopes of obtaining any good Flowers from such Seeds.

Being prepared with Seeds, about the Middle of *August*, which is the proper Season for sowing of them, you should get some large Pots, flat Seed-pans or Boxes (of either as many as you have Seeds to sow): these should be filled with light sandy rich Earth, leveling the Surface very even; then sow the Seeds thereon pretty thick, and cover it about a Quarter of an Inch thick with the same light Earth; after which you should remove these Pots into a shady Situation, where they may have the morning Sun until Ten of the Clock; and if the Season should prove dry, you must often refresh them with Water, being very careful in doing of this, so as not to wash the Seeds out of the Ground. In this Situation the Pots should remain until the Beginning of *October*, by which time the Plants will begin to come up (though sometimes the Seeds will remain in the Earth until *November*, before the Plants appear); when you should remove the Pots into a more open Exposure, where they may have full Sun, which at that time is necessary to exhale the Moisture of the Earth; but toward the Middle of *November*, when you are apprehensive of Frost, the Pots should be removed under a common Hot-bed Frame, where they may be covered

covered with the Glasses in the Night-time, and in bad Weather; but in the Day, when the Weather is mild, they should be intirely opened, otherwise the Plants will draw up too weak: the only Danger they are in, is from violent Rains and Frosts, the first often rotting the tender Plants, and the Frost will often turn them out of the Ground; therefore they should be carefully guarded against both of these.

In the Spring, as the Season grows warm, these Pots should be exposed to the open Air, placing them at first near the Shelter of an Hedge, to protect them from the cold Winds; but towards the Latter-end of *March*, or the Beginning of *April*, they should be removed again into a more shady Situation, according to the Warmth of the Season; and if it should prove dry, they must be sometimes refreshed with Water; but you should be careful not to give it to them in great Quantities, which is very apt to rot these tender Roots: and in the Middle or Latter-end of *April* they should be placed where they may have only the morning Sun: in which Place they may remain till the Leaves decay: when they may be taken out of the Earth, and the Roots dried in a shady Place; after which they may be put up in Bags, and preserved in a dry Place until the *October* following; when they must be planted in the manner before directed for the old Roots.

The Spring following, these Roots will flower; at which time you should carefully mark such of them as are worthy to be preserved: and the single or bad-coloured Flowers may be pulled up, and thrown away, which is the surest Method of removing them from the good Sorts; for, if they are permitted to remain

together until their Leaves decay, there may be some Off-sets of the bad Sorts mixed with the good Flowers. You should not suffer those Flowers which you intend to blow fine the succeeding Year, to bear Seeds; but cut off the Flowers when they begin to decay: for those Roots which have produced Seeds, seldom flower well afterwards; nor will the principal old Root, which has flowered strong, ever blow so fair as will the Off-sets; which is what should be principally observed, when a Person purchases any of these Roots; and a great Part of the Complaints made by those who have bought these Roots at a dear Rate, is principally owing to this; for the Persons who sold them, being apprised of this matter, have parted with their old Roots to their Purchasers, and reserved their Off-sets for their own Use; which old Roots have often so much degenerated from what they were the preceding Year, as to cause a Suspicion, whether the Persons they were purchased from, had not changed the Roots; and this Degeneracy always attends these Flowers, after having flowered extremely large and fair, or that they have been permitted to seed: so that it is absolutely necessary to sow Seeds every Year, in order to preserve a Succession of good Flowers.

The Soil which these delight most in, is a rich light sandy Earth; but whatever Dung is added to the Earth, should be very rotten, and ought to be mixed with the Earth at least six Months before it be used: during which time it should be often turned over to mix the Parts well together; and the lighter the Earth is, the better will the Flowers thrive: but, as I before said, it is by no means advisable to sift or screen it too fine, for the Reasons already given. Some
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there are, who mix rotten Tan or Saw-duft with their Earth, to render it light; but this is also bad for these Flowers, as I have several times experienced, especially if either of these be not so rotten as to have quite lost its Appearance, and reduced to Earth: for, though the Roots will often come up very strong, and flourish very vigorously till the Beginning of *February*; yet at that Season it is very common to have them die off in large Patches: which when I have observed, I have searched to the Bottom of the Roots, and found some Part of the Tan or Saw-duft lying near them, which has detained the Moisture, and thereby rotted the Roots.

The Manner of preparing the Beds, and the Distance and Method of planting the Roots, being exactly the same as hath been already directed for the old Sorts, I shall not repeat it here; but will only observe, that these Flowers, being more tender than the others, must be protected from hard Frosts, and cutting sharp Winds, especially after *Christmas*, when their Flower-buds are forming; for, if they are neglected at that Season, their Flowers will rarely prove fair; nor should you suffer them to receive too much Wet in Winter or Spring, which is equally as injurious to them as Frost. In planting these Roots you should observe to place the semidouble Kinds, from which you intend to save Seeds, in separate Beds by themselves, and not intermix them with the double Flowers, because they will require to be treated in a different manner; for, when the Flowers of the semidouble Kinds begin to fade, you should carefully guard them from Wet; because, if they are permitted to receive hard Rains, or are watered at that Season, the Seeds do rarely come to Maturi-

ty, or are so weak, that scarce one in fifty of them will grow.

When the Seed begins to ripen (which may be easily known by separating from the Axis, and falling), you should look it over every Day, gathering it as it ripens; for there will be a considerable Distance in the Seeds of the same Bed coming to Maturity, at least a Fortnight, and sometimes three Weeks, or a Month. When you gather the Seed, it should not be exposed to the Sun, but spread to dry in a shady Place; after which, you must put it up where the Vermin cannot come to it, until the time of sowing it.

By this Method of sowing Seeds every Year, you will not only increase your Stock of Roots, but also raise new Varieties, which may be greatly mended by changing the Seeds into fresh Ground; for, if a Person continually sows his Seed in the same Garden many Years, they will not produce near so fine Flowers, as if he procured his Seeds at some Distance; which is also the Case with most other Plants.

It will also be necessary to take away all the Earth out of the Beds in which the Roots were blown the preceding Year, and put in new, if you intend to plant *Ranunculus*'s there again; otherwise they will not thrive near so well, notwithstanding you may add some new Compost to the Beds; and this is what all the curious Florists do continually observe.

RAPA, Turnep.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross; out of the Flower-cup rises the Pointal, which afterward turns to a Pod, divided into two Cells by an intermediate Partition, to which the Valves adhere on both Sides, and are full

fall of roundish Seeds: to these Marks must be added, A carneous and tuberosose Root.

The Species are;

1. RAPA *sativa rotunda, radice candida*. C. B. P. Round garden Turnep, with a white Root.

2. RAPA *sativa rotunda, radice supra tertiam viridi*. Boerb. Ind. Round garden Turnep, whose Root is green above-ground, commonly called, *The Dutch Turnep*.

3. RAPA *sativa rotunda, radice purpurea*. C. B. P. Round garden Turnep, with a purple Root.

4. RAPA *sativa rotunda, radice obsolete nigricante*. C. B. P. Round garden Turnep, with a rusty black Root.

5. RAPA *sativa rotunda, radice foris & intus flavescente*. C. B. P. Round garden Turnep, with a yellow Root both within and without.

6. RAPA *radice oblonga, seu femina*. C. B. P. Oblong or Female Turnep.

There are some other Varieties of this Plant, which differ in the Shape or Colour of their Roots; but as they are only feminal Variations, it would be needless to enumerate them in this Place, since it is the first and third Sort here mentioned, which are chiefly cultivated for the Table in *England*. The yellow Sort, and that with long Roots, were formerly more cultivated than at present; for it is now very rare to see either of these brought to the Markets, though, some Years since, they were sold in as great Plenty as the common round Sort.

Turneps delight in a light sandy Soil, which must not be rich; for in a rich Soil they grow rank, and are sticky; but if it be moist, they will thrive the better, especially in a fresh Land, where they are always

sweeter than upon an old worn-out Soil.

The common Season for sowing of Turneps is any time from the Beginning of *July* to the Middle of *August*, or a little later; though it is not adviseable to sow them much after, because, if the Autumn should not prove very mild, they will not have time to apple before Winter. But, notwithstanding this is the general Season in which the greatest Part of Turneps are sown in the Country, yet about *London* they are sown successively from *March* to *August*, by those who propagate them to supply the Markets with their Roots; but there is a great Hazard of losing those which are sown early in the Year, if the Season should prove dry, by the Fly, which will devour whole Fields of this Plant while young; so that where a small Quantity for the Supply of a Family is wanted, it will be absolutely necessary to water them in very dry Weather: and where a Person sows of these Seeds in *April*, *May*, and *June*, it should always be upon a moist Soil; otherwise they seldom come to good, the Heat of the Weather at that Season being too great for them upon a dry Soil: but those which are sown towards the Middle or Latter-end of *July*, do commonly receive some refreshing Showers to bring them forward; without which it is very common to have them all destroyed.

These Seeds should always be sown upon an open Spot of Ground; for, if they are near Hedges, Walls, Buildings, or Trees, they will draw up, and be very long-topped; but their Roots will not grow to any Size.

They are sown in great Plenty in the Fields near *London*, not only for the Use of the Kitchen, but for Food

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for Cattle in Winter, when other Food fails; and this Way is become a great Improvement in barren sandy Lands, particularly in *Norfolk*, where, by the Culture of Turneps, many Persons have doubled the yearly Value of their Ground.

The Land upon which this Seed is sown should be ploughed in *May*, and twyfallowed in *June*, and made very fine; then the Seed should be sown pretty thin; for, it being small, a little will sow a large Piece of Ground. Four Pounds of this Seed are sufficient for an Acre of Land. The Seed must be harrowed in, and the Ground rolled with a wooden Roll, to break the Clods, and make the Surface even: in ten Days or a Fortnight after sowing, the Plants will come up; at which time, if the Season should prove dry, they will be in great Danger of being destroyed by the Fly: but if it so happen, the Ground must be sowed again; for the Seed being cheap, the chief Expence is the Labour.

When the Plants have got four or five Leaves, they should be hoed to destroy the Weeds, and to cut up the Plants where they are too thick, leaving the remaining ones about six or eight Inches asunder each Way, which will be room enough for the Plants to stand for the first Hoeing: but in the second Hoeing, which must be performed about three Weeks or a Month after the first, they should be cut up, so as that the remaining Plants may stand fourteen or sixteen Inches Distance, or more, especially if they are designed for feeding of Cattle; for, where the Plants are allowed a good Distance, the Roots will be proportionably large, so that what is lost in the Number, will be over-gained by their Bulk; which is what I have often observed: but in such Places where they are sown for

the Use of the Kitchen, they need not be left at a greater Distance than ten Inches or a Foot, because large Roots are not so generally esteemed for the Table.

In order to save good Turnep-seeds, you should transplant some of the fairest Roots in *February*, placing them at least two Feet asunder each Way, observing to keep the Ground clear from Weeds, until the Turneps have spread so as to cover the Ground, when they will prevent the Weeds from growing; and when the Pods are formed, you should carefully guard them against the Birds, otherwise they will devour it, especially when it is near ripe; at which time you should either shoot the Birds, as they alight upon the Seed, or lay some birdlimed Twigs upon it, whereby some of them will be caught; and if they are permitted to remain some time, and afterwards turned loose, they will prevent the Birds from coming thither again for some time, as I have experimented. When the Seed is ripe, it should be cut up, and spread to dry in the Sun; after which it may be threshed out, and preserved for Use.

RAPHANUS, Radish.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross; out of the Flower-cup rises the Pointal, which afterward turns to a Pod in form of an Horn, that is thick, spongy, and furnished with a double Row of roundish Seeds, which are separated by a thin Membrane.

The Species are;

1. *RAPHANUS minor oblongus. C. B. P.* Small oblong, or common Radish.
2. *RAPHANUS niger major rotundus. Mor. Hist.* Great round black Radish, commonly called, *The Spanish Radish.*

3. *RAPHANUS major orbicularis, floribus candidis.* C. B. P. Great round-rooted Radish, with white Flowers.

4. *RAPHANUS minor oblongus pyriformis, vulgo Ramurazza.* Hort. Cath. The lesser Radish, with an oblong pear-shaped Root.

4. *RAPHANUS major orbicularis, vel rotundus.* C. B. P. Greater Radish, with a round Root.

The first Sort here mentioned is that which is commonly cultivated in Kitchen-gardens for its Root; of which there are several Varieties, as the small-topped, the deep-red, and the long-topped striped Radish; all which are Varieties arising from Culture. The small-topped Sort is most commonly preferred by the Gardeners near London, because they require much less room than those with large Tops, and may be left much closer together: and as the forward Radishes are what produce the greatest Profit to the Gardener, so these being commonly sown upon Borders near Hedges, Walls, or Pales, if they are of the large-topped Sort, they will be apt to grow mostly to Top, and not swell so much in the Root as the other, especially if they are left pretty close.

The Seasons for sowing this Seed are various, according to the Time when they are desired for Use: but the earliest Season is commonly toward the Latter-end of October, that the Gardeners near London sow them to supply the Market; and these, if they do not miscarry, will be fit for Use in March following, which is full as soon as most People care to eat them. These (as I said before) are commonly sown on warm Borders, near Walls, Pales, or Hedges, where they may be defended from the cold Winds.

The second Sowing is commonly about Christmas, provided the Season be mild, and the Ground in a fit Condition to work: these are also sowed near Shelter; but not so near Pales or Hedges, as the first Sowing: these, if they are not destroyed by Frost, will be fit for Use the Beginning of April: but, in order to have a Succession of these Roots for the Table through the Season, you should repeat sowing of their Seeds once a Fortnight, from the Middle of January till the Beginning of April, always observing to sow the latter Crops upon a moist Soil, and an open Situation; otherwise they will run up, and grow sticky, before they are fit for Use:

Many of the Gardeners near London sow Carrot-seed with their early Radishes; so that many times, when their Radishes are killed, the Carrots will remain; for the Seeds of Carrots commonly lie in the Ground five or six Weeks before they come up; and the Radishes seldom lie above a Fortnight under-ground; so that these are often up, and killed, when the Carrot-seed remains safe in the Ground: but when both Crops succeed, the Radishes must be drawn off very young, otherwise the Carrots will be drawn up so weak as not to be able to support themselves when the Radishes are gone.

It is also a constant Practice with these Gardeners, to mix Spinach-seed with their latter Crop of Radishes; so that when the Radishes are drawn off, and the Ground cleaned between the Spinach, it will grow prodigiously, and in a Fortnight's time will as completely cover the Ground, as tho' there had been no other Crop; and this Spinach, if it be of the broad-leaved Kind, will be larger and fairer, than it commonly is when sown by itself; because
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where People have no other Crop mixed with it, they commonly sow it too thick, whereby it is drawn up weak : but here the Roots stand pretty far apart ; so that after the Radishes are gone, they have full room to spread ; and if the Soil be good, it is a prodigious Size this Spinach will grow to before it runs up for Seed : but this Husbandry is chiefly practised by the Gardeners who pay very dear for their Land, and are obliged to have as many Crops in a Year as possible ; otherwise they could not afford to pay such large Rents.

When the Radishes are come up, and have got five or six Leaves, they must be pulled up where they are too close, otherwise they will draw up to Top ; but the Roots will not increase their Bulk : in doing of this, some only draw them out by Hand ; but the best Method is to hoe them with a small Hoe, which will stir the Ground, and destroy the young Weeds, and also promote the Growth of the Plants. The Distance which these should be left, if for drawing up small, may be three Inches ; but if they are to stand until they are pretty large, six Inches is full near enough ; and a small Spot of Ground will afford as many Radishes at each sowing, as can be spent in a Family while they are good.

If you intend to save Seeds of your Radishes, you should, about the Beginning of *May*, prepare a Sort of Ground in proportion to the Quantity of Seeds intended (but you should always make Allowance for bad Seasons, because it often happens, in a very dry Season, that there will not be a fourth Part of the Quantity of Seeds upon the same Proportion of Ground, as there will

be in a moist Season) : this Ground should be well dug and leveled ; then you should draw up some of the straitest and best-coloured Radishes, throwing away all such as are short, and that branch out in their Roots : these should be planted in Rows three Feet Distance, and two Feet asunder in the Rows, observing, if the Season be dry, to water them until they have taken Root ; after which they will require no farther Care but only to hoe down the Weeds between them, until they are advanced so high, as to spread over the Ground, when they will prevent the Growth of Weeds.

When the Seed begins to ripen, you should carefully guard it against the Birds, which will otherwise destroy it : when it is ripe (which you may know by the Pods changing brown) you should cut it, and spread it in the Sun to dry ; after which you should thresh it out, and lay it up for Use, where the Mice cannot come to it ; otherwise they will eat it up.

The small round-rooted Radish is not very common in *England*, but in many Parts of *Italy* it is the only Sort cultivated : the Roots of this Kind are many times as large as a small Turnep, and are very sweet. This may be propagated in the same manner as the common Sort, but only with this Difference ; *viz.* That this must not be sown till the Beginning of *March*, and the Plants allowed a greater Distance. The Seeds of this Kind are very subject to degenerate when saved in *England*, so that it is proper to have them from abroad every Year.

The other round-rooted Radishes are rarely cultivated in *England* ; but those who have a mind to have them ;

them, may sow them in the same manner as the last.

The black Spanish Radish is only cultivated for Medicinal Use in England: the Seeds of this may be sown in May, and when the Plants come up, they should be hoed out, so as to leave the remaining ones ten Inches or a Foot asunder; after which they must be constantly cleared from Weeds in Summer, and in Autumn they will be fit for Use.

RAPUNCULUS, Rampions.

The Characters are;

The Flower consists of one Leaf, in its Form approaching to a Bell-shape; but is so expanded and cut, that it almost represents the Figure of a Star. The Pointal is commonly split into two horned Divisions, and the Flower-cup becomes a Fruit, which is divided into three Cells, inclosing many small Seeds.

The Species are

1. RAPUNCULUS *spicatus*. C. B. P. Spiked Rampion.

2. RAPUNCULUS *spicatus albus*. C. B. P. Spiked Rampion, with a white Flower.

3. RAPUNCULUS *Alpinus corniculatus*. C. B. P. Horned Rampion of the Alps.

4. RAPUNCULUS *scabiosæ capitulo cæruleo*. C. B. P. Rampions with blue scabious-like Heads.

5. RAPUNCULUS *scabiosæ capitulo albo*. C. B. P. Rampion with white scabious-like Heads.

6. RAPUNCULUS *spicatus, flore flavescente*. Inst. R. H. Spiked Rampion, with a yellowish Flower.

7. RAPUNCULUS *Creticus, seu pyramidalis altera*. C. B. P. Pyramidal Rampion of Crete.

8. RAPUNCULUS *folio gramineo*. Inst. R. H. Grass-leaved Rampion.

9. RAPUNCULUS *Creticus petromarula, flore albo*. Tourn. Cor.

Rampion of Crete, with a white Flower.

10. RAPUNCULUS *orientalis foliis angustis dentatis*. Tourn. Cor. Eastern Rampion, with narrow indented Leaves.

11. RAPUNCULUS *orientalis angustifolius multicaulis totus floridus*. Tourn. Cor. Eastern narrow-leav'd Rampion, with many Stalks, filled with Flowers.

12. RAPUNCULUS *orientalis, campanulæ pratensis folio*. Tourn. Cor. Eastern Rampion, with a Meadow Bell-flower-leaf.

13. RAPUNCULUS *orientalis, foliis longioribus, asperis & rigidis*. Tourn. Cor. Eastern Rampion, with longer rough stiff Leaves.

14. RAPUNCULUS *orientalis altissimus, foliis glabris & rigidis*. Tourn. Cor. The tallest Eastern Rampion, with smooth stiff Leaves.

15. RAPUNCULUS *orientalis hesperidis folio*. Tourn. Cor. Eastern Rampion, with a Dames-violet-leaf.

These are all of them hardy Plants, which will thrive in the open Air: they are propagated by Seed, which should be sown in Autumn; for if they are kept out of the Ground till the Spring, they frequently fail. These Seeds should be sown on a Bed of fresh undunged Earth, where they are designed to remain; for they do not thrive so well when they are transplanted. Therefore the best Method is, to make small Drills cross the Bed, about eighteen Inches asunder, and sow the Seeds therein: then cover them lightly over with Earth; for if they are buried too deep, they will rot in the Ground. In about a Month after the Seeds are sown, the Plants will come up; when they should be diligently weeded, which is all the Care they will require till Spring: at which time

the Plants should be thinned where they are too close, so as to leave them six or seven Inches apart in the Rows; and afterward they require no farther Attention, but to keep them clear from Weeds. In June the Plants will flower, and if the Summer prove favourable, they will produce ripe Seeds.

As these Plants do not continue above two or three Years, there should be Seeds sown every other Year, to continue the Sorts; for they are Plants which require little Trouble to cultivate them, and their Flowers make a pretty Variety in large Gardens; therefore they should be allowed a Place amongst other hardy Flowers.

RAPUNTIIUM, Rampions, or Cardinal's Flower.

The Characters are;

The Flower consists of one Leaf, which is of an anomalous Figure, hollowed like a Pipe, and furrowed or channelled, divided, as it were, into many Parts, in the Shape of a Tongue, defended by a Vagina or Covering, which infolds the Pointal: when the Flowers decay, the Flower-cup turns to a Fruit, divided into three Cells, full of small Seeds, which adhere to a Placenta, which is divided into three Parts.

The Species are;

1. **RAPUNTIIUM maximum**, *coccineo spicato flore*. Col. in Rech. Greater Rampions, a with crimson-spiked Flower, commonly called, The scarlet Cardinal's Flower.

2. **RAPUNTIIUM Americanum**, *flore dilute cœruleo*. R. H. Par. The blue Cardinal's Flower.

3. **RAPUNTIIUM Americanum**, *virgæ aureæ foliis, parvo flore cœruleo*. Tourn. Cardinal's Flower with Golden-rod-leaves, and a small blue Flower.

4. **RAPUNTIIUM Americanum**, *flo-*

ribus albis. Inst. R. H. American Cardinal Flower, with white Flowers.

5. **RAPUNTIIUM Americanum**, *coccineo flore, lineis albis eleganter picto*. Inst. R. H. American Cardinal Flower, with a scarlet Flower, elegantly striped with White.

6. **RAPUNTIIUM Americanum al-
tissimum**, *foliis circii, flore virescente*. Plum. Cat. The tallest American Cardinal Flower, with Leaves like the melancholy Thistle, and greenish Flowers.

7. **RAPUNTIIUM Americanum**, *foliis circii lucidis, flore multiplici coccineo conglobato*. Plum. Cat. American Cardinal Flower, with shining melancholy Thistle-leaves, and many scarlet Flowers growing in Clusters.

8. **RAPUNTIIUM Americanum tra-
cbelli folio**, *flore purpurascente*. Plum. Cat. American Cardinal Flower, with a Throatwort-leaf, and a purplish Flower.

9. **RAPUNTIIUM Americanum**, *foliis oblongis, floribus parvis cœruleis, spica longissima*. American Cardinal Flower, with oblong Leaves, and small blue Flowers growing in a long Spike.

10. **RAPUNTIIUM urens Soloniense**. Mor. H. R. Blaf. Burning Cardinal Flower of Blois.

11. **RAPUNTIIUM urens**, *flore purpureo-cœruleo*. Inst. R. H. Burning Cardinal Flower, with a bluish-purple Flower.

12. **RAPUNTIIUM Africanum minus angustifolium**, *flore violaceo*. Inst. R. H. Lesser narrow-leaved African Cardinal Flower, with a violet-coloured Flower.

13. **RAPUNTIIUM Æthiopicum**, *violaceo galeato flore, foliis pinastri*. Breyn. Cent. Ethiopian Cardinal Flower, with a violet galeated Flower, and Leaves like the Pinaster.

14. **RAPUNTIIUM Æthiopicum**, *cœruleo*

cæruleo galeato flore, foliis coronopi.
Breyn. Cent. Ethiopian Cardinal
 Flower, with a blue-galeated Flower,
 and Leaves like Buckshorn Plantain.

15. *RAPUNTIUM Ethiopicum,*
cæruleo galeato flore, foliis dentatis.
Breyn. Cent. Ethiopian Cardinal
 Flower, with a blue galeated Flower,
 and indented Leaves.

16. *RAPUNTIUM Canadense pu-*
milum, linariæ folio. Sarrac. Low
Canada Cardinal Flower, with a
 Toad-flax-leaf.

17. *RAPUNTIUM Creticum mini-*
mum, bellidis folio, flore maculato.
Tourn. Cor. The least Cardinal
 Flower of *Crete*, with a Daisy-leaf,
 and a spotted Flower.

The first Sort is greatly prized by
 the Curious for the Beauty of its
 rich crimson Flowers, which exceed
 all the Flowers I have yet seen, in
 the Deepness of its Colour: and
 these commonly, when their Roots
 are strong, produce large Spikes of
 these Flowers, which continue a
 long time in Beauty, and make a
 most magnificent Shew amongst
 other Flowers. The Time of their
 Flowering is commonly in *July*
 and *August*, and if the Autumn
 proves very favourable, they will
 sometimes produce good Seeds in
England. These Plants are Natives
 of *Virginia* and *Carolina*, where
 they grow by the Sides of Rivulets,
 and make a most beautiful Appearance;
 from whence the Seeds are
 often sent into *England*. These Seeds
 commonly arrive here in the Spring;
 at which time they should be sown
 in Pots filled with light Earth, and
 but just covered over; for if the
 Seeds are buried deep, they will not
 grow: these Pots should be placed
 under a Frame to defend them from
 Cold, until the Season is a little
 advanced; but they should not be

placed on an Hot-bed, which will
 also destroy the Seeds.

When the Weather is warm, towards
 the Middle of *April*, these
 Pots should be placed in the open
 Air, in a Situation where they
 may have the morning Sun till
 Twelve o'Clock, observing to water
 them constantly in dry Weather;
 and when the Plants come up, they
 should be transplanted each into a
 small Pot filled with fresh light
 Earth, and placed in the same Situation,
 observing to water them in
 dry Weather; and in Winter they
 should be placed under an Hot-bed
 Frame, where they may be sheltered
 from severe Frosts; but in mild
 Weather they should be as much
 exposed to the open Air as possible.

The *March* following, these Plants
 should be put into larger Pots filled
 with the same fresh Earth, and placed
 as before, to the morning Sun, observing
 to water them in dry Weather,
 which will cause them to
 flower strong the Autumn following.

These Plants are also propagated
 by parting of their Roots: the best
 Season for which is, either soon
 after they are past Flower, or in
March, observing to water and
 manage them, as hath been directed
 for the seedling Plants, both in
 Winter and Summer.

The blue Sort does constantly
 produce ripe Seeds in *England*,
 which should be sown soon after
 they are ripe; in the Spring following
 the Plants will come up, when
 they should be transplanted, and
 managed as the other Sort, with
 which Culture this will also agree.
 This is preserved for Variety; but
 the Flowers are not near so beautiful,
 as those of the former Sorts.

Most of the other Sorts are biennial
 Plants, which commonly perish
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when they have produced Seed ; wherefore they should be sown every Year, in order to continue a Succession of them to flower annually. The eighth Sort is an annual Plant, which flowers and seeds the same Summer it is sown, and soon after perishes. If the Seeds of this Kind are permitted to scatter in the Pots, and the Pots kept in the Stove, the Plants will come up in Autumn, and flower early the following Spring.

The Seeds of the other Sorts should be sown in Pots with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, and must be frequently watered ; otherwise the Seeds will remain in the Earth several Months, before the Plants will appear ; and sometimes I have known the Seeds remain in the Earth a whole Year, and the Plants have come up the following Spring. When the Plants come up, they should be transplanted each into a separate small Pot, and plunged into the Hot-bed again to bring them forward ; but in *June* they should be inured to bear the open Air by degrees, and toward the End of that Month they may be removed out of the Hot-bed, and placed in a warm Situation, where they may have the morning Sun, and must be constantly watered in dry Weather. In this Place they may remain till *October*, when they should be placed under a common Hot-bed Frame, where they should have as much free Air as possible in mild Weather ; but must be covered in frosty Weather, otherwise they will not live in this Country. The Spring following the Plants must be shifted into larger Pots, and placed abroad again in a sheltered Situation, and duly watered, otherwise they will not flower very strong. In *July* the Plants will produce their Flow-

ers, and if the Autumn proves favourable, they will perfect their Seeds.

RAUVOLFIA.

The Characters are ;

It hath a tubulous Flower consisting of one Leaf, whose upper Part spreads open into a plain Surface, and is cut into several Parts ; from whose Cup arises the Pointal, fixed like a Nail, which afterward becomes an almost globular soft Fruit, full of Milk, in which are contained one or two hard Seeds.

The Species are ;

1. *RAUVOLFIA tetraphylla angustifolia. Plum. Nov. Gen.* Four-leaved Rauwolfia, with narrow Leaves.

2. *RAUVOLFIA tetraphylla latifolia. Plum. Nov. Gen.* Four-leaved Rauwolfia, with broad Leaves.

This Name was given to this Genus of Plants by Father *Plumier*, who was the Person that discovered them in *America*, in Honour to *Leonard Rauwolf*, who was a curious Botanist, and flourished about Year 1583. He travelled into the *Holy-land*, and several other Places in the East, and published his Travels in *High-Dutch*, which were translated into *English* under the Inspection of the great Mr. *Ray*.

These Plants grow plentifully at *Campechy*, from whence I received their Seeds, which were collected by Mr. *Robert Millar*, Surgeon.

The Seeds of these Plants should be sown in Pots filled with fresh Earth, and plunged into an Hot-bed of Tanners Bark ; for being very hard, they frequently remain a long time in the Ground : therefore when they are in Pots, they may be shifted from one Bed to another, as their Heat decays. When the Plants come up, they must be frequently refreshed with Water, but it must not be given

given them in large Quantities; for the Plants being succulent, and full of a milky Juice, are in Danger of rotting with too much Moisture. They should also have a large Share of fresh Air admitted to them in warm Weather; and when they are about two Inches high, they should be transplanted each into a separate small Pot filled with fresh light Earth, and then plunged into the Hot-bed again; observing to shade them from the Sun, until they have taken new Root; after which time, they should have free Air admitted to them every Day in proportion to the Warmth of the Season, and they must be often refreshed with Water. In this Hot-bed the Plants may remain till toward *Michaelmas*, when they should be removed into the Stove, and plunged into the Tanners Bark; where they must be kept warm, and not have too much Moisture in cold Weather, lest it rot them.

As these Plants are Natives of very hot Countries, they will not live in the open Air in *England*: therefore they should constantly remain in the Stove; and if they are put into the Bark-bed, they will thrive much faster, than when they are placed on Stands in a dry Stove. But in the Summer Season, they should have a large Share of fresh Air admitted to them, and the Leaves of the Plants must be now-and-then washed with a Sponge, to clear them from the Filth they are apt to contract, which if suffered to remain, will retard the Growth of the Plants. Where this Care is taken of them, they will thrive very fast, and the second Year will produce Flowers, and continue so to do for many Years; but as yet they have not perfected their Seeds in *England*. They may also be propagated by Cuttings, which should be laid to

dry for two or three Days before they are planted; and then should be plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they may be treated as the seedling Plants.

RESEDA, Bastard-rocket.

The Characters are;

It hath a polypetalous anomalous Flower, composed of several dissimilar Petals, out of whose Cup arises the Pointal, which after-ward becomes a membranaceous Fruit, for the most part three or four-cornered, oblong, and, as it were, cylindrical, pregnant with roundish Seeds.

The Species are;

1. RESEDA vulgaris. C. B. P. Common Bastard-rocket.

2. RESEDA crispa Gallica. Bocc. Rar. Pl. Curled French Bastard-rocket.

3. RESEDA latifolia, flore flavo. Mor. Hist. Broad leaved Bastard-rocket, with a yellow Flower.

4. RESEDA foliis calcitrapæ, flore albo. Mor. H. R. Blæs. Bastard-rocket with Star-thistle-leaves, and a white Flower.

5. RESEDA minor vulgaris. Luff. R. H. Smaller common Bastard-rocket.

6. RESEDA minor vulgaris, folio minus inciso. Inft. R. H. Smaller common Bastard-rocket, with a Leaf less cut.

7. RESEDA minor vulgaris, foliis integris. Inft. R. H. Small common Bastard-rocket, with whole Leaves.

8. RESEDA Pyrenaica, linariae folio glauco. Schol. Bot. Pyrenean Bastard-rocket, with a glaucous Toad-flax-leaf.

These Plants are preserved in the Gardens of some Persons, who are curious in Botany; but at present they are not used in Medicine. They are all of them very hardy Plants,

which are propagated by Seeds, which should be sown in the Spring, on an open Bed of fresh undunged Earth, in the Place where they are designed to remain; and when the Plants come up, they should be houghed to separate them, where they are too close, as also to destroy the Weeds. The four first Sorts should be allowed eighteen Inches or two Feet; but the other Sorts, being of less Growth, do not need above half that room. The Weeds should be constantly houghed down between the Plants when they arise, which is all the Culture the Plants require. Some of these Plants will flower the same Year they are sown, when they come up early in the Spring; but in general they do not flower till the second Year, when they produce their Seeds, and the Plants commonly perish soon after. If the Seeds are permitted to scatter, the Plants will come up, and stock the Ground, so as to become Weeds.

RHABBARBARUM MONACHORUM; *vide* Lapathum.

RHAMNOIDES, The Sea Buckthorn.

The Characters are;

It hath the whole Appearance of the Buckthorn; but is male and female in different Trees: the Flowers of the Male have no Petals; the Flower-cup consists of two Leaves, in the Centre of which are several small Stamina: the female Trees produce roundish Berries, each of which contains a single Seed.

The Species are;

1. RHAMNOIDES *florifera*, *salicis foliis*. T. Cor. Male willow-leaved Sea Buckthorn.

2. RHAMNOIDES *frutifera*, *foliis salicis*, *baccis leviter flavescens*. T. Cor. Female willow-leaved Sea Buckthorn, with yellow Berries.

These Plants grow in great

Plenty upon the Sea-coasts of *Lincolnshire*, and at *Sandwich*, *Deal*, and *Folkston* in *Kent*, as also in divers Parts of *Scotland*.

They are preserved in several Gardens near *London* for Variety; where, being intermixed with other Shrubs of the same Growth, they afford an agreeable Prospect.

These Shrubs are easily propagated from Suckers, which they send forth in great Plenty from the old Plants. These Suckers may be taken off any time in *February* or *March*, and planted in a Nursery, where they may be trained up for two or three Years; after which they may be removed to the Places where they are to remain. There is no very great Beauty in these Plants; but as their Leaves and Flowers are very different from most other Trees, they make a pretty Variety in small Wilderness-quarters; or when planted in Clumps with various Trees, they will grow to be ten or twelve Feet high; but it is very rare to see them larger.

RHAMNUS, The Buckthorn.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, which is divided toward the Top into four or five Segments; out of the Flower-cup rises the Pointal, which afterward becomes a soft roundish Berry, very full of Juice, inclosing four hard Seeds, which are round and smooth on the Outside, but flattened on the other.

The Species are;

1. RHAMNUS *catharticus*. C. B. P. Common purging Buckthorn.

2. RHAMNUS *catharticus minor*. C. B. P. Lesser purging Buckthorn.

3. RHAMNUS *spinis oblongis*, *cortice albo*, *Montpelienisum*. J. B. Buckthorn with long Spines, and a white Bark of *Montpelier*.

4. RHAMNUS

4. RHAMNUS *Afer, folio pruni longiori subrotundo, flore candicante, spinis longissimis.* Boerb. Ind. alt. African Buckthorn, with a longer roundish Plum-leaf, white Flowers, and very long Spines.

5. RHAMNUS *Hispanicus, folia buxi, minor.* Tourn. Lesser Spanish Buckthorn, with a Box-leaf.

6. RHAMNUS *Afer, spinis longis, cortice albo, fructu cæruleo.* Boerb. Ind. African Buckthorn, with long Spines, a white Bark, and blue Fruit.

7. RHAMNUS *catharticus minor, folio longiori.* Inst. R. H. Lesser purging Buckthorn, with a longer Leaf.

8. RHAMNUS *tertius, flore herbaeco, baccis nigris.* C. B. P. Clusius's third Buckthorn, with an herbaceous Flower, and black Berries.

9. RHAMNUS *Hispanicus, buxi folio ampliore.* Inst. R. H. Spanish Buckthorn, with a larger Box-leaf.

10. RHAMNUS *Hispanicus, oleæ folio.* Inst. R. H. Spanish Buckthorn, with an Olive-leaf.

11. RHAMNUS *Hispanicus, hyperici folio.* Inst. R. H. Spanish Buckthorn, with a St. Johns-wort-leaf.

12. RHAMNUS *Creticus, amygdali folio minori.* Tourn. Corn. Candy Buckthorn, with a smaller Almond-leaf.

13. RHAMNUS *orientalis, alaterni folio.* Tourn. Cor. Eastern Buckthorn, with an Alaternus-leaf.

14. RHAMNUS *Creticus, buxi folio minori.* Tourn. Cor. Candy Buckthorn, with a smaller Box-tree-leaf.

15. RHAMNUS *orientalis, amygdali folio ampliore.* Tourn. Cor. Eastern Buckthorn, with a larger Almond-leaf.

The first of these Trees is very common in the Hedges, in divers Parts of England; the Berries of which are ordered by the College

of Physicians for Medicinal Use, but particularly for making a Syrup, which was formerly in great Use; tho' of late the Persons who supply the Markets with these Berries, have gathered several other Sorts of Berries, which they have either mixed with those of the Buckthorn, or have wholly substituted them in their Place; these are the Berries of the Frangula, Cornus Fœmina, &c. which Mixture hath spoiled the Syrup, and rendered it less esteemed. But whoever purchases the Buckthorn-berries, may distinguish whether they are right or not, by opening them, and observing the Number of Seeds in each; for these have commonly four, whereas the Frangula has but two, and the Cornus Fœmina no more than one.

The second Sort is less common in England, and only to be found in Gardens where it is cultivated for Variety. Both these Sorts may be propagated by laying down their tender Branches in Autumn, which, if duly watered in dry Weather, the succeeding Summer, will take Root in the Compass of one Year, and may then be transplanted either where they are to remain, or in some Nursery, to be trained up for a few Years, and then removed to their Places of Growth.

The first Sort will grow to the Height of eighteen or twenty Feet; but, being a straggling Grower, is seldom much cultivated in Gardens.

The second Sort seldom rises above eight Feet high, and should be planted amongst Shrubs of the same Growth, where it will add to the Variety, though it has little more Beauty than the former.

They may also be propagated by Seeds, which must be sown on a Bed of fresh Earth, soon after they

are ripe; the Spring following the Plants will appear, when they must be carefully cleaned from Weeds; the Autumn following they may be transplanted out, and managed as the Layers.

The third Sort is commonly preserved in Green-houses in *England*; but is hardy enough to bear the Cold of our ordinary Winters in the open Air, if planted in a dry Soil, and defended from cold Winds.

This Plant may be propagated by laying down the tender Branches in the Spring, which, if watered in dry Weather, will take Root before the *Michaelmas* following; at which time they may be taken off, and transplanted into Pots filled with light fresh Earth, and in Winter placed in the Green-house. But if the young Plants are designed for the full Ground, they should continue upon the old ones until Spring, at which time they may be taken off, and transplanted where they are to remain.

It may also be propagated by planting Cuttings in *May* and *June*, upon a Bed of light fresh Earth, observing to water and shade them until they have taken Root: and during the Summer-season they must be kept clear from Weeds, and at *Michaelmas* they may be planted into Pots, as the Layers, or else permitted to remain until Spring, when they may be removed, as was directed before. There is no great Beauty in this Plant; but it is preserved in several Gardens for the sake of Variety.

The fourth, fifth, and sixth Sorts are also preserved in several curious Gardens for Variety; but the sixth is the most beautiful of them all; this produces vast Quantities of purple Flowers, most Part of Summer, and many times ripens its

Seeds in *England*: these may all be propagated as the former Sort, and require to be housed in Winter, tho' they need only be sheltered from the extreme Frost; but should have as much free Air as possible in mild Weather, and in Summer must be often watered. These delight in a fresh light Soil, and require to be often removed, because their Roots increase greatly, so as to fill the Pots in a short time.

The other Plants are all of them Natives of warmer Countries than *England*; but yet they are hardy enough to thrive in the open Air very well, if they are planted in sheltered Situations; and as they are Shrubs of moderate Growth, may be admitted to have a Place in Wilderness-quarters, where they will live under taller Trees, and add to the Variety.

They may be propagated either by Seeds, which should be sown soon after they are ripe; or by laying down of the tender Branches, in the same manner as hath been directed for the former Sort.

But if these Plants are raised from Seeds, they will require a little Care the first Winter, if the Frost should prove severe; in which Case there should be some dry Fern or Oak-branches with their Leaves on, laid over them; which will protect them from the Frost, and at the same time admit Air to the Plants, to prevent their growing mouldy; which oftentimes destroys the tender Parts of Plants, when the Air is too much excluded from them.

The seventh Sort seldom rises above four or five Feet high; but most of the other Sorts will grow to the Height of ten or twelve Feet, and divide into many Branches, so as to form large Shrubs; and being different in their Leaves from

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from each other, they make an agreeable Variety; for which Reason they are preserved by such Persons as delight in hardy Trees and Shrubs.

RHUS, The Sumach-tree.

The Characters are;

The Flower consists of five Leaves, which are placed in a circular Order, and expand in form of a Rose; from whose Flower-cup rises the Pointal, which afterward becomes a roundish or almost kidney-shaped Vessel, containing one Seed of the same Shape: to which Marks may be added, The Flowers growing in Bunches, and the Leaves are either winged, or have three Lobes.

The Species are;

1. *RHUS Virginianum*. C. B. P. *Virginian Sumach*, by some falsely called, *The Stag's-horn-tree*.

2. *RHUS tenuifolia Virginiana humilis*: *Rhus angustifolium*. C. B. P. *Pluk. Alm. Dwarf Virginian Sumach*, with narrow Leaves.

3. *RHUS Africanum trifoliatum majus, foliis subtus argenteis, acutis & margine incis. Pluk. Phyt.* *Great African three-leaved Sumach*, with narrow Leaves cut on their Edges, and white underneath.

4. *RHUS Africanum trifoliatum minus glabrum, splendente folio subrotundo integro; forte Lentiscus Africanus triphyllus quorundam. Pluk. Phyt.* *Lesser three-leaved African Sumach*, with a whole roundish shining smooth Leaf.

5. *RHUS Africanum trifoliatum majus, folio subrotundo integro, molli & incano. Pluk. Phyt.* *Greater three-leaved African Sumach*, with a whole roundish woolly Leaf.

6. *RHUS Americanum, panicula sparsa herbacea, ramis patulis glabris. Hort. Elth. American Sumach*, with a loose herbaceous Panicle, and low smooth Branches.

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7. *RHUS folio ulmi*. C. B. P. *Elm-leaved Sumach*.

The first of these Plants is pretty common in many Gardens near London, where it endures the severest Cold of the Winters in the open Air; and is usually intermixed in small Wilderness-quarters, amongst other Trees of the like Growth, where it affords an agreeable Variety: this produces Tufts of small Flowers in June, at the Extremities of the Branches, which are succeeded by Seeds, which are inclosed in red Covers; so that the whole Spikes appear of a fine red Colour. These Tufts are sometimes used in Dying, and the Branches of the Tree are used for tanning of Leather, in America, where these Trees grow in Plenty.

This Tree will grow to be eight or ten Feet high, but is very subject to produce crooked unfightly Branches, so that it cannot be reduced to a regular Stem, which renders it unfit to plant singly in an open Situation; but amongst other Trees, where the Deformity of the Stem is hid, it looks very well.

The second Sort is less common than the first, and only to be found in some very curious Gardens. This is like the first, in most respects; but is of much smaller Growth, and the Leaves are very narrow. Both these may be propagated in Plenty, from the great Quantity of Suckers which they produce from their Roots, which being taken off in March, and planted on a light sandy Soil, will, in a few Years, produce Flowers. They may also be propagated by laying down of the Branches in the Spring of the Year, which will take Root in the Compass of one Season, and may then

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then be taken off, and transplanted where they are to remain.

The *African* Sorts are all preserved in Pots or Tubs, and housed in Winter; being too tender to endure the Cold of this Climate in the open Air. These may be propagated by laying down their young Branches into fresh Earth, observing to water them duly in dry Weather, which will greatly forward their Rooting: in one Year they will be fit to transplant, when they may be taken from the old Plants, and each placed in a separate Pot filled with fresh light Earth. The best Time for removing of these Plants is in *April*, observing to water and shade them until they have taken Root; after which, they may be exposed with Myrtles, Oleanders, and other hardy Exotics, during the Summer-season, and in Winter must be housed with them, being equally as hardy, and only require to be screened from severe Frost.

These Plants will rarely produce Flowers in *England*; but as they retain their Leaves all the Winter, and may easily be reduced to a regular Head, they are preserved for the Diversity of their Leaves, which adds to the Variety of a Green-house.

The sixth Sort was brought from *North Carolina*, and I have since received the Seeds of this Kind from *Pensylvania*, where it grows in great Plenty. This Sort doth not grow very large, being seldom above six or eight Feet high; but divides into several Branches, which grow more regular than most of the other Sorts; and the Flowers are produced on the Tops of the Branches, which are in very large loose Panicles, and of a yellowish green

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Colour. The tender Shoots of this Plant are of a purplish Colour, and smooth; and the Leaves are smooth, having a great Number of *Pinnae* on each.

The seventh Sort grows plentifully in the South of *France*, and in *Spain*; but is at present very rare in *England*. This Sort is directed by the College of Physicians to be used in Medicine; and in the South of *France* it is used instead of Oak-bark for tanning of Leather.

Both these Sorts are very hardy Plants, which will live in the open Air in *England*, and are very proper to plant with other hardy Shrubs in Quarters of Wilderness-work, where they will make an agreeable Variety. These may be propagated by Seeds, or from Suckers or Layers, after the same manner as hath been directed, for the common *Virginian* Sumach.

RIBES, The Curran-tree.

The Characters are;

It hath no Prickles; the Leaves are large; the Flower consists of five Leaves, which are placed in a circular Order, and expand in form of a Rose; the Ovary, which arises from the Centre of the Flower-cup, becomes a globular Fruit, which are produced in Bunches.

The Species are;

1. *RIBES vulgaris acidus ruber.*
J. B. Common red Curran.
2. *RIBES major, fructu rubro.*
H. Eyst. The large Dutch red Curran.
3. *RIBES vulgaris acidus, albas baccas ferens.* J. B. Common white Curran.
4. *RIBES quæ Grossularia hortensis, majore fructu albo.* H. R. Par. Large Dutch white Curran.
5. *RIBES major, fructu carnos.*
The Champagne Curran, vulgo.
6. *RIBES*

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6. *RIBES Alpinus dulcis*. *J. B.* The gooseberry-leaved Curran.

7. *RIBES fructu parvo*. *Merr. Pin.* The small wild Curran.

8. *RIBES nigrum vulgo dictum, folio olente*. *J. B.* The black Curran.

9. *RIBES vulgaris, foliis ex luteo variegatis*. The yellow striped-leaved Curran.

10. *RIBES vulgaris, foliis ex albo eleganter variegatis*. The common Curran, with Leaves beautifully variegated with Green and White.

11. *RIBES fructu albo, foliis ex albo variegatis*. The white Curran, with striped Leaves.

12. *RIBES Alpinus dulcis, foliis variegatis*. The striped gooseberry-leaved Curran.

13. *RIBES fructu nigro, foliis variegatis*. The black Curran, with striped Leaves.

14. *RIBES Americana, fructu nigro*. The American black Curran.

The five first-mentioned Sorts are preserved in all curious Gardens for the sake of their Fruits: indeed, of late Years, the common red and white Currans have been neglected, since the *Dutch* red and white have become plenty in *England*; these producing much larger and fairer Fruit to the Sight than the common Sorts, though I think the common Sorts are much better flavoured; so that they should not be intirely neglected by such as are curious in Fruits.

The sixth Sort is preserved as a Curiosity, by such as delight in Variety; but the Fruit is not valuable.

The seventh Sort is found wild in *England*. The Fruit of this Kind is small, and very tart, which ren-

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ders it unworthy of being cultivated in Gardens.

The eighth Sort is preserved in some old Gardens; but the Fruit having a disagreeable strong Taste, has occasioned its being but little cultivated of late Years.

Those Sorts with variegated Leaves are preserved by such as are fond of striped Plants; but as their greatest Beauty is only in the Spring, before their Leaves grow large, after which they become more green, they are scarcely worth preserving in a Garden.

The fourteenth Sort was obtained by Mr. *Peter Collinson* from *America*, in whose fine Garden it has produced Fruit, and from thence has been communicated to several other curious Gardens. The Manner of this Plant's Flowering is very different from the other Sorts of Currans, for which Variety it may have a Place among other Shrubs; but the Fruit being somewhat like our black Curran, is not much esteemed.

All these Sorts may be easily propagated by planting their Cuttings any time from *September* to *March*, upon a Spot of fresh Earth, which in the Spring must be kept very clear from Weeds; and in very dry Weather, if they are watered, it will greatly promote their Growth: these may remain two Years in this Nursery, during which time they must be pruned up for the Purposes designed, *i. e.* either to clear Stems, if for Standards; or if for Walls, Pales, or Espaliers, they may be trained up flat.

Then they should be planted out where they are to remain: the best Season for which is soon after the Leaves begin to decay, that they may take Root before Winter, so that

that they may be in no Danger of suffering from Drought in the Spring.

These Plants are generally planted in Rows, at about ten Feet asunder, and four Distance in the Rows; but the best Method is to train them against low Espaliers, in which manner they will take up much less room in a Garden, and their Fruit will be much fairer.

The Distance they should be placed for an Espalier, ought not to be less than eight Feet, that their Branches may be trained horizontally, which is of great Importance to their Bearing.

Those that are planted against Pales or Walls, should also be allowed the same Distance; if they are planted against a South-east Wall or Pale, it will cause their Fruit to ripen at least a Fortnight or three Weeks sooner than those in the open Air; and those which are planted against a North Wall or Pale, will be proportionably later; so that by this Method the Fruit may be continued a long time in Perfection, especially if those against the North Pales are matted in the Heat of the Day.

These Plants produce their Fruit upon the former Year's Wood, and also upon small Snags which come out of the old Wood; so that, in pruning them, these Snags should be preserved, and the young Shoots shortened in proportion to their Strength. The only Method, very necessary to be observed in pruning of them, is not to lay the Shoots too close, and never to prune their Snags to make them smooth. This, with a small Care in observing the Manner of their Growth, will be sufficient to instruct any Person how to manage this Plant; so as to produce great Quantities of Fruit.

These Plants will thrive, and produce Fruit, in almost any Soil or Situation, and are often planted under the Shade of Trees; but the Fruit is always best when they are planted to the open Air, and upon a dry Soil.

RICINOIDES, Physic-nut; *vulgo*.

The Characters are;

The male Flowers consist of several Leaves, which are placed in a circular Order, and expand in form of a Rose; these are barren: at remote Distances from these Flowers, upon the same Plant, are produced the Embryoes, which are wrapt up in the Flower-cup, and afterward become tricapular Fruits, containing one oblong Seed in each Cell.

The Species are;

1. **RICINOIDES Americana**, *gossypii folio*. Tourn. American Physic-nut, with a Cotton-leaf.
2. **RICINOIDES arbor Americana**, *folio multifido*. Tourn. Tree American Physic-nut, with a multifid Leaf, commonly called in the West-Indies French Physic-nut.
3. **RICINOIDES Americana**, *staphyagriae folio*. Tourn. American Physic-nut, with a Staves-acre-leaf, called in the West-Indies, Belly-ach-weed, and Wild Cassada.
4. **RICINOIDES Americana**, *elegni folio*. Plum. American Physic-nut, with a Wild-olive-leaf.
5. **RICINOIDES frutescens**, *althææ folio*. Plum. Cat. Shrubby Physic-nut, with a Marsh-mallow-leaf.
6. **RICINOIDES foliis populi birtutis**. Plum. Cat. Physic-nut with hairy Poplar-leaves.
7. **RICINOIDES frutescens**, *linariae foliis obtusis*. Plum. Cat. Shrubby Physic-nut, with blunt Toad-flax-leaves.
8. **RICINOIDES folio citrii**, *argenteo polline confperso*. Plum. Cat. Physic-

Physic-nut with a Citron-leaf, powdered over with Silver.

9. *RICINOIDES oleagni folio.*
Plum. Cat. Physic-nut with a wild Olive-leaf.

10. *RICINOIDES verbasci folio.*
Plum. Cat. Physic-nut with a Mullein-leaf.

11. *RICINOIDES castaneae folio.*
Plum. Cat. Physic-nut with a Chestnut-leaf.

12. *RICINOIDES herbaceum, foliis trifidis vel quinquefidis & serratis.*
Houft. Herbaceous Physic-nut, with three or five-fawed Leaves.

13. *RICINOIDES folio subrotundo serrato, fructu parvo conglomerato.*
Houft. Physic-nut with a roundish fawed Leaf, and small Fruit, growing in Clusters.

14. *RICINOIDES palustre, fructu hispido, foliis subrotundis, nervosis & asperis.*
Houft. Marsh Physic-nut, with a prickly Fruit, and roundish ribbed Leaves, which are rough.

15. *RICINOIDES frutescens, lauri folio, calyce amplissimo viridi.*
Houft. Shrubby Physic-nut, with a Bay-leaf, and a large green Flower-cup.

16. *RICINOIDES, ex qua paratur Tournesol Gallorum. Inst. R. H. App.* Physic-nut, from which the *Tournesol* of the *French* is made.

These Plants are very common in the warm Parts of *America*. The first Sort is planted in Hedges in most Parts of *Jamaica* and *Barbados*, and is propagated by Slips or Cuttings, which will take Root very freely, and make a good Fence in a short time, being very quick of Growth. This rises to be twenty Feet high, and produces a great Quantity of Nuts, which are given from three to seven, for a Vomit; but if the thin Film be taken off, they may be eaten in Quantities without any ill Effect. There is an

Oil drawn from these Seeds, which is used for burning in Lamps.

The second Sort is cultivated in Gardens in *Jamaica* and *Barbados*, for the Beauty of its Flowers, which are of a fine scarlet Colour, and produced in large Bunches on divers Parts of the Plant. The Nuts of this Kind are larger than the other, but have much the same Quality. This is not a Native in any of the *English* Settlements in the *West-Indies*, but was brought thither either from the *Spanish* or *French* Settlements, from whence it had the Names of *French* and *Spanish* Physic-nut.

The third Sort is very common in the *Savanna's* in *Jamaica* and *Barbados*; the Seed of this Kind is the common Physic among the poorer Sort, for the dry Belly-ach.

The fourth Sort grows plentifully upon the Sea-coasts in divers Parts of the *West-Indies*, and is sometimes brought into *England* as a Curiosity; where, in some very good Gardens, it is preserved with the former Sorts.

The seven next-mentioned Sorts were discovered by Father *Plumier* in *America*: the fifth and sixth Sorts have been found growing plentifully in the Island of *Jamaica*: the seventh, eighth, ninth, tenth, eleventh, twelfth, and thirteenth Sorts were found in Plenty about *La Vera Cruz* by the late Dr. *Houfstown*, from whence he sent the Seeds to *England*. The fifteenth Sort was also discovered by the same Gentleman in *Jamaica*.

These may all be propagated by sowing their Seeds upon an Hot-bed in the Spring; and when the Plants are come up, they should be each transplanted into a separate Pot filled with light fresh Earth, and plunged

plunged into an Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which they should have Air and Water in proportion to the Warmth of the Season, and the Hot-bed in which they are placed.

When their Roots have filled these Pots, they should be shaken out, and put into larger Pots, filled with the same fresh Earth, and plunged again into the Hot-bed; and so, from time to time, as the Plants advance, they should be shifted into larger Pots; and when they are too high to be contained under a Frame, they should be removed into the Bark-stove, where they may have room to advance in Height, observing to water them duly, as they may require it; which if constantly performed, and the Plants kept in a warm Bed, they will grow three or four Feet high the first Summer, and divide into several Branches in Winter.

These Plants must be placed in a Bark-stove (with other Plants which are the Produce of the same Countries); during which Season they should be often refreshed with Water, and the Stove should be kept up to Ananas Heat, as marked on Mr. Fowler's Thermometers; in this they will continue flourishing all the Winter, and early the next Spring will produce Flowers, which will be succeeded by Fruit

These Plants, if thus managed, will continue several Years, and annually produce a great Number of Flowers and Fruit, so that they are worthy of a Place in every curious Collection of Exotic Plants.

All these Sorts are very tender Plants, being Natives of very warm Countries, and require to be tenderly treated, otherwise they will not grow in this Country. The

sixth, eleventh, twelfth, thirteenth, and fourteenth Sorts are annual; wherefore their Seeds must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted each into a separate small Pot filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken Root; and then they should have fresh Air admitted to them, by raising of the Glasses every Day in warm Weather, and they must be frequently watered. In about a Month's time, the Plants will have filled these Pots with their Roots; when they should be shaken out, and put into larger Pots filled with rich Earth, and plunged again into the Hot-bed, provided there is room for the Plants to grow in Height, without being pressed by the Glasses; in which Case it will be proper to put them into the Bark-bed in the Stove; for they are too tender to thrive in the open Air in this Country, in the warmest Season of the Year. In *July* these Plants will flower, and their Seeds will ripen in *August* and *September*, soon after which time the Plants will decay.

The other Sorts, which live over the Year, must be raised in the same manner as the annual Kinds; but in Winter they must be plunged into the Bark-bed, in the warmest Stove, and treated after the same manner as hath been directed.

The sixteenth Sort is an annual Plant, and is found wild in the South of *France*, *Spain*, and *Italy*, from which the *Tournefol* is made, that is used for colouring of Wine and Jellies. This is made of the Juice which is lodged between the outer Cover and the Seeds; and, if rubbed on

on Cloth, it first appears of a lively green Colour, but soon changes to a bluish-purple Colour: if these Cloths are put into Water, and afterward wrung, they will colour the Water of a claret Colour. The Rags, thus dy'd, are brought to England, and sold in the Druggists Shops, by the Name of *Tournefol*.

This Sort may be propagated by Seeds, which should be sown in the Autumn, soon after they are ripe, on a warm Border of fresh light Earth; and if any of the Plants come up before Winter (which sometimes happens), they should be sheltered in hard Frost, otherwise they will not live through the Winter. But the Seeds generally remain in the Ground until the Spring, when the Plants will appear; at which time they should be cleaned from Weeds, and where the Plants are too close, they should be thinned, so as to leave them about six Inches asunder; and in very dry Weather, if they are now-and-then refreshed with Water, it will promote their Growth. This is all the Culture they require, except the keeping them constantly clear from Weeds; for the Plants do not thrive well, if they are transplanted; wherefore they should be sown where they are designed to remain. In July the Plants will flower, and their Seeds will ripen in August, soon after which the Plants will decay.

R I C I N U S, Palma Christi; *vulgo*.

The Characters are;

The Flowers are apetalous, i. e. have no Leaves, consisting of many Stamina, which arise in the Centre of the Flower-cup: these are barren; for the Embryotes are produced at remote Distances, upon the same Plant, which afterward become triangular Fruits, having three Cells, in each of

which is contained one oblong Seed, which has an hard Shell.

The Species are;

1. **RICINUS vulgaris**. C. B. P. The common Palma Christi, commonly known in the *West-Indies* by the Name of *Oil-nut*, or *Agnus Castus*.

2. **RICINUS vulgaris minor**. C. B. P. *caule rutilante*. The lesser Palma Christi, with reddish Stalks, commonly called in *Barbados*, *Red Oil-seed*.

3. **RICINUS vulgaris, minor**. C. B. P. *caule virescente*. Lesser Palma Christi with green Stalks, commonly called *White Oil-seeds*, in *Barbados*.

4. **RICINUS Americanus major**, *caule virescente*. H. R. P. The greater Palma Christi, with green Stalks.

5. **RICINUS Africanus maximus**, *caule geniculato rutilante*. H. R. P. The greatest African Palma Christi, with reddish jointed Stalks.

6. **RICINUS Indicus**, *fructu rugoso non echinato*. Indian Oil-seed, with a rough Fruit not echinated.

7. **RICINUS Americanus**, *fructu racemoso hispido*. Job. Dend. American Oil-seed, with prickly Fruit, growing in a Cluster.

8. **RICINUS Americanus**, *fructu racemoso glabro majore*. Millar. American Oil-seed, with larger smooth Fruit growing in a Cluster.

9. **RICINUS Americanus minor**, *fructu racemoso glabro*. Millar. Smaller American Oil-seed, with smooth Fruit growing in Clusters.

10. **RICINUS Zeylanicus**, *foliis profundius laciniatis*. Inst. R. H. Oil-seed of Ceylon, with Leaves deeply cut in.

11. **RICINUS humilis**, *foliis subtundis serratis, & subtus argenteis, flore fructuque conglomeratis*. Houst. Dwarf Oil-seed, with roundish sawed Leaves, which are silvery underneath,

and the Flowers and Fruit growing in Bunches.

These Plants are very common in divers Parts of *Africa* and *America*, and some of them are also found in the warm Parts of *Europe*; but in *England* they are preserved with great Care in several curious Gardens.

The first Sort has been a long time in this Country, but was formerly treated as an annual Plant; whereas, if it be preserved in a good Green-house, it will abide two or three Years, and become a large Plant.

The second and third Sorts grow promiscuously all over *America*, where their Seeds are gathered to draw an Oil from them, for the Use of Lamps: these Seeds are frequently sent into *England*, intermixed with each other.

The fourth Sort is also very common in *America*, growing promiscuously with the common Sort; the Seeds of both being gathered indifferently to draw an Oil from them.

The fifth Sort, tho' mentioned to be a Native of *Africa*, yet is also very common in divers Parts of *America*, from whence I have several times received the Seeds. This produces very large Leaves and Seeds, and will grow to a large Size, if planted in a rich Soil. I have measured one of the Leaves of this Plant (which was growing near *Chelsea*), which was upwards of two Feet Diameter, and the Stem was as large as a middle-sized Broom-staff, tho' but of one Summer's Growth.

The Seeds of the sixth Sort were brought from the *East-Indies*, which came up and flourished in the Physic-garden at *Chelsea*. This Sort grows about the same Height as the com-

mon Kind, but the Leaves are not to deeply divided. The Coverings of these Seeds are not prickly, as in most of the other Sorts (somewhat resembling the outer Cover of the Chestnut); but rough, and full of Protuberances.

The Seeds of the seventh and eighth Sorts were sent from *Jamaica* by Mr. *Robert Millar*, who gathered them on the North-side of that Island. These Plants grow in their native Country to be eighteen or twenty Feet high, and continue two or three Years. They are nearly alike in their outward Appearance, but differ in the Covering of their Seeds, the seventh having prickly Covers, and the eighth being smooth.

The ninth Sort is a low Plant, seldom rising above three Feet high, and differs from the common small Sort, in having smooth Covers to the Seeds: this is less common, and hath not been remarked by any Botanical Writer.

The tenth Sort is a Native of *Ceylon*, from whence the Seeds were brought to *Holland*, and hath been cultivated in many curious Gardens. The Leaves of this Kind are very deeply jagged, in which it chiefly differs from the common Sort.

The eleventh Sort was discovered by the late Dr. *William Houstoun* at *Campechy*, from whence he sent the Seeds to *England*. This is a very low Plant, seldom rising above eight or nine Inches high, and perishes soon after the Seeds are perfected.

These Plants may be propagated by sowing their Seeds upon an Hot-bed; and when they are come up, they should be each planted into a separate Pot filled with light fresh Earth, and plunged into a fresh Hot-bed, observing to water and shade them until they have taken Root; after

after which they must have a great Share of free Air, when the Season is mild; otherwise they will draw up tall, and be very weak: and as these Plants grow very fast, their Roots will in a short time fill the Pots; therefore they should be shifted into larger Pots filled with the like fresh Earth; and toward the Latter-end of *May*, when the Season is warm, they may be hardened to endure the open Air by degrees; and then, if they are planted out into a very rich Border, and in dry Weather duly watered, they will grow to a very large Size, particularly the first Sort, which I have seen upwards of ten Feet high in one Season; and these Plants have produced a great Quantity of Flowers and Seeds: but if you intend to preserve them through the Winter, they must never be placed in the full Ground, because after their Roots have been widely extended, there will be no transplanting them with Safety; therefore the best way is to shift them into larger Pots from time to time as their Roots shall require, placing them in the open Air, during the Summer-season, in some warm Situation, where they may remain until *October*, when they must be removed into the House with other Exotic Plants, observing duly to water them in Winter, and let them have free Air in mild Weather; for they only require to be protected from Frost, and cold Winds; so that they will endure the Winter in a common Green-house without any Addition of artificial Warmth.

The four first Sorts will perfect their Seeds the first Season in this Climate, provided they are sown early in the Spring; but the fifth Sort will rarely produce any till the second Year; so that there is a

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Necessity of preserving this through the Winter, otherwise it cannot be maintained in *England*.

The sixth and seventh Sorts here mentioned will not perfect their Seeds in this Climate the first Year, unless they are placed in the Stove, and forwarded early in the Spring; so that it will be proper to preserve a Plant or two of each Kind through the Winter, in order to obtain good Seeds. But as they are tender Plants, they must be kept in a moderate Temperature of Warmth, otherwise they will not live; therefore the best way is to plunge the Pots into the Bark-bed in the Stove, which will keep them growing all the Winter, and cause them to make large handsome Plants by the following Summer.

These Plants deserve a Place in every curious Garden for the singular Beauty of their Leaves (notwithstanding their Flowers are not very valuable), especially those Sorts which may be propagated every Year from Seeds; because those Persons who have no Green-house to place them into in Winter, may cultivate them as other annual Plants; amongst which these being placed either in Pots or Borders, afford an agreeable Variety: but it must be observed, as these are large-growing Plants, never to place them too near other Plants of less Growth, because these will overbear and destroy them; and those which are planted in Pots should be allowed room for their Roots to expand, and must be frequently watered, otherwise they will not grow very large.

RIPENING of FRUIT.

The Method of producing Early Fruits.

A Wall should be erected ten Feet high, and in Length according to the Number of Trees intended for three Years forcing.

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This being done, a Border may be marked out about four Feet wide on the South-side of it; and some Scantlings of Wood, about four Inches thick, must be fastened to the Ground in a strait Line on the Outside of the Border, to rest the Glass-lights upon; which Lights are to slope backwards to the Wall, to shelter the Fruit as there shall be Occasion.

Bars about four Inches wide, cut out of whole Deal, must be placed between these Glasses, so that the Lights may rest on them.

If you would not have the Glass-lights slope so much as they will from this Fall from the Upright, then you may have a Line of whole Deals fixed on the Top of the Wall to project their whole Breadth over the Trees, and made so that the Top of the Glass-lights may fall in an Inch or two under them. There must also be a Door shaped to the Profile of the Frame at each End, that it may be opened at either of the Ends, according as the Wind blows.

The Frame before-mentioned should be made so, that when the first Part has been forced, the Frame may be moved the next Year forward, and the succeeding Year forward again; so that the Trees will be forced but every third Year; and having two Years to recover themselves, will continue strong for many Years.

These Trees should be well grown before they are forced, otherwise they will soon be destroyed; and the Fruit produced on grown Trees will be much fairer and better tasted, than on fresh-planted Trees.

The Fruit that may be planted in these Frames, are,

The Avant, the *Albemarle*, the *Anne*, the Early *Newington*, and Brown Nutmeg Peaches.

Mr. *Fairchild's* Early, the Elruge and *Newington* Nectarines; the Masculine Apricock; the *May Duke*, and *May Cherry*.

As for Grapes; the White and Black Sweet-water.

Gooseberries; the *Dutch White*, the *Dutch Early-green*, and the Walnut-gooseberries.

Currans; the large *Dutch white*, and the large *Dutch red* Currans.

It has been found by Experience, that the Trees will be injured, if the Heat be applied before *November*; and that the Time for applying the Heat for bringing either Duke or *May Cherries*, is about the Middle or Latter-end of that Month, and applying Heat at the same time would do for Apricocks; so that the Masculine Apricock will, in *February*, be as large as Duke Cherries, and will be ripe by the Beginning of *April*.

Cherries thus forced will not hold so well as Apricocks, tho' the former will last, perhaps, for seven Years in good Plight; but Apricocks will thrive and prosper thus many Years.

It is very likely, that Mr. *Fairchild's* Early Nectarines would ripen much about the same Time as the Masculine Apricock, if they were both forced at the same time; and the Brugnion Nectarine would follow that. As to the forward Sorts of Plums, they have been tried, and ripen about the Latter-end of *April*.

Gooseberries would produce green Fruit fit for Tarts in *January* and *February*, and probably would ripen about the End of *March*, or the Beginning of *April* at the farthest.

Currans, which tend to shoot forward, might, by the same Heat that bring Cherries in *February*, be forced to produce ripe Fruit in *April*, if not sooner.

As for the Distance of these Trees one from another, it need not be so great as is directed for those planted in the open Air, because they will never shoot so vigorously: therefore eight or nine Feet will be sufficient.

The higher Parts of the Wall being furnished with Apricocks, Cherries, Nectarines, Peaches, and Plums, the lower small Space between them may be filled up with Currans, Gooseberries, and Roses.

As to the Pruning of the Trees:

The Time of doing it in these Frames, must not be the same as in other Trees; because in the common Case of Stone-fruit against Walls, the Spring does not begin till the End of *January*; but in the forcing Frames, the Spring begins in *November*: therefore they should be pruned three Weeks before the Heat is applied; for then the Air will be so artificially tempered, as to set the Trees a growing, and the Frosts cannot come at them, if the Glasses be set up as soon as they are pruned.

As to the nailing of these Trees:

Every Branch that shoots must be laid as close to the Wall as can be; for the Fruit which touches the Wall will be ripe a Month sooner than those that lie but two Inches from it.

Sometimes it happens, that the Tops of such Trees have Blossoms a Month or six Weeks before the Bottom; and sometimes one Branch has been full of Blossoms, when there have been half a Score or more Branches of the same Tree, which have not stirred till the Fruit of the first Blossoms have been almost ripe, notwithstanding which the Tree has done very well: and it is no uncommon thing for such Trees to have Fruit ripening upon them for near three Months continually.

As for Gooseberries; such Sorts

as are planted in these Frames, should be such as have spread; and when as many Shoots have been nailed to the Wall as may be conveniently done, others may be left at a Distance from it, to succeed them in ripening.

If they are taken up in the Summer, and properly managed, they will bear Fruit the first Year, as well as if they had not been transplanted.

The Currans may be ordered after the same manner, and also the Roses; and the best Kind of Rose for this Purpose, is the monthly Rose, which ought always to be topped about the End of *July*, or the Beginning of *August*, to make them put out a good Number of Flower-buds.

As to the laying the Dung to the Wall:

The Dung, before it be laid to the Back of the Wall, should be thrown up in an Heap, and lie for some Days, that it may yield an equal Heat every-where, and be constant.

When it has been thus prepared, it should be laid about four Feet thick at the Base, and so sloping, till it has but two Feet wide at the Top.

It should be laid at first within four Inches of the Top of the Wall; for it will sink to about three Feet in six Weeks time; and then some fresh Dung must be laid, because the first Heat will not do much more than swell the Buds of the Trees, or begin to bring them to a green Colour, or at the most will but barely shew the Colour of the Blossom-buds.

But, according as the Frosts shall have happened to have had more or less Influence over the Buds, this will happen sooner or later.

If these Trees be covered with the Glasses, it will contribute very much to forward their Blossoming; for tho' their Blossoms will not be destroyed by the Frosts, yet the more the Frosts come at them, they will both be the drier, and more hard to open.

If the Weather be tolerably mild, the Trees ought not to be hindered from the Benefit of the Showers till the Buds begin to stir; but afterwards the Glasses should be kept constantly over them till the Influence of the Sun is something considerable.

But the Doors which are at each End of the Frame, should, in the mean time, be set open, when the Wind does not blow too sharp, and the Sun shines any thing warm: and if this does not happen in the Space of a Fortnight, then the Doors at both Ends may be opened, and Mats of Bafs or Canvas should be hung up over the Door-ways, to correct the Winds, and give the Air leave to circulate in the Frames.

As for Cherries; about three Changes of Dung will be sufficient to bring them to a due Ripeness in *February*, supposing each Parcel remains a Month at the Back of the Wall.

But as for Apricocks, Grapes, Nectarines, Peaches, and Plums, if *April* proves cold, the forcing Heat must be continued till *May* is settled; but some of the Glasses should be opened in the Morning, in *March* and *April*, when the Wind is still, and the Sun warm; and they should be permitted to receive the Showers that fall, while the Fruit is growing; but while they are in Blossom, no Rain should come near them, because if there should be any Moisture lodged in the Bosom of the Flowers, and the Sun should shine thro' the Glasses, it would be apt to destroy them.

The Dung that comes from these Frames, having lost its Heat, may be laid in Heaps to rot for the meliorating of stubborn Grounds.

Another thing which ought to be observed in planting Fruit in these Frames, is to plant those Fruits which come forward, together; and those which come late, by themselves; because it will be prejudicial to the forward Fruit to give them any more Heat, when they have done bearing; when at the same time the later Fruits set amongst them may require more Heat, and to be continued longer; some of them, perhaps, requiring an artificial Heat till *May*.

There may also a Row or two of scarlet Strawberries be planted near to the Back of this Frame; and these you may expect will be ripe by the End of *February*, or Beginning of *March*.

As for the Vines; they may probably be brought to blossom, and have ripe Grapes, in *May*.

There may also be here-and-there planted a monthly Rose-tree, and Hyacinths, Jonquils, Narcissus's, Polyanthus's, and also early Tulips, might be planted in the Borders.

RONDELETIA.

The Characters are;

It hath a salver-shaped Flower, consisting of one Leaf, which is tubulous, and rests on the Empalement; which Empalement afterward becomes a roundish coronated Fruit, divided into two Cells, containing many small Seeds.

We know but one Species of this Plant; which is,

RONDELETIA arborescens, tini facie. Plum. Nov. Gen. Tree-like Rondeletia, with the Face of *Laurus Tinus*.

This Plant was discovered by Father *Plumier*, in *America*, who gave it this Name in Honour to *Gulielmus Rondeletius*,

Rondeletius, a famous Physician of *Montpelier*.

The Seeds of this Plant were sent to *England* by *Mr. Robert Millar*, Surgeon, who collected them on the North-side of the *Island of Jamaica*, where the Trees grow plentifully, as also in several Parts of the *Spanish West-Indies*.

This Plant, being very tender, cannot be preserved in *England*, unless it is kept in a warm Stove. It is propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted into separate small Pots, and plunged into a moderate Hot-bed of *Tanners Bark*, where they must be treated in the same manner as hath been directed for the *Pereksia*; and in Winter must be placed in the Tan-bed in the Stove, where these Plants will thrive, and in two or three Years will flower; when they will make an agreeable Variety amongst other tender Exotic Plants.

ROSA, The Rose-tree.

The Characters are;

The Flower is composed of several Leaves, which are placed circularly, and expand in a beautiful Order; whose leafy Flower-cup afterward becomes a roundish or oblong fleshy Fruit, inclosing several angular hairy Seeds: to which may be added, It is a weak pithy Shrub, for the most part beset with Prickles, and hath pinnated Leaves.

The Species are;

1. *ROSA sylvestris inodora*, seu *camina*. *Park. Theat.* The Wild-briar, Dog-rose, or Hep-tree.

2. *ROSA sylvestris, fructu majore hispido*. *Raii Syn.* Wild-briar, or Dog-rose, with large prickly Heps.

3. *ROSA sylvestris pomifera major nostras*. *Raii Syn.* The greater *English* apple-bearing Rose.

4. *ROSA pumila spinosissima, foliis pimpinellæ glabris, flore albo*. *J. B.* The dwarf wild burnet-leaved Rose.

5. *ROSA pumila spinosissima, foliis pimpinellæ glabris, ex luteo & viridi eleganter variegatis*. The dwarf wild burnet-leaved Rose, with variegated Leaves.

6. *ROSA pimpinella minor Scotica, floribus ex albo & carneo eleganter variegatis*. *Pluk. Alm.* The striped Scotch Rose.

7. *ROSA sylvestris, foliis odoratis*. *C. B. P.* The Sweet-briar, or Eglantine.

8. *ROSA sylvestris odora, five Eglanteria, flore duplici*. *Park. Parad.* Sweet-briar with a double Flower.

9. *ROSA rubra multiplex*. *C. B. P.* The double red Rose.

10. *ROSA Damascena*. *Park. Parad.* The damask Rose.

11. *ROSA Provincialis, five Hollandica, Damascena*. *Park. Parad.* The damask *Provence* Rose.

12. *ROSA Provincialis major, flore pleno ruberrimo*. *Boerb. Ind. alt.* The red *Provence* Rose.

13. *ROSA centifolia Batavica*. *Clus. H.* The Dutch hundred-leaved Rose.

14. *ROSA Provincialis spinosissima, pedunculo muscoso*. The Moss *Provence* Rose.

15. *ROSA Provincialis rubra*. *Park. Parad.* The common *Provence* Rose.

16. *ROSA holosericea simplex*. *Park. Parad.* The single velvet Rose.

17. *ROSA holosericea multiplex*. *Park. Parad.* The double velvet Rose.

18. *ROSA odore cinamomi, flore pleno*. *C. B. P.* The double *Cinnamon* Rose.

19. ROSA *odore cinamomi, simplex.* C. B. P. The single Cinnamon Rose.

20. ROSA *lutea simplex.* C. B. P. The single yellow Rose.

21. ROSA *lutea multiplex.* C. B. P. The double yellow Rose.

22. ROSA *sylvestris Austriaca, flore phœnicco.* Park. Theat. The Austrian Rose.

23. ROSA *sylvestris Austriaca, flore totum luteum.* The yellow Austrian Rose.

24. ROSA *uno ramo luteos, cæteris puniceos flores gerens simplices.* Boerb. Ind. alt. The Austrian Rose, with yellow Flowers upon one Branch, and purple Flowers on the other.

25. ROSA *alba vulgaris major.* C. B. P. The common white Rose.

26. ROSA *alba minor.* C. B. P. The lesser white Rose.

27. ROSA *candida semiplena.* J. B. The semi double white Rose.

28. ROSA *incarnata.* Park. Parad. The Blush-rose.

29. ROSA *Prænestina variegata plena.* Hort. Eyst. The York and Lancaster Rose.

30. ROSA *rubro & albo variegata, Rosa Mundi vulgo dicta.* Raii Hist. The Rose of the World, or Rosa Mundi.

31. ROSA *Francofurtensis.* Park. Parad. The Franckfort Rose.

32. ROSA *sempervirens.* Park. Parad. The ever-green Rose.

33. ROSA *omnium Calendarum.* H. R. Par. The monthly Rose.

34. ROSA *omnium Calendarum, flore variegato.* The striped monthly Rose.

35. ROSA *sine spinis, flore minore.* C. B. P. The Rose without Thorns.

36. ROSA *sine spinis, flore ma-*

jore ruberrimo. The Royal Virginian Rose.

37. ROSA *sylvestris Virginienfis.* Raii Hist. The wild Virginian Rose.

38. ROSA *moschata, simplici flore.* C. B. P. The single Musk Rose.

39. ROSA *moschata, flore pleno.* C. B. P. The double Musk Rose.

40. ROSA *moschata sempervirens.* C. B. P. The ever-green Musk Rose.

41. ROSA *Belgica sive vitrea, flore rubro.* Rea. Flor. The red Belgic Rose.

42. ROSA *Belgica, sive vitrea, flore rubicante.* Rea. Flor. The Bush Belgic Rose.

43. ROSA *marmorea.* Rea. Flor. The marble Rose.

44. ROSA *Provincialis, flore simplici.* The single Provence Rose.

45. ROSA *Damascena, flore simplici.* The single damask Rose.

46. ROSA *pimpinella minor Scotica, flore livide rubente.* The dwarf Scotch Rose, with a bluish-red Flower.

The first Sort of Rose grows wild in the Hedges in most Parts of England: the Fruit of this Tree is made into a Conserve for Medicinal Use; but this is seldom cultivated in Gardens.

The second, third, and fourth Sorts do also grow wild in divers Parts of England; and are rarely preserved in Gardens, unless for Variety-sake.

The fifth Sort is a Variety of the fourth, and is preserved by some for the Beauty of its striped Leaves.

The sixth Sort is found wild in Scotland, and has been by many supposed to be the same as the fourth Sort, but only differing therefrom in having variegated Flowers: which is a great Mistake; for I have observed, where the two Sorts were cultivated

cultivated on the same Soil for many Years, and yet retained a considerable Difference in the Size of the Plants, the *Scotch* Sort being not half so large as the other; yet the Flowers were much larger, the Leaves were less, and the Branches much weaker, than those of the fourth Sort.

The last Sort here mentioned was raised from the Seeds of the *Scotch* Rose; and altho' the Flowers were plain-coloured, yet the whole Appearance of the Plant continues the same as the original Kind, which is a plain Proof of its being different from the fourth Sort.

The Sweet-briar, although wild in some Parts of *England*, yet is preserved in most curious Gardens for the extreme Sweetness of its Leaves, which perfumes the circumambient Air in the Spring of the Year, especially after a Shower of Rain. The Flowers of this Sort, being single, are not valued; but the Branches of the Shrubs are cut to intermix with Flowers to place in Basons to adorn Halls, Parlours, &c. in the Spring of the Year, the Scent of this Plant being agreeable to most Persons.

The double-flowered Sweet-briar is preserved on the Account of its beautiful Flowers, as well as for the Sweetness of its green Leaves.

All the other Sorts of Roses are originally of foreign Growth, but are hardy enough to endure the Cold of our Climate in the open Air, and produce the most beautiful and fragrant Flowers of any Kind of Shrubs yet known. This, together with their long Continuance in Flower, has justly rendered them the most valuable of all the Sorts of flowering Shrubs; besides, the great Variety of different Sorts of Roses will

make a Collection of Flowers, either for Basons, or in the Garden, without any other additional Mixture; and their Scent, being the most inoffensive Sweet, is generally esteemed by most Persons.

But in order to continue these Beauties longer than they are naturally disposed to last, it is proper to plant some of the monthly Roses near a warm Wall, which will occasion their Budding at least three Weeks or a Month before those in the open Air; and if you give them the Help of a Glass before them, it will bring their Flowers much forwarder, especially where Dung is placed to the Back-side of the Wall (as is practised in raising early Fruits). By this Method I have seen fair Roses of this Kind blown in *February*, and they may be brought much sooner, where People are curious this way.

You should also cut off the Tops of such Shoots, which have been produced the same Spring, early in *May*, from some of these Sorts of Roses which are planted in the open Air, and upon a strong Soil: this will cause them to make new Shoots, which will flower late in Autumn; as will also the late removing the Plants in Spring, provided they do not suffer by Drought, as I have several times experienced; but particularly in the Year 1718. when I had Occasion to remove a large Parcel of these Plants in *May*, just as they were beginning to flower: in doing of which, I cut off all the Flower-buds, and after having opened a Trench in the Place where they were to be planted, I poured a large Quantity of Water, so as to render the Ground like a *Pap*; then I took up the Plants, and placed them therein as soon as possible,

fible, that their Roots might not dry; and after planting them, I watered the Ground well again, and covered the Surface over with Mulch, to prevent its drying; after this I repeated watering the Plants all over two or three times a Week, in the Evening, until they had taken Root: in about three Weeks time, the Plants shot out again, and produced a great Quantity of Flowers in *August* and *September*, which were as fair as those produced in *June*. This is the only Sort of Rose for this Purpose, there being no other Sort which will flower both early and late, except this.

The next Sort of Rose which flowers in the open Air, is the *Cinnamon*, which is immediately followed by the *Damask* Rose; then the *Blush*, and *York*, and *Lancaster* come; after which, the *Provence Dutch* hundred-leaved white, and most other Sorts of Roses, follow; and the latest Sorts are the two *Musk* Roses, which, if planted in a shady Situation, will seldom flower until *September*; and if the Autumn proves mild, will continue often till the Middle of *October*.

The Plants of these two Sorts should be placed against a Wall, Pale, or other Building, that their Branches may be supported; otherwise, they are so slender and weak as to trail upon the Ground. These Plants should not be pruned until Spring, because their Branches are somewhat tender; so that when they are cut in Winter, they often die after the Knife. These produce their Flowers at the Extremity of the same Year's Shoots, in large Bunches; so that their Branches must not be shortened in the Summer, lest hereby the Flowers should be cut off. These Shrubs will grow to be eight

or nine Feet high, and must not be checked in their Growth, if you intend they should flower well, so that they should be placed where they may be allowed room.

The lowest Shrub of all the Sorts here mentioned, is the *Scotch* Rose, which rarely grows above two Feet high, so that this must be placed among other Shrubs of the same Growth. The red Rose and the *Rosa Mundi* commonly grow from three to four Feet high, but seldom exceed that; but the *Damask*, *Provence*, and *Francfort* Roses grow to the Height of seven or eight Feet; so that in planting them great Care should be taken, to place their several Kinds, according to their various Growths, amongst other Shrubs, that they may appear beautiful to the Eye.

The *Francfort* Rose is of little Value, except for a Stock, to bud the more tender Sorts of Roses upon; for the Flowers will seldom open fair, and have no Scent; but its being a vigorous Shooter, renders it proper for Stocks to bud the yellow and *Austrian* Roses, which will render them stronger than upon their own Stocks; but the yellow Roses will seldom blow fair within eight or ten Miles of *London*, tho' in the Northern Parts of *Great-Britain*, they flower extremely well. This Sort must have a Northern Exposure; for, if it is planted too warm, it will not flower.

All the Sorts of Roses may be propagated either from Suckers, Layers, or by budding them upon Stocks of other Sorts of Roses; which latter Method is only practised for some peculiar Sorts, which do not grow very vigorous upon their own Stocks, and send forth Suckers very sparingly; or, where
a Per-

a Person is willing to have more Sorts than one upon the same Plant: but then it must be observed, to bud such Sorts upon the same Stock, as are nearly equal in their Manner of Growth; for, if there be a Bud of a vigorous growing Sort, and some others of weak Growth, the strong one will draw all the Nourishment from the weaker, and intirely starve them.

The best Sort for Stocks is the *Francfort Rose*, which is a vigorous Grower, and produces strong clean Shoots, which will take the Buds much better than any other Sort of Rose; but you must be very careful to keep the Stock after budding intirely clear from Suckers or Shoots at the Bottom; for, if they are permitted to remain on, they will, in a short time, starve the Buds. The best Season for budding of Roses is in *June*; the Manner of doing it, being the same as for Fruit-trees, need not be repeated here.

If you would propagate them from Suckers, they should be taken off annually in *October*, and transplanted out either into a Nursery in Rows (as hath been directed for several other Sorts of flowering Shrubs), or into the Places where they are to remain; for, if they are permitted to stand upon the Roots of the old Plants more than one Year, they grow woody, and do not form so good Roots as if planted out the first Year; and consequently there is more Danger of their not succeeding.

But the best Method to obtain good-rooted Plants, is, to lay down the young Branches in Autumn, which will take good Root by the Autumn following (especially if they are watered in very dry Weather); when they may be taken

from the old Plants, and transplanted where they are to remain. These Plants may be removed any time from *October* to *April*; but when they are designed to flower strong the first Year after planting, they should be planted early; though, as I said before, if they are planted late in the Spring, it will cause them to flower in Autumn, provided they do not suffer by Drought.

Most of these Sorts delight in a rich moist Soil, and an open Situation, in which they will produce a greater Quantity of Flowers, and those much fairer, than when they are upon a dry Soil, or in a shady Situation. The Pruning which they require, is only to have their dead Wood cut out, and the Suckers cleared off, which should be done every Autumn; and if there are any very luxuriant Branches, which draw the Nourishment from the other Parts of the Plant, they should be taken out, or shortened, to cause it to produce more Branches, if there be Occasion for them to supply a Vacancy; but you must avoid crowding them with Branches, which is as injurious to these Plants as to Fruit-trees; for, if the Branches have not an equal Benefit of the Sun and Air, they will not produce their Flowers so strong, nor in so great Plenty, as when they are more open, and better exposed to the Sun, so that the Air may circulate the more freely between them.

ROSA SINENSIS; *vide* *Ketmia Sinensis*.

ROSE THE GUELDER; *vide* *Opulus*.

ROSE-TREE; *vide* *Rosa*.

ROSEMARY; *vide* *Rosmarinus*.

ROSMARINUS, *Rosemary*.

The

The Characters are ;

It is a verticillate Plant, with a labiated Flower, consisting of one Leaf, whose Upper-lip or Crest is cut into two Parts, and turns up backward, with crooked Stamina (or Gibbes); but the Under-lip (or Beard) is divided into three Parts, the middle Segment being hollow like a Spoon; out of the two or three-teethed Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which afterward turn to so many Seeds, that are roundish, and are inclosed in the Flower-cup.

The Species are ;

1. ROSMARINUS *hortensis*, *latiore folio*. Mor. Hist. Broad-leaved garden Rosemary.

2. ROSMARINUS *hortensis*, *angustiore folio*. C. B. P. Narrow-leaved garden Rosemary.

3. ROSMARINUS *friatus*, *sive aureus*. Park. Theat. The gold-striped Rosemary.

4. ROSMARINUS *hortensis*, *angustiore folio*, *argenteus*. H. R. Par. The narrow-leaved silver-striped Rosemary.

5. ROSMARINUS *Almeriensis*, *flore majore spicato purpurascens*. Tourn. Rosemary of Almeria, with a large spiked purplish Flower.

6. ROSMARINUS *spontaneous*, *folio eleganter variegato*. Borrh. Ind. Broad-leaved Rosemary, with an elegant striped Leaf.

These Plants grow plentifully in the Southern Parts of France, in Spain, and Italy; where, upon dry rocky Soils near the Sea, they thrive exceedingly; but notwithstanding they are produced in warm Countries, they are hardy enough to bear the Cold of our ordinary Winters very well in the open Air, provided they are planted upon a poor, dry, gravelly Soil; on which they will endure the Cold much

better than upon a richer Soil, where the Plants will grow more vigorously in Summer, and so be more subject to Injury from Frost; and they will not have so strong an aromatic Scent, as those upon a dry barren Soil.

Those Sorts with striped Leaves are somewhat tender, and should either be planted near a warm Wall, or in Pots filled with light fresh Earth, and sheltered in Winter under a Frame, otherwise they will be subject to die in frosty Weather.

All these Sorts may be propagated by planting Slips or Cuttings of them in the Spring of the Year, upon a Bed of a light fresh Earth; and when they are rooted, they may be transplanted into the Places where they are designed to grow; but it will be proper to do this about the Beginning of August, that they may take new Root before the frosty Weather comes on; for if they are planted too late in Autumn, they seldom live through the Winter, especially if the Weather proves very cold; so that if you do not transplant them early, it will be the better Method to let them remain unremoved until March following, when the Frost is over, observing never to transplant them at a Season when the dry East Winds blow, but rather defer the doing of it until the Season is more favourable; for if they are planted when there are cold drying Winds, they are apt to dry up their Leaves, and kill them: but if there happens to be some warm Showers, soon after they are removed, it will cause them to take Root immediately; so that they will require no farther Care, but to keep them clear from Weeds.

Although these Plants are tender when planted in a Garden, yet, when

when they are by Accident rooted in a Wall (as I have several times seen them), they will endure the greatest Cold of our Winters, tho' exposed much to the cold Winds; which is occasioned by the Plants being more stunted and strong, as also their Roots being drier.

The Flowers of the narrow-leaved garden Sort are used in Medicine, as are likewise the Leaves and Seeds.

RUBEOLA, Petty-madder.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, which is slightly cut into four Parts at the Brim, resting on the Empalement, which is sometimes double, and sometimes single. This Empalement afterward becomes a Fruit, composed of two naked Seeds.

The Species are;

1. RUBEOLA *latiori folio*. *Inst.* R. H. Broad-leaved Petty-madder.
2. RUBEOLA *angustiore folio*. *Inst.* R. H. Narrow-leaved Petty-madder.
3. RUBEOLA *vulgaris quadrifolia laevis, floribus purpurascensibus*. *Inst.* R. H. Common smooth four-leaved Petty-madder, with purplish Flowers, commonly called Squinancy-wort.
4. RUBEOLA *Lusitanica aspera, floribus purpurascensibus*. *Inst.* R. H. Rough Petty-madder of Portugal, with purplish Flowers.
5. RUBEOLA *Cretica saxatilis fruticosa, gallii folio, flore purpureo violaceae*. *Tourn. Cor.* Shrubby rock Petty-madder of Candy, with a Ladies-bedstraw-leaf, and a violet purple Flower.
6. RUBEOLA *Cretica saxatilis frutescens, flore flavescens*. *Tourn. Cor.* Shrubby rock Petty-madder of Candy, with a yellowish Flower.
7. RUBEOLA *Cretica foetidissima frutescens myrtifolia, flore magna suave-rubente*. *Tourn. Cor.* The most stinking shrubby Petty-madder

of Candy, with a myrtle Leaf, and a large pale red Flower.

8. RUBEOLA *orientalis foetida fruticosa serpyllifolia, flore parvo suave-rubente*. *Tourn. Cor.* Shrubby stinking Eastern Petty-madder, with a Mother-of-thyme-leaf, and a small pale red Flower.

9. RUBEOLA *orientalis, foliis gallii, flore multiplici ex viridi flavescens*. *Tourn. Cor.* Eastern Petty-madder, with many greenish-yellow Flowers.

The first, second, fourth, and ninth Sorts are annual Plants, which decay soon after they have perfected their Seeds. These are preserved in the Gardens of those Persons who are curious in Botany, for the sake of Variety. They are very hardy Plants, which require no other Care than to clear them from Weeds: for if they are permitted to scatter their Seeds, the Plants will come up, and maintain their Place, if they are not overborne with larger Plants. The Seeds of these Plants may be sown either in Spring or Autumn, in the Places where they are to remain, which may be in almost any Soil, but they love an open Situation.

The third Sort grows wild on chalky Hills in divers Parts of England, where the Branches trail on the Ground, and produce Tufts of purplish Flowers from the Joints where the Leaves are set on, which open in June, and the Seeds are ripe in August; but the Roots abide many Years. This Plant is esteemed efficacious in the Cure of Quinsays, either taken inwardly, or outwardly applied.

The fifth, sixth, seventh, and eighth Sorts were discovered by Dr. Tournefort in the Levant. These are abiding Plants, which become shrubby, and by their different Appearances make an agreeable Variety

riety in a Garden. They may be propagated by sowing of their Seeds on a Bed of fresh undunged Soil, in the Spring ; and when the Plants come up, they must be kept clear from Weeds, and in very dry Weather they should be refreshed with Water : but when the Plants are about three or four Inches high, they should be transplanted, some of each Sort, into Pots, that they may be sheltered under an Hot-bed Frame in Winter ; and the others into dry warm Borders of poor Earth : for in such Places where the Plants grow slowly, they will live through the Winter, better than when they are planted in a rich Soil.

RUBIA, Madder.

The Characters are ;

The Flower consists of one single Leaf, which is cut into four or five Segments, and expanded at the Top ; the Flower-cup afterward becomes a Fruit composed of two juicy Berries, closely joined together, containing Seed, for the most part, hollowed like a Navel : to which may be added, The Leaves being rough, and surrounding the Stalks in Whorles.

The Species are ;

1. RUBIA tinctorum sativa. C. B. P. Cultivated Dyers Madder.
2. RUBIA sylvestris aspera, quæ sylvestris Dioscoridis. C. B. P. Wild Madder.
3. RUBIA sylvestris, Monspelulana major. J. B. Great wild Madder of Montpelier.

The first of these Sorts was formerly cultivated in divers Parts of England, for the Dyers Use ; but of late Years it has been wholly neglected, so that at present I believe there is scarce any of it cultivated, except in small Quantities for Medicinal Use. How this Plant came to be so much neglected in Eng-

land, I cannot imagine, since it will thrive as well here as in any Country in Europe ; and the Consumption of it in England is pretty large ; for I have been informed, that we pay upwards of thirty thousand Pounds annually for this Commodity, which might be easily saved to the Nation, were it cultivated here. At present the greatest Quantity of it is cultivated in Flanders and Holland, from whence we are annually furnished with it, in three different manners, and distinguished by the Names of Madder in the Branch, Madder in the Bundle, and Madder unbundled : the first Sort is brought to us in the Root, as it comes out of the Ground, without any other Preparation than that of being dried. The second Sort is that of Bunch Madder, or such as is made into Bundles, which is Madder in Branch, first freed from the Bark and the Pith, then ground by a Mill into gross Powder, as we buy it. The third Sort is the Madder unbundled, that is, the branched Madder, ground into Powder ; but the bunched Madder, or that in Bundles, is the best, which for its Excellency, when it is fresh, is made into Bales, or put up into Casks ; it is of a pale Red, but as it grows older, increases its Colour to a fine Red : that of Zealand is esteemed the best for the Dyers Use.

In the Year 1727. I observed a great Quantity of this Plant cultivated in Holland, between Helvoetsluys and the Brill ; and it being the first time I had ever seen any considerable Parcel of it, I was tempted to make some Inquiries about its Culture, and take some Minutes of it down upon the Spot ; which I shall here insert, for the Use of such as may have Curiosity to attempt the Culture of it.

In

In Autumn they plough the Land, where they intend to plant Madder in the Spring, and lay it in high Ridges, that the Frost may mellow it; in *March* they plough it again, and at this Season they work it very deep, laying it up in Ridges eighteen Inches afunder, and about a Foot deep; then about the Beginning of *April*, when the Madder will begin to shoot out of the Ground, they open the Earth about their old Roots, and take off all the Side-shoots, which extend themselves horizontally, just under the Surface of the Ground, preserving as much Root to them as possible: these they transplant immediately upon the Tops of the new Ridges, at about a Foot apart, observing always to do this when there are some Showers, because then the Plants will take Root in a few Days, and will require no Water.

When the Plants are growing, they carefully keep the Ground hoed, to prevent the Weeds from coming up between them; for if they are smothered by Weeds, especially when young, it will either destroy or weaken them so much, that they seldom succeed after. In these Ridges they let the Plants remain two Seasons, during which time they keep the Ground very clean; and at *Michaelmas*, when the Tops of the Plants are decayed, they take up the Roots, and dry them for Sale. This is what I could learn of their Method of cultivating this Plant, to which I will subjoin a few Observations of my own, which I have since made upon the Culture of Madder in *England*. And, first, I find there is no Necessity for laying the Ground up in Ridges in *England*, as is practised by the *Dutch* (especially in dry Land), because the Places where I

saw it, were very wet Land, which is often floated in Winter; so that if the Plants were not elevated upon Ridges, their Roots would rot in Winter. Secondly, they should be planted at a greater Distance in *England*: the Rows should be at least three Feet Distance, and the Plants eighteen Inches afunder in the Rows; for as they extend themselves pretty far under-ground, so where they are planted too near, their Roots will not have room to grow. And, thirdly, I find, that if all the horizontal Roots are destroyed from time to time, as they are produced, it will cause the large downright Roots to be much bigger, in which the Goodness of this Commodity chiefly consists: for if the upper Roots are suffered to remain, they will draw off the principal Nourishment from the downright Roots, as I have experienced; for I planted a few Roots, upon the same Soil and Situation, which were of equal Strength, and rooted equally well; half of these I hoed round, and cut off the horizontal Roots, and the other half I permitted the horizontal Roots to remain on; and when I took them all up, those which I had hoed about, and kept clear from horizontal Roots, were almost as large again as the other, and the Roots were double the Weight; which plainly proves it necessary to cut off those superficial Roots.

The Manner of drying and preparing these Roots for Use, I am not acquainted with, having never had an Opportunity of seeing that Part; therefore I can give no Instructions concerning it: but whoever shall have Curiosity enough to cultivate this useful Plant, might easily inform themselves, by going over to *Holland* at the Season of taking up the Roots.

The

The two Sorts of wild Madder are of no Use; though their Roots seem to be of the same Quality with the manured Sort; and as they are never cultivated in Gardens it is needless to say any thing more of them in this Place.

These Plants love a loose Soil, neither too dry nor over-wet; but will thrive better in a dry than on a wet Soil; because in such Places the Roots are apt to rot in Winter.

RUBUS, The Bramble, or Raspberry-bush.

The Characters are;

It hath a Flower consisting of five Leaves, which are placed circularly, and expand in form of a Rose; the Flower-cup is divided into five Parts, containing many Stamina, or Chives, in the Bosom of the Flower, in the Centre of which rises the Pointal, which afterward becomes the Fruit, consisting of many Protuberances, and full of Juice.

The Species are;

1. RUBUS major, fructu nigro. *J. B.* The common Bramble, or Black-berrybush.

2. RUBUS minor, fructu cœruleo. *J. B.* The Dewberry-bush, or Lesser Bramble.

3. RUBUS vulgaris major, fructu albo. *Raii Syn.* The common greater Bramble-bush, with white Fruit.

4. RUBUS vulgaris major, folio eleganter variegato. The greater Bramble-bush, with a beautiful striped Leaf.

5. RUBUS Idæus spinosus, fructu rubro *J. B.* The Raspberry-bush, Framboise, or Hind-berry.

6. RUBUS Idæus spinosus, fructu albo. *J. B.* The Raspberry-bush, with white Fruit.

7. RUBUS Idæus spinosus, fructu rubro serotino. The Raspberry-bush, with late red Fruit.

8. RUBUS Idæus non spinosus. *J. B.* The Raspberry-bush, without Thorns.

9. RUBUS Idæus, fructu nigro, Virginianus. *Banist.* The Virginian Raspberry-bush, with black Fruit.

10. RUBUS odoratus. *Cornut.* Virginian flowering Raspberry; *vulgo.*

11. RUBUS Americanus magis erectus, spinis rarioribus, stipite cœruleo. *Pluk. Alm.* The upright Pennsylvania Bramble, or Raspberry-bush.

12. RUBUS Alpinus humilis. *J. B.* Dwarf Bramble of the Alps.

13. RUBUS vulgaris, spinis carens. *H. R. Par.* Common Bramble, without Spines.

14. RUBUS spinosus, foliis & flore eleganter laciniatis. *Inst. R. H.* Prickly Bramble, with Leaves and Flowers elegantly jagged.

15. RUBUS flore albo pleno. *H. R. Par.* The Bramble with double white Flowers.

16. RUBUS non spinosus, fructu nigro majore, Polonicus. *Barr. Icon.* Poland Bramble without Thorns, and a larger black Fruit.

The first and second Sorts are very common in Hedges, and upon dry Banks, in most Parts of England, and are rarely cultivated in Gardens. The third Sort was found by Mr. Jacob Bobart in an Hedge not far from Oxford, and hath since been cultivated in several Gardens as a Curiosity. This does not only differ from the common Bramble in the Colour of the Fruit, but also in the Colour of the Bark, and the Leaves, which in this Sort are of a lively Green; whereas those of the common Sort are of a dark-brown Colour. The fourth Sort is a Variety of the common Bramble, differing therefrom only in having striped Leaves, for which it is preserved by some Persons who

who are curious in collecting variegated Plants.

The Raspberry-bush is also very common in divers Woods in the Northern Counties of *England*; but is cultivated in all curious Gardens for the sake of its Fruit. Of this there are three Kinds, which are cultivated commonly in the Gardens near *London*; which are the common red, late red, and the white Sorts; but the Sort without Thorns is less common at present than the other.

The ninth, tenth, eleventh and twelfth Sorts, are preserved as Curiosities in several Gardens near *London*; but as their Roots are of no Value, they are scarcely worth cultivating, except in Botanic Gardens for Variety.

The thirteenth Sort is in all respects like common Bramble, excepting in this Particular, that there are no Thorns on the Branches or Leaves of this Sort.

The fourteenth Sort differs from the common Bramble, in having the Leaves and Flowers curiously jagged.

The fifteenth Sort produces large Spikes of Flowers, which are very large and double, so that they make a fine Appearance, being almost as large and double as *Roses*. This merits a Place in every good Garden, because it may be planted in any abject Part of the Garden, under Trees in Wilderness-quarters, where it will thrive and flower as well as when planted in a more open Situation.

The sixteenth Sort is not very common in *England*, but is a Native of *Poland*. This produces much larger Fruit than the common Bramble; wherefore it is preserved in some Gardens for the sake of Variety.

All these Plants are easily propagated by Suckers, which they send from the Roots in great Plenty. The best Time to take them off, and transplant them, is in *October*, that they may take good Root before Winter, which will cause them to be strong, and produce Fruit the succeeding Summer.

In preparing these Plants, their Fibres should be shortened; but the Buds, which are placed at a small Distance from the Stem of the Plant, must not be cut off, because those produce the new Shoots the following Summer. These Plants should be planted about two Feet asunder in the Rows, and four or five Feet Distance Row from Row; for if they are planted too close, their Fruit is never so fair, nor will ripen so kindly, as when they have room for the Air to pass between the Rows. The Soil in which they thrive best, is a fresh sandy Loam, neither too moist nor over-dry, the Extreme of either being injurious to these Plants.

The Time for dressing them is in *October*, when all the old Wood, which produced Fruit the preceding Summer, should be cut out down to the Surface of the Ground, and the young Shoots must be shortened to about two Feet in Length; then the Spaces between the Rows should be well dug to encourage their Roots; and if you bury a very little rotten Dung therein, it will make them shoot vigorously the Summer following, and their Fruit will be much fairer. During the Summer-season they should be kept clear from Weeds, which, with the before-mentioned Culture, is all the Management they will require: but it is proper to make new Plantations once in three or four Years, because those are better than such
Plants

Plants as are suffered to remain longer.

All the Sorts of Bramble are easily propagated by laying down of Shoots, which in one Year will be sufficiently rooted to transplant; after which they may be cut off from the old Plants, and planted where they are designed to remain; which should be in Wilderness-quarters, or other abject Parts of the Garden, where they may have room to spread, without incommoding other Plants.

RUELLIA.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, which is cut into several Parts at the Brim, from whose Empalement arises the Pointal, which is fixed like a Nail in the Bottom of the Flower, and afterward becomes a membranaceous Pod, which opens into several Parts, and is filled with small Seeds.

The Species are;

1. *RUELLIA Americana humilis, asphodeli radice. Plum. Nov. Gen.* Dwarf American Ruellia, with an Asphodel-root.

2. *RUELLIA Caroliniana, foliis oblongis angustis, flore purpureo. Houst.* Carolina Ruellia, with narrow oblong Leaves, and a purple Flower.

3. *RUELLIA Americana humilis, parvo flore caeruleo, capsulis teretibus. Houst.* Dwarf American Ruellia, with a small blue Flower, and a taper Pod.

The first Sort was discovered by Father Plumier, in America, who gave this Name to the Genus, in Honour of Dr. Ruellius, who was a very learned Person in Natural History, and lived about two hundred Years past.

The second Sort grows plentifully in South Carolina, from whence it was brought into the English Gar-

dens. This Sort grows much taller than the other two.

The third Sort was discovered by the late Dr. William Houstoun in Jamaica, who sent the Seeds into England. The Flowers of this Kind are much smaller than those of the other Sorts, and are of short Duration, seldom continuing above one Day.

These Plants are propagated by Seeds, which must be sown early in the Spring, in Pots filled with light rich Earth, and plunged into a moderate Hot-bed; and when the Plants come up, they must be transplanted each into a separate small Pot, filled with rich Earth, and plunged into a Hot-bed of Tanners Bark, where they must be shaded from the Sun, until they have taken new Root; after which they must have fresh Air admitted to them every Day in warm Weather, and be constantly watered three or four times a Week during the Summer Season. If the Plants thrive well, those of the first and third Sort will produce Flowers the July following, and will perfect their Seeds in August; but the Roots will continue, provided they are plunged into the Bark-bed in the Stove, and kept in a moderate Temperature of Heat.

The second Sort, which rises much higher than either of the other, will require to be shifted into larger Pots, by the Beginning of June; and then they should be removed into the Stove or Glass-case, where they may have a larger Share of Air; otherwise they will draw up very weak, which will prevent their flowering. This Sort dies to the Root every Winter; but if the Pots are placed in a warm Stove, their Roots will live, and put out again the following Spring; by which Method they may be continued several Years. This Sort

Sort will ripen Seeds very well, provided the Plants are sheltered when they are in Flower.

The first Sort is by much the most beautiful Plant, the Flowers being four times as large as those of either of the other Sorts, and are of a fine blue Colour; so that it makes a fine Appearance when it flowers; and as the Plants are small, they may be kept in a little Compass, and are as well worth preserving, as most tender Exotic Plants. When this Plant is shifted (which should be the Beginning of *April*, before the new Leaves are put out), great Care should be taken, that the Roots are not broken or bruised; for they consist of many thick Tubers, and if these are injured, the Plant is frequently destroyed.

RUYSCHIANA.

The Characters are;

It hath a labiated Flower consisting of one Leaf, whose Upper-lip (or Crest) is divided into two Parts; but the Beard is cut into three Segments, the middle Segment being divided into two Parts, and is twisted like a Screw: out of the Empalement arises the Pointal, fixed like a Nail in the hinder Part of the Flower, attended by four Embryoes, which afterwards become so many Seeds inclosed in the Empalement.

We have but one Species of this Plant; which is,

RUYSCHIANA flore caeruleo magno.
Boerb. Ind. alt. Ruyschiana with a large blue Flower.

This Name was given to this Plant by the learned *Dr. Boerhaave*, Professor of Botany at *Leyden*, in Honour of *Dr. Ruysch*, who was Professor of Anatomy and Botany at *Amsterdam*. It was by some Writers in Botany ranged amongst the *Hyssops*; by others it was made a

Ground-pine, and by some a *Self-heal*; to neither of which it exactly agreed; which occasioned *Dr. Boerhaave* to constitute a new Genus of it by this Name.

This is a perennial Plant, which dies to the Root in Autumn, and rises again the following Spring: it commonly grows about two Feet high, and has long narrow Leaves, somewhat resembling those of *Rosemary*: on the Tops of the Stalk the Flowers are produced in a close thick Spike, growing in Whorles round the Stalks, which are of a fine blue Colour, and make a very pretty Appearance during their Continuance in Beauty; which in a cool Season is sometimes six Weeks, beginning in *May*, and lasting till *July*.

It is propagated by Seed, which should be sown in the middle of *March*, in a Bed of fresh light Earth, on an open Exposure; and in about five Weeks after, the Plants will appear; when they should be carefully cleared from Weeds, and if the Season should prove dry, must be refreshed now-and-then with Water, which will greatly promote their Growth. When the Plants are about two Inches high, they should be carefully transplanted into a Bed or Border of fresh light undunged Earth, observing to shade them from the Sun until they have taken Root, as also to refresh them frequently with Water, until they are well established in this Bed; after which time they will require no farther Care, but to keep them constantly clear from Weeds till *Michaelmas*, when they are to be removed into the Places where they are designed to remain for Continuance.

When the Plants are first removed from the Seed-bed into the Nursery-bed, they should be planted about

fix Inches asunder every way, which will be sufficient room for them the first Season: and this will admit of the Hoe to come between the Plants to destroy the Weeds, which is by much a better Method than the pulling out of the Weeds by Hand, and is much sooner performed. For as the Hoe stirs the Ground between the Plants, it not only cuts down the Weeds, which were up and visible, but also destroys all those whose Seeds were sprouted, and would have soon after appeared; so that one Hoeing, if well performed, and in dry Weather, will more effectually destroy the Weeds, than two Hand-weedings would do, were it performed ever so carefully. Besides, the stirring of the Ground is of great Service to the Plants.

At Michaelmas, when the Plants are transplanted for a Continuance, they should be carefully taken up with Balls of Earth to their Roots, and must be planted in the middle of the Borders, in fresh light Earth, intermixing them with other hardy Plants of the same Growth, where they will make a pretty Appearance, when they are in Flower, and will continue three or four Years; and in some poor stony Soils I have known the Roots live six or seven Years; but these did not produce so large Spikes of Flowers, as those which were younger and more vigorous Plants.

It will be proper to have some of these Plants in Pots, which, in case of a severe Winter, may be sheltered under a Frame, for fear those Plants which are exposed, should be destroyed; and these in Pots, if they are duly supplied with Water in dry Weather, will flower very strong; wherefore they may be placed amongst other Plants to decorate

Courts, &c. where they will have a good Effect.

But as these Plants do not continue many Years, it will be proper to raise a Supply of young Plants to succeed them; for the old Plants will produce Seeds plentifully, which are ripe in August; when they should be gathered in dry Weather, and kept in a warm dry Room, till the time for sowing them.

RUSCUS, Knee-holly, or Butchers-broom.

The Characters are;

The Flower-cup consists of one Leaf, which is cut into several Divisions, out of which is produced a globular bell-shaped Flower, consisting also of one Leaf, in the Centre of which rises the Pointal, which afterward becomes a soft roundish Fruit, in which are inclosed one or two hard Seeds.

The Species are;

1. *Ruscus myrtifolius aculeatus*. Tourn. The common Knee-holly, or Butchers-broom.
2. *Ruscus angustifolius, fructu folio innascente*. Tourn. Narrow-leaved Butchers-broom, or Alexandrian Laurel, with the Fruit growing on the Leaves.
3. *Ruscus latifolius, fructu folio innascente*. Tourn. Broad-leaved Butchers-broom, or Alexandrian Laurel, with the Fruit growing on the Leaves.
4. *Ruscus angustifolius, fructu summis ramulis innascente*. Tourn. Narrow-leaved Butchers-broom, or Alexandrian Laurel, with the Fruit growing upon the Tops of the Branches.
5. *Ruscus latifolius, foliorum sinu florifer & fructifer*. H. Eit. Broad-leaved Alexandrian Laurel, with the Fruit growing upon the Edges of the Leaves.

The

The first Sort is very common in the Woods in divers Parts of *England*, and is rarely cultivated in Gardens. The Roots of this Kind are sometimes used in Medicine, and the green Shoots are cut, and bound into Bundles, and sold to the Butchers, who use it as Besoms to sweep their Blocks; from whence it had the Name of *Butchers-broom*.

The second; third, and fourth Sorts, are hardy Plants; and though not Natives of *England*, yet may be preserved in Gardens, if planted in a shady Situation, as in Wilderness-quarters, &c. where they serve to intermix with other Wood-plants to make Variety; and the third Sort is sometimes used in Medicine. These Plants may be propagated by parting their Roots in the Spring of the Year, before they begin to make new Shoots, observing, if the Season be dry, to water them until they have taken Root; after which they will require no farther Care but to keep them clear from Weeds, observing not to transplant or disturb their Roots oftener than once in three or four Years; for when they are often removed, they seldom thrive well, and rarely produce Fruit.

The fifth Sort is tender, and must therefore be placed in Pots filled with fresh Earth, and in Winter put into the Green-house; but it should be placed where it may have free Air in mild Weather, and be constantly watered: in which Management, this Plant will send forth Stems six or eight Feet high, furnished with Leaves from Bottom to Top, which in June will be closely set with Flowers upon their Edges; which will make a very beautiful and odd Appearance, and

render it worthy of a Place in every good Collection of Plants. This is also propagated by parting the Roots, as the former; which should not be done very often, because, if the Roots are not permitted to remain some time to get Strength, they will produce but weak Shoots, and very few Flowers; and in the Strength of their Shoots, and Number of Flowers, the greatest Beauty of these Plants consists.

It is generally supposed, that it was one of these Plants which the antient Victors were crowned with; and from the Pliableness of their Branches, whereby they are very proper to wreath into any Figure, and from the Resemblance those Coronets, which we see surrounding the Heads of some antient Busts, have to the Leaves of these Plants, it is a probable Conjecture at least.

RUTA, Rue.

The Characters are;

The Flower for the most part consists of four hollow Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Flower-cup rises the Pointal, which afterward becomes a roundish Fruit, which is generally four-cornered, and composed of four Cells fixed to an Axis, and full of small angular Seeds.

The Species are;

1. RUTA *major hortensis latifolia*. Mor. Hist. The common broad-leaved garden Rue.
2. RUTA *hortensis minor, tenuifolia*. Mor. Hist. The lesser green Rue, with narrow Leaves.
3. RUTA *hortensis minor tenuifolia, foliis variegatis argenteis*. Boerb. Ind. The lesser garden Rue, with narrow Leaves, variegated with White.

4. *RU*A *Chalepensis latifolia*,
forum petalis villis scatentibus. H.
 L. The broad-leaved *Aleppo* Rue,
 whose Flower-leaves are beset with
 Down.

5. *RU*A *Chalepensis tenuifolia*,
forum petalis villis scatentibus. Mor.
 Hist. Narrow-leaved *Aleppo* Rue,
 whose Flower-leaves are beset with
 Down.

6. *RU*A *sylvestris major*. C.B.P.
 Greater wild Rue.

There are some other Varieties
 of these Plants, which are preserved
 in curious Botanic Gardens; but
 those here mentioned are all the
 Sorts which I have seen cultivated
 in the *Englisb* Gardens.

The first Sort here mentioned is
 that which the College of Physicians
 have directed to be used in Medi-
 cine, and is the most commonly
 cultivated in *England*.

The second Sort is propagated but
 in few Gardens in *England*; tho' the
 third, which is a Variety of the
 second, and only differing from it
 in having its Leaves variegated with
 White, is very common in *England*,
 being greatly cultivated by those
 Gardeners who supply the *London*
 Markets with Plants in the Spring-
 season, at which time this Plant
 makes a beautiful Appearance; but
 as the Season advances, and the
 Plants increase in Vigour, the Va-
 riegation of the Leaves goes off, and
 they appear almost green, but
 their Colour returns again in Win-
 ter.

The two Sorts of *Aleppo* Rue are
 only preserved in some curious Gar-
 dens, being rarely used in Medicine;
 tho', of late Years, the broad-leaved
 Sort was become so plenty, as to be
 brought to the Markets instead of
 the first Sort: but it being much
 ranker, and of a more offensive
 Smell, was neglected.

The greater wild Rue is less com-
 mon in *England*, than either of the
 former. This I raised from Seeds,
 which were sent me by my honoured
 Friend Mr. *Henry Hopkey*, from *Gi-
 braltar*, where this Plant grows upon
 the Hills in great Plenty.

All these Plants may be propaga-
 ted either by sowing of their Seeds,
 or by planting Slips or Cuttings,
 both of which must be done in the
 Spring. The Manner of propagat-
 ing them from Cuttings being the
 same with *Rosemary*, &c. I shall
 not repeat it here, but refer the
 Reader to that Article; and if they
 are propagated by Seeds, there needs
 no farther Care but to dig a Bed of
 fresh Earth in the Spring, making
 it level; then to sow the Seeds
 thereon, treading them in, and rake-
 ing the Ground smooth: after which
 you must observe to keep the Bed
 clear from Weeds until the Plants
 are come up about two Inches high;
 when they should be transplanted
 out into fresh Beds, where they may
 remain for Use. All these Plants
 must have a dry Soil, otherwise they
 are very subject to be destroyed in
 Winter. The two *Aleppo* Rues, and
 the wild Rue, are somewhat tender-
 er than the common Sort; but these
 will endure our ordinary Winters
 very well in the open Air, espe-
 cially if they are planted on a dry
 Soil.

These Plants were formerly used
 to plant for Edgings on the Sides
 of Borders; but they are by no
 means proper for this Use; for they
 shoot so vigorously, that there is no
 keeping them within the Bounds of
 an Edging; besides, when they are
 kept closely sheered, they appear
 very ragged and stumpy, and their
 Roots spread so far, as to exhaust
 the Goodness of the Soil, so that
 the other Plants would be deprived
 of

of their Nourishment; which Reasons have caused them to be wholly neglected for this Purpose; so that, at present, they are chiefly cultivated for Medicinal Use, or to furnish the Balconies of the Citizens in the Spring.

RUTA MURARIA, Wall Rue, or White Maidenhair.

This Plant is found growing out of the Joints of old Walls in divers Parts of *England*, where it is gathered for Medicinal Use; but as it can't be cultivated in Gardens, so as to grow to Advantage, I shall not say any thing more of it in this Place.



SABINA, The Savin-tree.

The Characters are;

It hath compact, rigid, and prickly ever-green Leaves; the Fruit is small, spherical, and warted; and the whole Plant has a very rank strong Smell.

The Species are;

1. **SABINA folio tamarisci** Dioscoridis. C. B. P. The male or common Savin.

2. **SABINA folio cupressi**. C. B. P. The berry-bearing or upright Savin.

3. **SABINA folio variegata**. The striped Savin.

These Plants are commonly cultivated for Medicinal Use; and are rarely planted in Gardens for Pleasure, because their ill Scent renders them disagreeable in frequented Places; but yet they may be admitted for planting in Clumps, or to form Amphitheatres of ever-green Trees; where, if these are inter-

mixed amongst other low-growing Plants, they will add to the Variety.

These Plants may be propagated by laying down their young Branches in the Spring: which, if duly watered in dry Weather, will take Root in a Year's time, and may then be transplanted out, either into a Nursery, or the Places where they are to remain. They may also be propagated by Cuttings; which should be planted on a moist Soil, about the Beginning of *April*, which, if duly watered, will take Root; and the Spring following may be removed, as was directed for the Layers.

The Time for transplanting these Kinds is the same with most other ever-green Trees, *viz.* in *April*; observing to do it in cloudy Weather, laying a little Mulch upon the Surface of the Ground about their Roots, to prevent their drying: after they are rooted, they will require no farther Care but to keep them clear from Weeds, and to dig the Ground about their Roots every Spring, which will greatly promote their Growth,

SAFFRON; *vide* Crocus.

SAGE; *vide* Salvia.

SALICARIA, Willow-wort, or Spiked Loose-strife.

The Characters are;

The Flowers consist of several Leaves, which are placed circularly, and expand in form of a Rose: these Leaves are produced from the Inclosures of the Flower-cup: from the Centre of the Flower-cup rises the Pointal, which afterward becomes a Fruit, or oval Husk, consisting of two Cells, and generally full of small Seeds, which adhere to the Placenta, and are commonly warted up in the Flower-cup.

The Species are ;

1. SALICARIA *vulgaris purpurea, foliis oblongis.* Tourn. Purple spiked Willow-herb, or Loose-strife, with long Leaves,

2. SALICARIA *purpurea, foliis subrotundis.* Tourn. Purple spiked Willow-herb, or Loose-strife, with roundish Leaves.

3. SALICARIA *hyssopi folio latiore.* Inst. R. H. Broad hyssop-leaved Willow-wort, or Hedge-hyssop.

4. SALICARIA *hyssopi folio angustiore.* Inst. R. H. Narrow hyssop-leaved Willow-wort, or Grass-poly.

5. SALICARIA *Lusitanica, angustiore folio.* Inst. R. H. Portugal Willow-wort, with a narrow Leaf.

6. SALICARIA *Hispanica, hyssopi folio, floribus oblongis, saturate cæruleis.* Inst. R. H. Spanish Willow-wort, with a Hyssop-leaf, and oblong deep-blue Flowers.

7. SALICARIA *minima Lusitanica, nummulariæ folio.* Inst. R. H. The least Portugal Willow-wort, with a Money-wort-leaf.

8. SALICARIA *orientalis, salicis folio acutissimo & glabro.* Tourn. Cor. Eastern Willow-wort, with a sharp-pointed smooth Willow-leaf.

8. SALICARIA *Cretica, punicæ folio.* Tourn. Cor. Candy Willow-wort, with a Pomegranate-leaf.

The two Sorts first-mentioned are very common by the Sides of Ditches, and other moist Places, in divers Parts of England, and are rarely cultivated in Gardens; yet for the Beauty of their long Spikes of purple Flowers, they deserve a Place in a good Garden, as also for their long Continuance in Flower. However, if there happens to be a small boggy Place in a Garden, where few other Plants will thrive, these may be placed there to Advantage, and will afford a great deal of Pleasure.

They propagate themselves very fast by their creeping Roots, so that if they delight in the Soil, they will, in a short time, multiply exceedingly. These produce their Flowers in June and July, and often continue till August in Beauty.

The two next Sorts are found wild in England, on moist Soils, where the Water stands in Winter; but they are pretty rare near London. These are seldom preserved in Gardens, but are here mentioned to introduce the next Sort, which is a very beautiful Plant, and deserves a Place in every curious Garden, for its long Continuance in Flower. This Sort is a Native of Portugal, but is a tolerable hardy Plant, and will endure the Cold of our ordinary Winters in the open Air; but in very severe Frosts it is sometimes destroyed; so that some of this Kind may be planted in Pots, which may be sheltered under a common Frame in Winter, where they should have as much free Air as possible in mild Weather; for they only require to be protected from very hard Frosts. In Summer they may be placed abroad with other flowering Plants; but in dry Weather they must be duly watered, otherwise they will not flower strong, nor continue so long in Beauty. These Flowers are produced from the Wings of the Leaves, beginning at the Bottom of the Stalks near the Root, and are continued all the way up to the Top of the Stalks, which are about two Feet in Length; for this Sort seldom rises any higher: the Flowers are pretty large, and of a bright-purple Colour. This Plant begins to flower the Beginning of June, and continues till August.

As this Sort very rarely produces ripe Seeds in England, it must be pro-

pro-

propagated by parting of the Roots, or by laying down of the Branches, which will take Root in a few Months (provided they are constantly watered in dry Weather); and may then be taken from the old Plants, and planted into Pots, that they may be sheltered in Winter; and the Spring following some of them may be shaken out of the Pots, and planted into a Border: where they may have the morning Sun; and in dry Weather, if they are watered constantly, they will flower very well, and make a fine Appearance.

The sixth Sort is also a very beautiful Plant, and well deserves a Place in every good Garden. This grows about the same Height with the former, and may be interspersed with it in the Borders of the Flower-garden; as may also the seventh and ninth Sorts, for Variety, though they are not near so beautiful as either of the former Sorts. These may be treated in the same manner as hath been directed for the fifth Sort; with which Management they will thrive very well.

The eighth Sort grows much taller than either of the other; wherefore it should be placed amongst larger Plants. This is very hardy, and may be propagated either by Seeds, or by parting of the Roots, which is the surest way, because the Seeds do not ripen every Year in this Climate. The best Time to part the Roots is in Autumn, that they may be well fixed in the Ground before the Spring; because those which are parted in the Spring, seldom flower very strong, especially if the Season prove dry. This Sort may be intermixed with the two large Kinds first-mentioned, and will grow in almost any Situation, pro-

vided they are watered in dry Weather.

SALICORNIA, Jointed Glasswort, or Saltwort.

The Characters are;

It hath an apetalous Flower, wanting the Empalement; for the Stamina (or Chives) and the Embryoes grow on the extreme Part of the Leaves. These Embryoes afterward become Pods or Bladders, which for the most part contain one Seed.

The Species are;

1. **SALICORNIA geniculata semper-virens.** Tourn. Cor. Jointed evergreen Glasswort.

2. **SALICORNIA geniculata annua.** Tourn. Cor. Annual Jointed Glasswort.

These Plants grow on the Sea-coast in many Parts of Europe, and upon the Shores in several Places in England, which are washed every Tide with the Salt-water; but are rarely planted in Gardens, because it is very difficult to make them grow in any other Situation than in Salt-marshes, and on the Shores where the Salt-water frequently flows. Of these Plants there seem to be two or three Varieties, which appear remarkably different, but are not supposed to be distinct Species.

The Inhabitants near the Sea-coast where these Plants grow, cut them up toward the latter End of Summer, when they are fully grown; and after having dried them in the Sun, they burn them for their Ashes, which are used in making of Glass and Soap. These Herbs are, by the Country People, called Kelp; and are promiscuously gathered for Use.

From the Ashes of these Plants is extracted the Salt, called Sal Kali, or Alkali, much used by the Chymists.

The Manner of gathering and burning of these Herbs is already mentioned

tions: under the Article of *Kali*; wherefore I shall not repeat it.

In some Parts of *England*, these Herbs are gathered and pickled for *Sampshire*, though they are very different therefrom.

SALIX, The Sallow or Willow-trees.

The Characters are;

It hath amentaceous Flowers, consisting of several Stamina, which are collected into a Spike, but are barren; the Embryoes are produced upon different Trees from the male Flowers, and afterwards become a Fruit or Husk, shaped like a Cone, opening in two Parts, and containing downy Seeds.

The Species are;

1. **SALIX vulgaris alba arbore-scens.** C. B. P. The common white Willow.

2. **SALIX folio laureo seu lato glabro odorato.** *Phyt. Brit.* The bay-leaved sweet Willow.

3. **SALIX folio longo utrinque virente odorato.** The long-leaved sweet Willow.

4. **SALIX folio longo lateque splendente, fragilis.** *Raii Syn.* The Crack Willow.

5. **SALIX folio amygdalino, utrinque aurito, corticem abjiciens.** *Raii Syn.* The almond-leaved Willow, that casts its Bark.

6. **SALIX folio auriculato splendente, flexilis.** *Cat. Cant.* The round-eared shining Willow.

7. **SALIX folio longo subluteo non auriculato, viminibus luteis.** *Raii Syn.* The long-leaved yellowish Willow.

8. **SALIX latifolia rotunda.** C. B. P. Round-leaved Sallow.

9. **SALIX latifolia rotunda variegata.** The striped Sallow.

10. **SALIX latifolia, folio splendente.** *Raii Syn.* Broad, shining-leaved Sallow.

11. **SALIX orientalis, flagellis dorsum pulchre pendentibus.** *T. Cor.* The weeping Willow.

There are a greater Number of Species to be found in *England*, than are here mentioned, especially of the Sallows, as I have been informed by a very judicious Basket-maker: there are at least thirty Sorts, which they distinguish by Names, commonly in Use in their Trade; and besides there, there are a great Number of mountain Willows which grow upon dry Ground; but as these are seldom cultivated, it would be to little Purpose to enumerate them in this Place.

All the Sorts of Willows may be easily propagated by planting Cuttings or Sets in the Spring, which do readily take Root, and are of quick Growth. Those Sorts which grow to be large Trees, and are cultivated for their Timber, are generally planted from Sets, which are about seven Feet long: these are sharpened at their larger End, and thrust into the Ground by the Sides of Ditches and Banks, where the Ground is moist; in which Places they make a considerable Progress, and are a great Improvement to such Estates, because their Tops will be fit to lop every third or fourth Year. The larger Wood, if sound, is commonly sold for making wooden Heels, or Soles for Shoes, as also to the Turners for many kinds of light Wares.

The Sallows are commonly planted in Cuttings made from strong Shoots of the former Year, and are about three Feet long: these are commonly thrust down two Feet deep into the Ground, and are one Foot above it. The Soil should always be dug or ploughed before they are planted, and the Cuttings placed about three Feet Row from Row,

Row, and eighteen Inches asunder in the Rows, observing always to place the Rows the sloping way of the Ground (especially if the Tides overflow the Place); because, if the Rows are placed the contrary way, all the Weeds and Filth will be detained by the Plants, which will choke them up. The best Season for planting these Cuttings, is in February; for if they are planted sooner, they are apt to peel, if it proves hard Frost, which greatly injures them. These Plants are always cut every Year, and if the Soil be good, they will produce a great Crop; so that the yearly Produce of one Acre has been often fold for fifteen Pounds; but ten Pounds is a common Price, which is much better than Corn Land; so that it is great Pity these Plants are not more cultivated, especially upon moist boggy Soils, upon which few other Things will thrive.

SALVIA, Sage.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is sometimes arched, and sometimes hooked; but the Under-lip (or Beard) is divided into three Parts, branching out, and not hollowed as the Clary; out of the Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which afterward become so many Seeds, which are roundish, shut up in an Husk, which before was the Flower-cup: to which may be added, That the Stamina do somewhat resemble the Os Hyoidis.

The Species are;

1. SALVIA major, an Sphacelus Theophrasti. C. B. P. The greater, or Common Sage.
2. SALVIA nigra. C. B. P. Common red Sage.
3. SALVIA major, foliis ex viridi.

Et albo variegatis. Boerb. Ind. The greater Sage, with Leaves variegated with White and Green.

4. SALVIA foliis versicoloribus. C. B. P. Party-coloured Sage.

5. SALVIA latifolia serrata. C. B. P. Broad-leaved notched Sage.

6. SALVIA latifolia serrata, foliis ex albo variegatis. Broad-leaved Sage, with variegated Leaves.

7. SALVIA absinthium redolens. J. B. Wormwood Sage.

8. SALVIA minor aurita Et non aurita. C. B. P. Sage of Virtue.

9. SALVIA minor, foliis variegatis. H. R. Par. Sage of Virtue, with striped Leaves.

10. SALVIA orientalis latifolia, absinthium redolens, flore carneo magno. Boerb. Ind. Broad-leaved Eastern Sage, smelling like Wormwood, with a large flesh-coloured Flower.

11. SALVIA orientalis latifolia hirsutissima viscosa pinnata, flore Et calyce purpureis, inodora. Boerb. Ind. Eastern Sage, with broad hairy clammy winged Leaves, with a purple Flower and Flower-cup, without Smell.

12. SALVIA Africana frutescens, folio scorodoniae, flore violaceo. H. A. Shrubby African Sage, with a Wood-sage-leaf, and a violet-coloured Flower.

13. SALVIA Africana frutescens, folio subrotundo glauco, flore aureo magno. H. A. Shrubby African Sage, with roundish sea-green Leaves, and a large golden Flower.

14. SALVIA orientalis, absinthium redolens, foliis pinnatis, flore carneo, elatior. Sber. Eastern upright Wormwood-sage, with winged Leaves, and a flesh-coloured Flower.

15. SALVIA Hispanica, folio lavenderae.

wendula. Fourn. Spanish Sage, with a Lavender-leaf.

There are several other *Species* of this Plant, which are preserved in some curious Botanic Gardens abroad; but those here mentioned are what I have observed in the *English* Gardens.

The first Sort, though the most common in many Parts of *Europe*, yet is but rarely to be seen in the *English* Gardens; but the red Sort is most commonly cultivated in this Country, which many Persons suppose to be only a Variety of the common Sort; though it constantly preserves its Difference when raised from Seeds, as I have two or three times experimented; so that I do not scruple to make it a distinct *Species*, since its Difference from the common is much greater than in some of the other Sorts of Sage, particularly the Sage of Virtue, and the lavender-leaved Sage; both which, when cultivated in a good Soil, are so nearly alike, as not to be distinguished by the best Botanists. This red Sage, the Wormwood Sage, and Sage of Virtue, are the principal Sorts which are cultivated for Use in *England*: tho' the broad-leaved Sage is much preferable to the Sage of Virtue for Tea, it giving the Water a much more grateful Flavour, and is esteemed to be of a less drying Quality; so that most Persons who are Lovers of Sage-tea, prefer this for that Purpose.

All the Sorts of Sage, except the eleventh Sort, which is but annual, may be propagated by planting Cuttings or Slips, during any of the Summer-months, observing to water and shade them until they have taken Root; after which they may be taken up, and planted where they are designed to remain, which should always be upon a dry Soil,

and where they may have the Benefit of the Sun; for if they are planted on a moist Soil, or in a shady Situation, they are very subject to be destroyed in Winter; nor will these Plants endure the Cold so well, when planted upon a rich Soil, as those which have a barren, dry, rocky Soil, which is the Case of most of the verticillate Plants. The Side-shoots and Tops of these Plants may be gathered in the Summer, and dried, if designed for Tea, although they are best taken green, from the Plants for most other Uses.

The twelfth, thirteenth, and fourteenth Sorts are somewhat tender: therefore these must be planted into Pots filled with fresh light sandy Earth; and in Winter must be removed into the Conservatory, where they should be placed as near the Windows as possible, that they may have a great Share of fresh Air whenever the Season is mild; for if they are too much drawn, they seldom flower well, and make but an indifferent Appearance: in Summer they must be exposed amongst other Exotic Plants in some well-sheltered Situation; for they are pretty hardy, and only require to be sheltered from Frost, and strong Winds. These Plants must be often refreshed with Water (especially in warm Weather), otherwise they will shivel and decay; and they should be transplanted at least twice every Summer, because their Roots greatly increase; which, if confined in the Pots too long, will turn mouldy, and decay. The other oriental Sorts are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry Soil, and a warm Situation.

These Plants may also be propagated

gated by sowing their Seeds in the Spring upon a Bed of fresh Earth, observing to keep the Ground clear from Weeds until the Plants are come up; when they should be transplanted into Beds of fresh Earth, and treated as those raised from Cuttings or Slips.

SALVIA AGRESTIS; *vide Scordium.*

SAMBUCUS, The Elder-tree.

The Characters are;

The Branches are full of Pith, having but little Wood; the Flowers are monopetalous, divided into several Segments, and expand in form of a Rose; these are, for the most part, collected into an Umbel, and are succeeded by soft succulent Berries, having three Seeds in each.

The Species are;

1. **SAMBUCUS fructu in umbella nigro.** C. B. P. Common Elder, with black Berries.

2. **SAMBUCUS fructu in umbella viridi.** C. B. P. Common Elder, with greenish Berries.

3. **SAMBUCUS fructu albo.** Lob. The white-berried Elder.

4. **SAMBUCUS racemosa rubra.** C. B. P. The mountain red-berried Elder.

5. **SAMBUCUS laciniato folio.** C. B. P. The cut or Parsley-leaved Elder.

6. **SAMBUCUS vulgaris, foliis ex luteo variegatis.** The blotch-leaved Elder.

7. **SAMBUCUS humilis, sive Ebulus.** C. B. P. Dwarf Elder, or Dane-wort.

The first of these Trees is very common in the Hedges in most Parts of England, but the second and third Sorts are more rare; these are propagated for the sake of their Berries, which are by some Persons used for making Wine, and for

other Purposes. The fourth Sort is less common in England, than either of the former, it being only to be found in some curious Gardens at present. The fifth and sixth Sorts are preserved for the Variety of their Leaves, by such as are curious in collecting the various Kinds of Trees and Shrubs.

All these Sorts may be easily propagated from Cuttings, or by sowing their Seeds; but the former being the most expeditious Method, is generally practised. The Season for planting their Cuttings is any time from September to March; in the doing of which there needs no more Care, than to thrust the Cuttings about six or eight Inches into the Ground; and they will take Root fast enough, and may afterwards be transplanted where they are to remain, which may be upon almost any Soil or Situation; they are extreme hardy, and if their Seeds are permitted to fall upon the Ground, they will produce a Plenty of Plants the succeeding Summer.

These Trees are often planted for making Fences, because of their quick Growth; but as their Bottoms become naked in a few Years, they are not so proper for that Use; neither would I recommend them to be planted near Habitations, because at the Season when they are in Flower, they emit such a strong Scent, as will occasion violent Pains in the Heads of those who abide long near them; besides, the crude Parts, which are continually perspired through their Leaves, are accounted unwholesome, though the Leaves, Bark, and other Parts, are greatly esteemed for many Uses in Medicine.

The dwarf Elder is found wild in some Counties of England; but near

near *London* it is propagated in Gardens for Medicinal Use; though very often the Herb-women in the Markets give the tender Shoots of the Elder-tree instead of this, to such Persons as cannot distinguish them asunder.

This Plant multiplies exceeding fast by its creeping Roots, which, if permitted to run, will soon overspread a large Spot of Ground; the Off-sets of these Roots may be transplanted any time from *September* to *March*, and will grow in any Soil or Situation, but should be allowed room to spread; for if they are planted near other Plants, they will over-run and destroy them.

SAMOLOIDES.

The *Characters* are;

It hath a Flower consisting of one Leaf, which is cut into four Parts almost to the Bottom, and expands in form of a Star. In the Centre of the Flower arises the Pointal, which is surrounded at Bottom by a Number of slender Threads, which are expanded, and accompanied by four Chives. This Pointal afterward becomes an oblong Seed-vessel, which is bivalve, and contains flat Seeds.

We know but one *Species* of this Plant; which is,

SAMOLOIDES *qua capraria Curasawica, Cabritta vulgo dicta. H. A. Boerb. Ind. ab. West-Indian Thea, vulgo.*

This Plant is very common in *Jamaica*, and several other Places in the *West-Indies*, where it hath been by some People dried and used as *Thea*, from whence it had the Name. In *Curasao* the Goats feed on this Plant, from whence the Inhabitants gave it the Name of *Cabritta*. But at present it is not used by any of the Inhabitants of *America*, so far as I can learn.

This Plant is preserved by the *Curious* in Botany, for Variety-sake; but as there is no great Beauty in its Flowers, it is seldom preserved in other Gardens. It is propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are about two Inches high, they should be transplanted on another Hot-bed, about four or five Inches asunder, where they should have a large Share of Air in warm Weather, and must be frequently watered. In this Bed the Plants may remain until they have obtained a large Share of Strength, when they should be transplanted into Pots, and plunged into a moderate Hot-bed to promote their taking Root; and after they are well settled in the Pots, they may be placed in the Stove, or in an airy Glass-case, where they may be sheltered from Cold: but they must have a large Share of fresh Air in warm Weather; for if they are exposed abroad, they will not thrive, nor perfect their Seeds. In *June* these Plants will begin to flower, and in *August* they will perfect their Seeds, and the Plants will live through the Winter, provided they are placed in a warm Stove; but as they produce ripe Seeds the first Year, it is not worth incumbering the Stove with them in Winter.

SAMOLUS, Round-leav'd Water Pimpernel.

The *Characters* are;

It hath a wheel-shaped Flower, consisting of one Leaf, which is cut into several Segments; the Pointal arises from the Empalement, and is fixed like a Nail in the Centre of the Flower; which, uniting with the Empalement, is turned into a Fruit or Pod, opening at the Top, and including many small Seeds.

We

We have but one *Species* of this Plant; which is,

SAMOLUS Valerandi. J. B. Round-leaved Water Pimpernel.

This Plant grows wild in swamy Places, where the Water usually stands in Winter; and is seldom preserved in Gardens: it is an annual Plant, which flowers in June, and the Seeds are ripe in August; at which time, whoever hath a mind to cultivate this Plant, should sow the Seeds on a moist Soil, where the Plants will come up, and require no farther Care, but to keep them clear from Weeds.

SANGUIS DRACONIS; *wide Palma.*

SANICULA, Sanicle.

The Characters are;

It is an umbelliferous Plant, whose Flower consists of five Leaves placed orbicularly, but are generally bent back to the Centre of the Flower, resting on the Empalement, which becomes a Fruit composed of two Seeds, that are gibbous and prickly on one Side, but plain on the other: some of the Flowers are always barren.

There is but one *Species* of this Plant at present in England; viz.

SANICULA officinarum. C. B. P. Sanicle or Self-heal.

This Plant is found wild in Woods, and shady Places, in most Parts of England; but being a Medicinal Plant, may be propagated in Gardens for Use: it may be increased by parting of the Roots, any time from September to March; but it is best to do it in Autumn, that the Plants may be well rooted before the dry Weather in Spring comes on; they should have a moist Soil, and a shady Situation, in which they will thrive exceedingly.

SANTOLINA, Lavender-cotton.

The Characters are;

It hath a globose fuscous Flower, consisting of many Florets, divided into several Segments, sitting on the Embryo, contained in the intermediate little Leaves, hollowed like a Gutter, and a squamous hemispherical Empalement; the Embryo afterward becomes a Seed, not at all furnished with Down. To these Notes must be added, Larger Flowers than those of Wormwood and Southernwood, and also the whole Face of the Plant.

The Species are;

1. *SANTOLINA foliis teretibus*. Tourn. Common Lavender-cotton.

2. *SANTOLINA flore majore, foliis villosis & incanis*. Tourn. Lavender-cotton with a larger Flower, and hoary Leaves.

3. *SANTOLINA foliis ericæ vel sabinæ*. Tourn. Green-leaved Lavender-cotton, with a Scent like Ointment.

4. *SANTOLINA foliis cypressi*. Tourn. Cypress-leaved Lavender-cotton.

5. *SANTOLINA repens & canescens*. Tourn. Creeping and hoary Lavender-cotton.

6. *SANTOLINA foliis minus incanis*. Tourn. Lavender-cotton with less hoary Leaves.

7. *SANTOLINA foliis obscure viridibus, flore aureo*. Tourn. Lavender-cotton with dark-green Leaves, and a golden Flower.

8. *SANTOLINA foliis rosmarini, major*. Tourn. Greater Lavender-cotton, with Rosemary-leaves.

9. *SANTOLINA vermiculata Cretica*. Tourn. Vermiculated Lavender-cotton of *Gandia*.

The first of these Plants is cultivated in Gardens for Medicinal Use;

Use; as is the third, for furnishing Balconies, and other little Places in and near the City, by way of Ornament; but the other Sorts are rarely to be found, but in the Gardens of those who are curious in Botanical Studies.

Most of these Plants may be cultivated so as to become Ornaments to a Garden, particularly in small Bosquets of ever-green Shrubs, where, if these are artfully intermixed with other Plants of the same Growth, and placed in the front Line, they will make an agreeable Variety; especially if Care be taken to trim them twice in a Summer, to keep them within Bounds; otherwise their Branches are apt to straggle, and in wet Weather to be borne down and displaced, which renders them unsightly; but when they are kept in Order, their hoary and different-coloured Leaves will have a pretty Effect in such Plantations.

These Plants may be propagated by planting Slips or Cuttings of any of the Kinds, during the Spring, which should be put in a Border of light fresh Earth, and watered and shaded in hot dry Weather, until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, till *August*, when they should be carefully taken up, and transplanted where they are designed to remain: but if the Ground is not ready by that time to receive them, it will be proper to let them remain in the Border until Spring; for, if they are transplanted late in Autumn, they are liable to be destroyed by a little Cold in Winter.

These Plants are very hardy, and if planted in a lean gravelly, or sandy dry Soil, will continue many Years, and resist the Cold very well; but if they are in a wet or

rich Soil, they are often destroyed in Winter.

SAPINDUS, The Soap-berry.

The Characters are;

It hath a Flower, which for the most part is composed of four Leaves, expanding in form of a Rose: from whose four-leaved Empalement arises the Pointal, which afterward becomes a spherical Fruit, inclosing a Nut of the same Form.

We have but one Species of this Plant; which is,

SAPINDUS foliis costæ alatæ innascentibus. *Inst. R. H.* The Soap-berry or Soap Apple-tree.

This Tree is very common in *Jamaica*, *Barbados*, and most other Places in the *West-Indies*, where it rises to the Height of thirty Feet or more; but in *Europe* it is preserved by those Persons who are curious in cultivating Exotic Plants, for the singular Structure of the Leaves, which are very long and narrow, having Borders on each Side, which at about every two Inches have *Pinnæ* or Wings, opposite to each other, and terminated by an odd one. The Flowers are produced at the Ends of the Branches, which are small and white, growing in Clusters. These are succeeded by spherical brown Berries, about the Size of Cherries, which have very little Pulp, but a brown Skin, covering the Nut, which is round, black, and hard. These Nuts were formerly brought into *England* to make Buttons, for which purpose they were very proper, because they never crack. The Skin which surrounds the Nut, will rather in the manner of Soap, and is used in *America* to wash Linen, tho' many People say it will burn it, when it is often used.

This Plant is propagated by Seeds (which must be obtained from the Countries where they naturally grow; for

for they do not produce Fruit in *Europe*): these must be put into small Pots, filled with fresh rich Earth, and plunged into an Hot-bed of Tanners Bark. These Pots must be frequently watered, otherwise the Berries, whose outer Cover is very hard, will not vegetate. In a Month or five Weeks the Plants will begin to appear, when the Glasses of the Hot-bed should be raised every Day in warm Weather, to admit fresh Air to the Plants; but if the Nights are cold, the Glasses should be covered with Mats every Evening, as soon as the Sun is gone off from shining on the Bed; and the Plants must be frequently refreshed with Water. In three Weeks or a Month after the Plants appear, they will be fit to transplant; when they must be shaken out of the Pots, and carefully parted, so as not to injure their Roots, and each planted into a separate small Pot filled with light rich Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun every Day, until they have taken new Root; after which time they must have free Air admitted to them every Day, when the Weather is warm; and the Plants will require to be frequently watered.

After the Plants are well rooted, they will make great Progress, so as to fill these Pots with their Roots in a few Weeks time: therefore they must then be shifted into larger Pots; and if the Plants have grown so tall as to reach the Glasses of the Hot-bed, or be in Danger of having their Leaves scorched by the Sun through the Glasses, they should be removed into the Stove, and plunged into the Bark-bed; where, if they are duly watered in warm Weather, they will make great Progress, and by the Beginning of *August* will have Leaves

sixteen or eighteen Inches long. The first Leaves of these Plants are very long and narrow, having no *Pinnæ* or Wings to them; but as the Plants advance, they put out first one Wing, then two, and afterwards four; and in old Plants, they have sometimes six or eight Wings, with an odd Wing at the Top.

These Plants are so tender as not to live in the open Air in *England*, even at the warmest Season of the Year: therefore they should be kept constantly in the Stove plunged into the Bark-bed, where they must be kept very warm in Winter; but in Summer, they must have a large Share of fresh Air in warm Weather, with which they will thrive very fast, and may be expected to flower, tho' for the singular Form of the Leaves, they deserve a Place in the Stove.

SAPONARIA; *vide* Lychnis.

SAPOTA, The Mammee Sapota.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are shaped in a circular Order; from whose Empalement arises the Pointal, which afterward becomes a large oval soft fleshy Fruit, inclosing an oblong pointed Stone or Fruit, which is finely polished, having a rough Fissure on one of the Edges, of an Ash-colour.

The Species are;

1. SAPOTA *fructu turbinato minori*. *Plum. Nov. Gen.* Sapota with a lesser Fruit, shaped like a Top.

2. SAPOTA *fructu ovato majori*. *Plum. Nov. Gen.* Sapota with a larger oval Fruit.

The Name of Sapota is what these Fruit are called by the Natives of *America*; to which some add the Appellation of *Mammee*. But there is no other Name given to these Fruits by the *English*, since they have settled in the *West-Indies*, so far as I can learn,

The

The first of these Trees is common about *Panama*, and some other Places in the *Spanish West-Indies*; but is not to be found in any of the *English Settlements in America*. The second Sort is very common in *Jamaica*, *Barbados*, and most of the Islands in the *West-Indies*, where the Trees are planted in Gardens for their Fruit, which is by many Persons greatly esteemed.

These Trees grow in *America* to the Height of thirty-five or forty Feet, having a strait Trunk, covered with an ash-coloured Bark. The Branches are produced on every Side, so as to form a regular Head: these are beset with Leaves, which are a Foot in Length, and near three Inches broad. The Flowers, which are produced from the Branches, are of a cream Colour; when these fall away, they are succeeded by large oval or top-shaped Fruit, which are covered with a brownish Skin, under which is a thick Pulp of a russet Colour, very luscious, called natural Marmalade, from its Likeness to Marmalade of Quinces.

As these Trees are Natives of very warm Countries, they cannot be preserved in *England*, unless they are placed in the warmest Stoves, and managed with great Care. They are propagated by planting of the Stones; but as these will not keep good long out of the Ground, the surest Method to obtain these Plants, is to have the Stones planted in Tubs of Earth, as soon as they are taken out of the Fruit, and these Tubs placed in a Situation where they may have the morning Sun, and kept duly watered. When the Plants come up, they must be secured from Vermin, and kept clear from Weeds; but should remain in the Country, till they are about a Foot high, when they may be shipped for *England*; but

they should be brought over in the Summer-season, and, if possible, time enough for the Plants to make good Roots after they arrive. During their Passage, they must have some Water, while they continue in a warm Climate; but as they come into colder Weather, they should have very little Moisture: and they must be secured from Salt-water, which will soon destroy the Plants, if it gets at them.

When these Plants arrive in *England*, they should be carefully taken out of the Tubs, preserving some Earth to their Roots, and planted into Pots filled with fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing, if the Weather is hot, to shade the Glasses with Mats every Day, to screen the Plants from the Sun, until they have taken new Root, and not to water them too much at first, especially if the Weather in which they come over is moist; because too much Water is very injurious to the Plants, before they are well rooted; but afterward they must have Plenty of Water in warm Weather, and a large Share of Air admitted to them; otherwise their Leaves will be infested with Insects, and become foul; in which Case they must be washed with a Sponge, to clean them, without which the Plants will not thrive.

In the Winter these Plants must be placed in the warmest Stove, and in cold Weather they should have but little Water given to them, tho' they must be frequently refreshed, when the Earth is dry; especially, if they retain their Leaves all the Winter, they will require a greater Share of Water, than when they drop their Leaves; so that this must be done with Discretion, according to the State in which the Plants are. As these Plants grow in Magnitude, they

they should be shifted into Pots of a larger Size; but they must not be over-potted, for that will infallibly destroy them.

SARRACENA, The Side-saddle-flower.

The Characters are;

It hath a Flower consisting of several Leaves, which are placed circularly, and expand in form of a Rose, and resting in a many-leaved Empalement; from the middle arises the Pointal, which is membranaceous, and shaped like an Hood, and afterward becomes a roundish Fruit divided into five Cells, which contain oblong Seeds.

We have but one Species of this Plant; which is,

SARRACENA Canadensis, foliis cavis & auritis. Infr. R. H. Canady Sarracena, with hollow eared Leaves.

This strange Plant is a Native of *New England, Virginia*, and several Places in *North-America*; where it grows on Bogs, and such Places where the Waters usually stand in Winter. The Leaves of this Plant arise from the Root every Spring, being eight or nine in Number, which are small at the Bottom, but swell larger toward the Top, and are hollow like a Pitcher, having a sort of an Appendage at the Top, somewhat resembling a Flap, so that in these Leaves there is commonly a large Quantity of Water contained. Between the Leaves arises the Flower-stem, having several rofaceous Flowers growing on the Top, which are succeeded by roundish Fruit.

The Name was given to this Plant by *Dr. Tournefort*, in Honour of *Dr. Sarrazin*, a curious Botanist, who sent the Plant from *Canady* to *Dr. Tournefort* at *Paris*.

As this Plant grows on Bogs, it is very difficult to cultivate in *England*; for, although the Winters are much

more severe in the Places of their natural Growth, than they generally are in *England*, yet their Summers being much warmer, they thrive much better, and produce their Flowers and Fruit annually; whereas it is with great Difficulty they are kept alive for a Year or two in *England*; and they have not yet flowered in this Country, that I could ever learn. By the Appearance of some Plants, which I received from *New-England*, there seem to be two Sorts of this Plant, one of which is much larger than the other; but as I never had an Opportunity of seeing these Plants in Flower, I cannot determine any thing with Certainty about them.

The only Method to obtain these Plants is to procure them from the Places of their Growth, and to have them taken up with large Balls of Earth to their Roots, and planted in Tubs of Earth, which must be constantly watered during their Passage, otherwise they will decay before they arrive: and there is little Probability of raising these Plants from Seeds; so that young Plants should be taken up to bring over, which are more likely to stand here, than those which have flowered two or three times. When the Plants are brought over, they should be planted into pretty large Pots, which should be filled with soft spongy Earth, mixed with rotten Wood, Moss, and Turf, which is very like the natural Soil in which they grow. These Pots must be constantly supplied with Water, and placed in a shady Situation in Summer; but in the Winter they must be covered with Moss, or sheltered under a Frame; otherwise they will not live in this Country, though they have much more severe Frost in the Countries where they naturally grow; but there they are covered with Snow, which may be a

great Protection to them. With this Management I have kept some of these Plants alive two Years, but they made very little Progress.

SATUREIA, Savory.

The Characters are;

It is a Plant of the verticillate Kind, with a labiated Flower, whose Upper-lip, or Crest, is divided into two Parts; but the Lower-lip, or Beard, is divided into three Parts, the middle Part being crenated: these Flowers are produced from the Wings of the Leaves, in a loose Order, and not in Whorles or Spikes, as are most of this Tribe of Plants.

The Species are;

1. *SATUREIA fati-va*. J. B. Garden or Summer Savory.
2. *SATUREIA montana*. C. B. P. Winter Savory.
3. *SATUREIA Virginiana*. Par. Bat. Virginian Savory.

The first of these Plants is annual, and is propagated by sowing of the Seeds upon a Bed of light fresh Earth, in March; and when the Plants are come up, they must be transplanted into other Beds, placing them about four or five Inches asunder each Way; observing to do this in moist cloudy Weather, because at such times the Plants will soon take Root; but if the Season should prove hot and dry, they must be diligently watered until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds; and in July they will flower, at which time they should be cut for Medicinal Use; but those Plants which are left, will produce ripe Seeds in September, provided the Autumn be favourable.

The Winter Savory is an abiding Plant, and may be propagated by Slips or Cuttings, which, if planted in a Bed of light fresh Earth, in

the Spring, and carefully watered, will take Root in a short time, and may then be transplanted where they are to remain. This Plant should have a dry Soil, in which it will endure the Cold very well, as may be seen by its growing in some Places upon the Tops of Walls, where it defies the severest Cold of our Climate.

These Plants were formerly more cultivated in England than at present, they being very little in Use to what they were formerly, when they entered most Dishes of Soups, &c. but at present they are very little used in the Kitchen, and are chiefly cultivated for Medicinal Use.

SATYRION; vide Orchis.

SAVIN; vide Sabina.

SAVORY; vide *Satureia*.

SAURURUS, Lizards-tail.

The Characters are;

It hath an apetalous Flower, consisting of two Chives, which open two ways, and are full of very small Powder (or Farina). The Embryo rests between the two Chives, which afterward becomes an oval soft Fruit, inclosing a single Seed. To these Notes must be added, The Flowers and Fruit are fixed to one Axis, so as to resemble the Tail of a Lizard.

The Species are;

1. *SAURURUS racemosus, seu botryites major*. Plum. Nov. Gen. Greater branching Lizards-tail.
2. *SAURURUS racemosus, seu botryites minor*. Plum. Nov. Gen. Lesser branching Lizards-tail.
3. *SAURURUS cauda adunca*. Plum. Nov. Gen. Lizards-tail with a crooked Tail.
4. *SAURURUS foliis plantagineis, cauda breviori*. Plum. Nov. Gen. Lizards-tail with plantain Leaves, and a shorter Tail.

5. SAURURUS *borryites major, foliis plantagineis.* Plum. Nov. Gen. Greater-clustered Lizards-tail, with plantain Leaves.

6. SAURURUS *foliis amplis rotatis: & umbilicatis.* Plum. Nov. Gen. Lizards-tail with large round umbilicated Leaves.

7. SAURURUS *foliis amplis cordatis, non umbilicatis.* Plum. Nov. Gen. Lizards-tail with large heart-shaped Leaves, not umbilicated.

8. SAURURUS *procumbens minor borryites, folio cornoso cordato.* Plum. Nov. Gen. Smaller creeping clustered Lizards-tail, with a fleshy heart-shaped Leaf.

9. SAURURUS *altus humilis, folio cornoso subrotundo.* Plum. Nov. Gen. Low Lizards-tail, with a roundish fleshy Leaf.

10. SAURURUS *repens, folio orbiculari, nummulariæ facie.* Plum. Nov. Gen. Creeping Lizards-tail, with a round Leaf, having the Appearance of Moneywort.

11. SAURURUS *repens triphyllus, folio rotundo.* Plum. Nov. Gen. Creeping three-leaved Lizards-tail, with a round Leaf.

12. SAURURUS *cauliculis maculosis, repens.* Plum. Nov. Gen. Creeping Lizards-tail, with a spotted Stalk.

13. SAURURUS *frutescens, lauro-cerasi folio, fructu brevioris & crassioris.* Houff. Shrubby Lizards-tail, with a Laurel-leaf, and a shorter and thicker Fruit.

14. SAURURUS *arborefcens latifolia villosa, fructu gracili.* Houff. Tree-like Lizards-tail, with a broad hairy Leaf, and a slender Fruit.

The seven Sorts first-mentioned grow to be shrubby, and rise to the Height of four or five Feet, having Leaves placed alternately on their Branches. The Iulus comes out from the Wings of the Leaves, which

is shaped like a Lizard's Tail, from whence they had their Names. By some they are called long Pepper, from the Resemblance their Iuli bear to the long Pepper: but the Fruit of these are not used, nor have they the Taste of Pepper. These Sorts were discovered to grow in *Jamaica*, by the late Dr. *Houffton*; and some of them are described by Sir *Hans Sloane* in his Natural History of *Jamaica*.

The eighth, ninth, and tenth Sorts are Plants of humbler Growth: these trail on the Ground, and emit Roots from their Joints, which fasten themselves into the Earth where-ever it is loose, by which Method they spread to a great Distance. The Leaves and Stalks of the ninth Sort are very thick and succulent, and remain always green.

The eleventh and twelfth Sorts are creeping Plants, which fasten themselves to Trees; by which means they rise to the Height of eight or ten Feet, fasten their Roots into the Bark of the Trees, and receive Part of their Nourishment from thence.

All these twelve Sorts were discovered by Father *Plumier* in the *West-Indies*, who has figured and described them in his History of *American* Plants: but seven of them were before described by Sir *Hans Sloane*, in his Natural History of *Jamaica*.

The two last Sorts were discovered by the late Dr. *Houffton* at *La Vera Cruz*, from whence he sent Samples of them into *England*. These two Sorts grow much larger than either of those before-mentioned.

Some of these Plants are called by the Inhabitants of *Jamaica*, *Spanish* Elder, from their being jointed, and their Branches having a great deal of Pith in them. Others of them, especially those which have Leaves shaped like an Heart, are called *Santa Maria* Leaves.

These Plants most of them grow in moist shady Places, in the warmest Parts of *America*, where many of them root into the decayed Trunks of Trees, and rotten Wood (especially those which trail), and thereby they propagate faster than by Seeds: for as they emit Roots at almost every Joint, each of these will make a separate Plant.

But as these Plants are too tender to bear the open Air in this Climate, they must be preserved in a Stove, where the Air may be kept to a moderate Temperature for Heat; and if they are placed in the Bark-bed, and their Branches permitted to trail on the Surface of the Bark, the Plants will send forth Roots at every Joint, and fasten themselves strongly into the Bark; by which means they will thrive exceeding fast, and produce their Flowers and Fruit.

The Seeds of these Plants, when brought from abroad, seldom succeed in *England*; so that the most proper Method to obtain the Plants, is to have some of their Cuttings planted into Boxes of Earth, in the Countries where they naturally grow; and when they are well rooted, they may be sent over to *England*, with Directions given to the Persons to whose Care they are intrusted, not to let them have too much Water (especially when they come into a cool Climate), because Moisture then will be very prejudicial to them. They must also be carefully guarded against the Salt-water, which will infallibly destroy them, if it be suffered to come to them. When the Plants arrive in *England*, they should be carefully taken out of the Boxes, and each planted into a separate small Pot, filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark,

observing to shade them from the Sun at first, until they have taken Root; after which time they should have fresh Air admitted to them, in proportion to the Warmth of the Season: but in Winter they must be kept pretty warm, otherwise they will not live in this Country.

The surest Method to make these Plants thrive in *England*, is, to plunge the Pots into the Bark-bed in the Stove, and to suffer the Branches of the creeping Kinds to trail on the Surface of the Bed, where they will strike Roots into the Tan, and will thrive exceedingly. These Plants merit a Place in every Collection of Plants, for their remarkable Leaves, and the singular Structure of their Branches, as also for the Oddness of their Flowers and Fruit, which are, for the most part, produced from the Wings of the Leaves.

SAXIFRAGA, Saxifrage.

The Characters are;

The Flower consists of several Leaves, placed orbicularly, which expand in form of a Rose, out of whose multifid Flower-cup rises the Pointal, which commonly ends in two Horns, and after-ward turns, together with the Flower-cup, into a roundish Fruit, which has likewise two Horns, and two Cells, which are full of small Seeds.

The Species are;

1. SAXIFRAGA *rotundifolia alba*. C. B. P. White round-leaved Saxifrage.
2. SAXIFRAGA *rotundifolia alba, flore pleno*. Boerb. Ind. White round-leaved Saxifrage, with a double Flower.
3. SAXIFRAGA *Alpina ericoides, flore caeruleo*. Tourn. Mountain heath-like Sengreen, with a blue Flower.
4. SAXIFRAGA *sedi folio, flore albo, multiflora*. Tourn. Many-flowered.

ered Saxifrage, with a Housleek-leaf, and a white Flower, commonly called, *Pyramidal Sedum*.

5. *SAXIFRAGA sedi folio angustiore serrato* Tourn. Saxifrage with a narrow serrated Housleek-leaf.

6. *SAXIFRAGA ad' folia bulbos gerens*. C. B. P. Saxifrage bearing Bulbs at the Wings of the Leaves.

7. *SAXIFRAGA verna annua humilior*. *Inst.* R. H. Dwarf Spring annual Saxifrage, commonly called Rue-leaved Whitlow-grass.

8. *SAXIFRAGA muscosa, trifido folio*. *Inst.* R. H. Mossy Saxifrage, with a trifid Leaf, commonly called mountain Sengreen, or Ladies Cushion.

9. *SAXIFRAGA tridactylites Alpina, pallide lutea*. *Inst.* R. H. Mountain Saxifrage, of a pale yellow Colour, with a Leaf cut into three Segments.

10. *SAXIFRAGA tridactylites Alpina minor & villosa*. *Inst.* R. H. Smaller hairy Saxifrage of the Alps, with a Leaf cut into three Segments.

11. *SAXIFRAGA alba petraea* Ponce. *Inst.* R. H. White Rock Saxifrage.

12. *SAXIFRAGA sedi folio, Pyrenæica serrata*. *Inst.* R. H. Pyrenean Saxifrage, with a sawed Housleek-leaf.

13. *SAXIFRAGA foliis subrotundis serratis*. *Inst.* R. H. Saxifrage with roundish sawed Leaves.

14. *SAXIFRAGA Alpina, sedi foliis crenatis asperis*. *Inst.* R. H. Saxifrage of the Alps, with rough notched Leaves like Housleek.

15. *SAXIFRAGA foliis oblongo-rotundis dentatis, floribus compactis*. *Raii Syn. Ed. 3.* Saxifrage with an oblong roundish indented Leaf, and the Flowers growing in close Bunches.

16. *SAXIFRAGA montana pyramidata, folio longiore*. *Inst.* R. H.

Mountain pyramidal Saxifrage, with a long Leaf.

17. *SAXIFRAGA Pyrenæica lutea minima, sedi foliis densissime congestis*. *Inst.* R. H. The least yellow Pyrenean Saxifrage, with Housleek-leaves, growing very close together.

18. *SAXIFRAGA Alpina minima, foliis cæsiis, deorsum incurvis*. *Inst.* R. H. The least Saxifrage of the Alps, with sky-coloured Leaves, which bend downward.

19. *SAXIFRAGA Alpina lutea, sedi folio*. *Inst.* R. H. Yellow Saxifrage of the Alps, with an Housleek-leaf.

20. *SAXIFRAGA Pyrenæica tridactylites latifolia*. *Inst.* R. H. Pyrenean Saxifrage, with broad Leaves, cut into three Segments.

21. *SAXIFRAGA Cantabrica latifolia tridactylites rigidior*. *Inst.* R. H. Broad stiff-leaved Saxifrage of Biscay, with Leaves cut into three Segments.

22. *SAXIFRAGA tridactylites Pyrenæica, pallide lutea, minima*. *Inst.* R. H. The least pale-yellow Saxifrage of the Pyrenees, with Leaves cut into three Segments.

23. *SAXIFRAGA Pyrenæica, foliis partim integris, partim trifidis*. *Inst.* R. H. Pyrenean Saxifrage, with Leaves partly intire, and partly cut into three Segments.

24. *SAXIFRAGA Pyrenæica minima lutea, musco similis*. *Inst.* R. H. The least yellow Saxifrage of the Pyrenean Mountains, resembling Moss.

25. *SAXIFRAGA annua Cretica minima, hederaceo folio*. *Tourn. Cor.* The least annual Saxifrage of Candia, with an Ivy-leaf.

26. *SAXIFRAGA Pensylvanica, floribus muscosis*. *Hort. Elth.* Saxifrage of Pennsylvania, with greenish Flowers, growing branchy.

The first of these Plants is very common in moist Meadows, in di-

vers Parts of *England*, and is rarely cultivated in Gardens. This is what the College of Physicians have directed to be used in Medicine, under the Title of *White Saxifrage*, to distinguish it from the Meadow Saxifrage, which is an umbelliferous Plant, of a very different Nature and Appearance from this.

The second Sort is a Variety of the first, which was found wild by Mr. *Joseph Blind*, Gardener at *Barns*, who transplanted it into his Garden, and afterwards distributed it to several curious Persons; since which time it hath been multiplied so much, as to become a very common Plant in most Gardens near *London*, where it is commonly planted in Pots to adorn Court-yards, &c. in the Spring.

This Plant is propagated by Off-sets, which are sent forth from the old Roots in great Plenty. The best Season for transplanting them is in *July*, after their Leaves are decayed, when they must be put into fresh undunged Earth, and placed in the Shade until Autumn; but in Winter they may be exposed to the Sun, which will cause them to flower somewhat earlier in the Spring. In *April* these Plants will flower, and if they are in large Tufts, will at that time make a very handsome Appearance; for which Reason most People suffer them to remain three or four Years unremoved; and when they are transplanted, do always plant them in Bunches, that they may produce a greater Number of Flowers. If these Plants are put into the full Ground, they must have a shady Situation, otherwise they will not thrive.

The third Sort is a low creeping Plant, which lies upon the Surface of the Ground, somewhat like Moss;

this grows wild in the Northern Counties of *England*, and is rarely cultivated in Gardens.

The fourth Sort is propagated for the sake of its specious Flowers. This is brought from the *Alps* and *Pyrenean Mountains*, where it grows wild: it is usually planted in Pots filled with fresh light Earth, and in the Summer-season placed in the Shade, but in the Winter it should be exposed to the Sun; and all the Off-sets should be taken off, leaving the Plant single, which will cause it to produce a much stronger Stem for Flowering; for, when there are Off-sets about the old Plant, they exhaust the Nourishment from it, whereby it is rendered much weaker. These Off-sets must be each planted in a separate halfpenny Pot filled with fresh Earth, in order to succeed the older Plants, which generally perish after Flowering: these Off-sets will produce Flowers the second Year, so that there should be annually some of them planted, to succeed the others. When these Plants are strong and healthy, they will produce a Stem of Flowers full three Feet high, which divides into Branches in a pyramidal Order, and are beset with Flowers from Bottom to Top, so as to make a beautiful Figure; and as it usually flowers in *June*, it is commonly placed in Chimneys of Halls, where it will continue in Flower a long time, provided it have Water duly given it, and will afford an agreeable Prospect.

The fifth Sort is also a Native of the *Alps*, but will grow very well in Gardens; and tho' the Flowers are not very beautiful, yet for the Variety of its ferrated ever-green Leaves, it may have a Place in every good Garden. This may be propagated by Off-sets, and requires the

the same Management as the former.

The sixth Sort here mentioned is a Variety of the common white Saxifrage, from which it differs, in bearing small Bulbs at the Leaves. This is not common in *England*, but is found wild on the *Pyrenean Mountains*, and in other mountainous Places in *Spain* and *Italy*, and propagates very fast by the Bulbs, which grow on the Stalks, in the same manner as the firy Lily.

The seventh Sort is a low annual Plant, which usually grows on the Tops of Walls, and on dry rubbishy Plants, and flowers in *April*. This Plant has been esteemed a very good Remedy for the King's-evil, and other scrophulous Disorders. Mr. *Boyle*, in his Treatise concerning the Usefulness of Natural Philosophy, has recommended this Herb to be infused in small Beer, and drunk for some Days, which he says will cure the King's-evil, without any sensible Evacuation, by consuming the Humour, mitigating the Pain, dissolving the Tumours, and drying up the Ulcers. The Time for gathering of this Herb to dry, is in the middle of *April*, when it is in Flower; for it soon after perfects its Seeds, and dies away.

The eighth Sort grows wild in several Parts of *Yorkshire*, and other cold Countries. This spreads on the Surface of the Ground, and forms itself into a roundish Tuft, which is exceeding close and soft, and has the Appearance of Moss at a small Distance; from whence some of the Country-people give it the Name of Ladies-cushion. This Sort may be propagated in Plenty by its trailing Shoots, which, if they rest on the Ground, will put out Roots, and multiply exceedingly. It loves a moist shady Situation.

The ninth, tenth, eleventh, eighteenth, nineteenth, twenty-second, twenty-third, and twenty-fourth Sorts are also small Plants, which lie close to the Ground, somewhat resembling the eighth Sort; in like manner they propagate themselves plentifully, and are all of them very hardy Plants, being Natives of the *Alps*, *Pyrenees*, and other mountainous Places; they require to be planted in a moist Soil, and a shady Situation; for, if they are too much exposed to the Sun, they will not thrive; nor will they continue long, if they are planted in a rich Soil.

As these Plants do not produce very beautiful Flowers, they are seldom regarded, and rarely planted in Gardens, unless by some Persons who are curious in Botany, for the Sake of Variety. But yet they may be introduced to plant about Rock-wort, or between the Joints of rustic Buildings, where, if they are in the Shade, they will thrive very well, and have a very good Effect to the Sight: for these will succeed, where Moss cannot be planted; and having so much the Appearance of Moss, will be by most People taken for it at a small Distance; and as these continue green throughout the Year, they will much better answer the Purpose.

The twelfth, thirteenth, fourteenth, fifteenth, sixteenth, and seventeenth Sorts have broader Leaves, and appear very much like some Sorts of Houf-leeks. These are very hardy Plants, being Natives of Northern Countries; wherefore they must be planted in a shady Situation, and a poor Soil; but they will grow on drier Places than the former Sorts. These Plants are easily propagated by Off-sets, which they send out in great Plenty, and may be adapted to the same Purposes, as the former,

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to adorn Rock-work, &c. and will make a pretty Diversity.

The twenty-fifth Sort is an annual Plant, which was found by Dr. Tournefort, in the Island of Crete, and is by some preserved for the sake of Variety; but there is no great Beauty in it.

The twenty-sixth Sort was brought from *Pennsylvania* to Mr. Peter Collinson, who hath distributed it to several Persons who are curious in preserving rare Plants. This Sort hath long Leaves, which spread on the Surface of the Ground, from between which arise the Flower-stems, which grow about two Feet high, and branch toward the Top, bearing Clusters of small greenish Flowers. This is propagated by parting of the Roots, and should be planted in a shady Situation, where if duly watered in dry Weather, it will thrive and flower every Year plentifully; and may be allowed a Place in shady Borders, for the sake of Variety.

SCABIOSA, Scabious.

The Characters are;

It hath a fasciculous Flower, consisting of many unequal Florets, contained in a common Empalement. Some of these, which occupy the Middle, are cut into four or five Segments; the rest, which are placed at the Edge, are bilabiated; each of these sits on the Top of the Embryo, which is crowned; and is contained in a proper Empalement, which afterward becomes a Capsule, either simple or funnel-shaped, pregnant with a Seed crowned, which before was the Embryo.

The Species are;

1. SCABIOSA pratensis hirsuta, quæ officinarum. C. B. P. Common field Scabious.

2. SCABIOSA integrifolia glabra, radice prævorsâ. H. L. Whole-leaved Scabious, or Devil's-bit.

3. SCABIOSA stellata, folio non dissecto. C. B. P. Starred Scabious, with an undivided Leaf.

4. SCABIOSA stellata, folio laciniato, major. C. B. P. Greater starred Scabious, with a cut Leaf.

5. SCABIOSA peregrina rubra, capitulo oblongo. C. B. P. Red Indian Scabious, with longish Heads, commonly called, Musk Scabious.

6. SCABIOSA peregrina, capitulo oblongo, flore carneo. H. B. Par. Indian or Musk Scabious, with longish Heads, and a flesh-coloured Flower.

7. SCABIOSA peregrina, capitulo oblongo, flore atro-purpureo. H. R. Par. Indian or Musk Scabious, with longish Heads, and a dark-purple Flower.

8. SCABIOSA peregrina, capitulo oblongo, flore variegato. H. R. Par. Indian or Musk Scabious, with oblong Heads, and a variegated Flower.

9. SCABIOSA Indica prolifera H. Edinb. Indian childing Scabious.

10. SCABIOSA Africana frutescens. Par. Bat. k. African shrubby Scabious.

11. SCABIOSA Africana frutescens, folio rigido splendente serrato, flore albicante. H. A. African shrubby Scabious, with a stiff shining serrated Leaf, and a whitish Flower.

12. SCABIOSA Alpina, folio centaurei majoris. C. B. P. Alpine Scabious, with a greater Centaury-leaf.

13. SCABIOSA fruticans latifolia alba. C. B. P. White broad-leaved shrubby Scabious.

14. SCABIOSA fruticans latifolia, floribus ad cœruleum inclinantibus. C. B. P. Broad-leaved shrubby Scabious, with Flowers inclining to Blue.

15. SCABIOSA frutescens angustifolia alba. C. B. P. White narrow-leaved shrubby Scabious.

16. SCA-

26. *SCABIOSA multifida folio, flore flavescente.* C. B. P. Scabious with a variously divided Leaf, and a yellowish Flower.

17. *SCABIOSA montana glabra, foliis scabiosæ vulgaris.* C. B. P. Mountain smooth-leaved Scabious.

18. *SCABIOSA montana latifolia non laciniata, rubra & prima.* C. B. P. The first red broad-leaved mountain Scabious, not jagged.

19. *SCABIOSA latifolia rubra non laciniata secunda.* C. B. P. The second red broad-leaved Scabious, not jagged.

20. *SCABIOSA argentea angustifolia.* C. B. P. Narrow silver-leaved Scabious.

21. *SCABIOSA Sicula fruticans, laureolæ folio, subtus incano.* Inst. R. H. Shrubby Sicilian Scabious, with a Spurge-laurel-leaf, hoary underneath.

22. *SCABIOSA frutescens, foliis leucii hortensis.* Hort. Cath. Shrubby Scabious, with Stock-gilliflower-leaves.

23. *SCABIOSA Cretica frutescens, auriculæ urfi folio.* Tourn. Cor. Shrubby Candy Scabious, with a Bear's-ear-leaf.

24. *SCABIOSA frutescens, foliis infra integris, flore cæruleo.* Boerb. Ind. Shrubby Scabious, with the lower Leaves intire, and a blue Flower.

25. *SCABIOSA perennis Sicula, flore sulphureo.* Boerb. Ind. Perennial Sicilian Scabious, with a brimstone-coloured Flower.

26. *SCABIOSA stellata frutescens, leucii folio, minor, una alterave crena inciso.* Flor. Bat. Shrubby starry seeded Scabious, with a smaller Stock-gilliflower-leaf.

27. *SCABIOSA Africana frutescens maxima, foliis rugosis, & crenatis minus.* Par. Bat. Greatest shrubby

African Scabious, with rough and less notched Leaves.

28. *SCABIOSA Africana frutescens maxima, foliis tenuissime incis.* Boerb. Ind. alt. Greatest Shrubby African Scabious, with Leaves very finely jagged.

29. *SCABIOSA altissima annua, foliis agrimonie nonnihil similibus.* H. L. The tallest annual Scabious, with Leaves something like those of Agrimony.

30. *SCABIOSA fraxinellæ foliis.* Inst. R. H. Scabious with White-dittany-leaves.

31. *SCABIOSA virgæ pastoris folio.* C. B. P. Scabious with a Lesser-teasel-leaf.

32. *SCABIOSA Lusitanica, Indicæ similis.* Inst. R. H. Portugal Scabious, like the Indian one.

33. *SCABIOSA stellata Hispanica, amplissimo folio.* Inst. R. H. Spanish starred Scabious, with a very large Leaf.

34. *SCABIOSA stellata annua prolifera.* H. R. Par. Annual prolific starred Scabious.

35. *SCABIOSA orientalis stellata, foliis variis, flore carneo, semistoculis florum simbriatis.* Eastern starred Scabious, with variable Leaves, and a flesh-coloured Flower, whose Half-florets are fringed.

The first Sort here mentioned grows wild in divers Parts of England, upon arable Land; as doth the second in Woods, and shady Places, almost every-where: the first of these is what the College of Physicians have directed to be used, under the Title of *Scabious*; tho' the People who supply the Markets generally bring the second Sort instead thereof; but it may be easily known therefrom by its hairy, divided Leaves. The second Sort the College have directed to be used under

under the Title of *Devil's-bit*, which Name it received from the lower Part of its Root being commonly eaten off.

Both these Plants are very common in the Fields and Woods, but may be propagated in Gardens, by sowing their Seeds in the Spring upon a Bed of fresh Earth; and when the Plants are come up, they must be transplanted into other Beds of fresh Earth, at about eight or ten Inches Distance, observing to water them until they have taken Root; after which they will require no further Culture, but to keep them clear from Weeds; and the second Summer they will flower, and produce Seeds; but their Roots will abide many Years, and may be parted, to propagate the *Species*.

The third Sort will grow to the Height of four or five Feet, and have a wooden Trunk. This is preserved in Green-houses in Winter, by such as are curious in Foreign Plants. It may be propagated by planting Slips or Cuttings in Pots of fresh Earth, during any of the Summer-months, which, if placed in a moderate Hot-bed, watered and shaded, will take Root in a short time; after which they may be enured to the open Air by degrees, in which they should be removed to continue abroad until *October*, when they must be carried into Shelter, but must have as much free Air as possible in mild Weather; for they only require to be protected from hard Frost, and to be frequently watered. This Plant produces Flowers most Part of the Year, for which it is chiefly preserved, tho' the Flowers have not more Beauty nor Scent, than the common field Sort.

The fourth Sort is an annual

Plant, which is preserved in the Gardens of the Curious; but the Flowers of this are very like those of the former Sort, and have no Scent.

The *Indian* or Musk Scabious's are preserved for the Beauty and sweet Scent of their Flowers, which continue a long time: these are propagated by sowing of their Seeds, the best Time for which is about the Latter-end of *May*, or the Beginning of *June*, that the Plants may get Strength before Winter; for if they are sown too early in the Spring, they will flower the Autumn following, and the Winter coming on soon, will prevent their ripening Seeds; besides, there will be fewer Flowers upon those, than if they had remained strong Plants through the Winter, and had sent forth their Flower-stems in Spring; for these will branch out on every Side, and produce a prodigious Number of Flowers, and continue a Succession of them on the same Plants from *June* to *September*, and produce good Seeds in Plenty.

The Seeds of these Plants should be sown upon a shady Border of fresh Earth (for if they are sown upon a Place too much exposed to the Sun, and the Season should prove dry, few of them would grow): when the Plants are come up, they may be transplanted into other Beds or Borders of fresh Earth, observing to water and shade them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, till *Michaelmas*, when they may be transplanted into the Middle of the Borders in the Pleasure-garden, where the several Sorts, being intermixed, will make an agree-

agreeable Variety. They are extremely hardy, being rarely injured by Cold, unless they have shot up to flower before Winter; but do seldom continue after ripening their Seeds.

The four African Tree Scabious's are abiding Plants, which are preserved in Pots, and housed in Winter, as the third Sort. These may be propagated by Slips or Cuttings, as the third, and require the same Management.

The twelfth Sort is preserved by such as are curious in collecting Varieties of Plants, but the Flowers have no Scent; however, as it is an hardy Plant, requiring no other Culture than the common field Sorts, it may be admitted, for Diversity, into the Pleasure-garden, because it will thrive in shady Places, where few other Plants will grow.

The thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, twentieth, twenty-fourth, twenty-fifth, twenty-ninth, and thirtieth Sorts, are all of them abiding Plants, which are hardy enough to live in the open Air in England: wherefore they may be managed as hath been directed for the common Sorts of Scabious.

The twenty-first, twenty-second, twenty-third, and twenty-sixth Sorts are also abiding Plants; but are somewhat tenderer than those before-mentioned: wherefore some Plants of each Kind should be kept in Pots, that they may be sheltered in Winter under a common Hot-bed Frame; and the others must be planted in warm Borders, otherwise they will not live through the Winters in this Country; and if the Soil in which these are planted, is poor and dry, they will grow stunted, and bear the Cold much better, than

those which are planted in a rich Soil, and grow freely. Those Plants which are in Pots, and are placed in Shelter in Winter, must have as much free Air as possible in mild Weather; otherwise they will draw up weak, and appear very unsightly; for which Reason they should only be covered in very hard Frosts, and continually exposed in mild Weathers.

The twenty-seventh and twenty-eighth Sorts were brought from the *Gape of Good Hope*, and are more tender than the former; therefore these must always be kept in Pots, and in Winter should be placed in an airy Glass-case, where in mild Weather they may have as much free Air as possible: they should be frequently watered; for they are very thirsty Plants. In severe Frost they must be carefully guarded, but they will bear a little Cold pretty well.

All the shrubby Sorts of Scabious may be propagated by Cuttings, which may be taken off during any of the Summer-months, and should be planted in a shady Border, and duly watered in dry Weather, which will promote their taking Root; and then they may be potted, and placed in a shady Situation, till they have taken new Root; after which time they may be placed amongst other hardy Exotic Plants, in a sheltered Situation, where they may remain until the End of *October*, when they must be removed into Shelter. In some favourable Seasons these Sorts will produce good Seeds in *England*, so that the Plants may be raised from these, by sowing them in an open Border of light Earth about the middle of *March*: and if the Spring should prove very dry, it will be necessary to water the Ground now and then, which will forward the Vegetation of the Seed; so that the
Plants

Plants will appear in about three Weeks after the Seeds are sown. When they come up, they must be kept clear from Weeds, and in dry Weather duly watered; and when they are strong enough to transplant, they should be planted in Pots, and managed in the same manner as those Plants which are propagated by Cuttings.

The twenty-ninth, thirty-second, thirty-third, thirty-fourth, and thirty-fifth Sorts, are annual Plants, which are only propagated by Seeds. These may be managed in the same manner as hath been directed for the *Indian Scabious*.

All the Sorts of Scabious continue a long time in Flower, for which they are regarded; for there is no very great Beauty in their Flowers; but as most of the hardy Sorts produce Flowers near three Months successively, they may be allowed a Place in the Borders of large Gardens, because they require very little Care to cultivate them. And as the shrubby Kinds continue in Flower most Part of the Year, they make an agreeable Variety amongst hardy Exotic Plants in Winter.

SCANDIX, Shepherds Needle, or Venus-comb.

The Characters are;

It hath a rose-shaped umbellated Flower, consisting of several Petals, which are ranged orbicularly, and rest on the Empalement; which becomes a Fruit consisting of two Parts, having two Seeds, which resemble a Needle, when joined.

The Species are;

1. SCANDIX *femine rostrato, vulgaris*. C. B. P. Common Shepherds Needle, with beaked Seeds.
2. SCANDIX *Cretica major*. C. B. P. Great Shepherds Needle of Crete.
3. SCANDIX *Cretica minor*. C. B. P. Smaller Shepherds Needle of Crete.

4. SCANDIX *orientalis, flore maxima*. Tournef. Cor. Eastern Shepherds Needle, with a very large Flower.

The first of these Plants grows wild amongst Corn, in most Parts of England. The second and third Sorts grow wild in the Island of *Candia*, and the fourth Sort was discovered by Dr. *Tournefort* in the *Levant*.

These Plants are preserved by the Curious in Botany, for the sake of Variety; but are seldom admitted into other Gardens: The Fruit of these Plants, having Beaks, greatly resemble Cranes Bills at a small Distance; but being ranged somewhat like the Teeth of a Comb, occasioned the Name given to it.

They may be propagated by Seeds, which should be sown in Autumn, soon after they are ripe, in the Place where they are designed to remain, which should be in a shady Situation; and when the Plants are come up, they will require no farther Care, but to keep them clear from Weeds. In June the Plants will flower, and in the Beginning of August they will perfect their Seeds, and soon after decay. But if their Seeds are permitted to scatter, the Plants will come up without any manner of Care, and become Weeds in the Garden.

SCILLA, Squills.

The Characters are;

It hath a large acrid bulbous Root, like an Onion: the Leaves are broad; the Flowers are like those of *Ornithogalum*, or the starry Hyacinth: they grow in a long Spike, and come out before the Leaves.

The Species are;

1. SCILLA *vulgaris, radice rubra*. C. B. P. Common red Squill.
2. SCILLA *radice alba*. C. B. P. The white Squill.

These

These Plants are very common upon the sandy Shores of Spain and the Levant, from whence their Roots are annually brought to England, for Medicinal Use. But I was lately informed by a Letter from Dr. William Stevens, Professor of Botany at Dublin, that the white Squill grows in great Plenty upon the Sea-coast of the County of Kerry in Ireland; which is the only Place in which it has been found growing wild in these Parts of Europe. But altho' these Roots are brought over chiefly for Medicinal Use, yet are they worthy of being cultivated in every good Garden, for the Beauty of their Flowers, which make a very handsome Appearance when they are strong Roots.

The best Time to transplant these Roots is in May, when their Leaves are decayed; or if the Roots are brought from abroad, if they can be procured firm at that Season, or a little after, they should be planted in Pots of light sandy Earth, and placed in the Windows of the Green-house, where, if they are blowing Roots, they will flower the July following.

These Plants must be preserved in Shelter, during the Winter-season, because, if their Leaves are destroyed by Frost in Winter, the Roots are subject to perish; but in Summer they should be exposed to the open Air, and in dry Weather they must be frequently watered, especially during the Season their Leaves are on, or that they are in Flower; but when the Roots are in a State of Rest, they should have but little Moisture; for Wet at that time will rot them. They are pretty hardy, and only require to be sheltered from hard Frost; but must have as much free Air as possible in open Weather.

SCLAREA, Clary.

The Characters are;

It is a verticillate Plant with a labiated Flower, consisting of one Leaf, whose Upper-lip, or Crest, is hooked; but the Under-lip, or Beard, is divided into three Parts, the middle Segment being hollow and bifid; out of the Flower-cup rises the Pointal, attended by four Embryoes, which afterward turn to so many roundish Seeds, inclosed in an Husk, which was before the Flower-cup.

The Species are;

1. SCLAREA. Tabern. Ic. Common garden Clary.

2. SCLAREA vulgaris lanuginosa, amplissimo folio. Tourn. Common downy Clary, with a large Leaf.

3. SCLAREA laciniatis foliis. Tourn. Clary with jagged Leaves.

4. SCLAREA Lusitanica glutinosa, amplissimo folio. Tourn. Portugal Clary, with a large glutinous Leaf.

5. SCLAREA Indica, flore variegato. Tourn. Indian Clary, with a variegated Flower.

6. SCLAREA rugoso, verrucoso, & laciniato folio. Tourn. Clary with a rough, warted, and jagged Leaf.

7. SCLAREA glutinosa, floris luteis variegati barba ampla caeva. Boerb. Ind. Glutinous Clary, with a yellow variegated Flower, having a large hollow Beard, commonly called, Jupiter's Dicks.

8. SCLAREA folio salvia, minor, sine glabra. Tourn. Lesser or smooth Clary, with a Sage-leaf.

9. SCLAREA orientalis, folio betonicae acutissimo, coma purpurascens. T. Cor. Eastern Clary, with a sharp-pointed Betony-leaf, and a purplish Top.

10. SCLAREA pratensis, foliis serratis, flore suave rubente. Tourn. Meadow Clary with serrated Leaves, and a soft red Flower.

The

The common garden Clary is chiefly cultivated in *England* for Medicinal Use; but the other Sorts are preserved in Botanic Gardens, for the sake of Variety, with many other Kinds of less Note; however, those here mentioned are worthy of a Place in large Gardens, where, if they are intermixed among other large-growing Plants, they will afford a pretty Variety, especially the fifth, eighth, ninth, and tenth Sorts, which produce long Spikes of beautiful Flowers, and continue a long time in Flower.

All these Sorts may be propagated by sowing of their Seeds upon a Bed of fresh Earth in *March*; and when the Plants are come up, they should be transplanted into Beds of fresh Earth, about eight Inches asunder, observing to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, until *Michaelmas*; when they should be transplanted into the Places where they are to remain, placing them at a large Distance; for they spread pretty far, provided the Soil be good. If these Kinds are planted for a Crop intended for Medicinal Use, they should be planted in Rows two Feet and an half asunder, and the Plants eighteen Inches distant in the Rows; but the other Sorts to be placed in Borders should be planted eight or ten Feet distant, being intermixed with other Plants. Some of these Sorts will endure many Years, provided they are planted on a fresh Soil, not over-moist or rich; but others rarely continue longer than the second Year, perishing soon after they have perfected their Seeds; these should therefore be often renewed from Seeds,

to have a Continuance of them; but the other Sorts may be increased by parting their Roots, the best Time for which is at *Michaelmas*, when their Stems begin to decay.

SCOLYMUS, The Golden Thistle.

The Characters are;

The whole Plant hath the Appearance of a Thistle: the Flower consists of many Half-flowers, which rest on the Embryoes; each of these are separated by a thin Leaf, and on the Top of each Embryo is fastened a little Leaf. These are contained in a scaly Empalement, which includes the Seed.

The Species are;

1. SCOLYMUS *chrysanthemus*. C. B. P. The Golden Thistle.
2. SCOLYMUS *chrysanthemus annuus*. H. R. Par. Annual Golden Thistle.
3. SCOLYMUS *chrysanthemus Africanus procerior*. H. R. Par. Taller African Golden Thistle.

The first and second Sorts grow wild in the South of *France*, and in *Spain*; but the third Sort is a Native of *Africa*. The first and third Sorts are biennial Plants; but the second being an annual, will perish soon after it hath perfected its Seeds.

They are propagated by Seeds, which should be sown in *March*, on a Bed of fresh undunged Earth, in an open Situation; and when the Plants are come up, they should be kept clear from Weeds; and where they grow too close, some of them should be pulled out, so as to leave those which are designed to remain, above two Feet asunder. This is all the Culture which these Plants require; for as they send forth tap Roots, they do not bear transplanting well:

well; therefore they must be sown where they are to remain, and if they are kept clear from great Weeds, they will thrive very well; and when the Seasons prove dry, will perfect their Seeds in Autumn; but in wet Seasons they rarely ever produce good Seeds in England; which renders it difficult to continue the Species, without procuring fresh Seeds from Abroad.

These Plants are preserved by those Persons who are curious in Botany, for Variety-sake; but are rarely planted in other Gardens.

SCORDIUM, Water-germander.

The Characters are;

The Flowers are like those of Germander, which are produced from the Wings of the Leaves; the Flower-cup is tubulous, and the whole Plant smells like Garlic.

The Species are;

1. SCORDIUM. C. B. P. Common Water-germander.
2. SCORDIUM alterum, sive *Salvia agrestis*. C. B. P. Wild Sage, vulgo.
3. SCORDIUM frutescens, folio angustio *salviae*, flore luteo. Boerb. Ind. Shrubby wild Sage, with a narrow Sage-leaf, and yellowish Flowers.

The first of these Plants grows wild in moist Places in the Isle of *Ely*, in great Plenty; but near *London* it is propagated in Gardens for Medicinal Use. This Plant is increased by parting the Roots, or from Cuttings or Slips; the best Time for this Work is in the Beginning of *March*. These Slips must be planted in Beds of moist Earth, about four or five Inches asunder, observing to water them well until they have taken Root; after which they will require no further Care, but to keep them clear from Weeds;

and in *July* the Plants will be fit to cut for Medicinal Use, being at that time in Flower. But it is not proper to transplant them every Year; for then the Crop will be smaller; therefore every other Year will be sufficient to renew these Beds; nor should they be planted again upon the same Ground, but upon a fresh Spot; otherwise they will not thrive.

The wild Sage is very common in Woods, and shady Places, in divers Parts of *England*; and is rarely cultivated in Gardens, except by those who are curious in Botany. This may be propagated by sowing the Seeds in the Spring, upon a Bed of fresh Earth; and when the Plants are come up, they should be transplanted out, at about a Foot asunder, upon a light fresh Soil, observing to water them until they have taken Root; after which they will require no further Care, but to keep them clear from Weeds; for they are extremely hardy, and will abide many Years, in almost any Soil or Situation.

The third Sort is of a more tender Nature, and requires to be sheltered from severe Frost, to which if it be exposed, it is often destroyed. This may be propagated by sowing the Seeds as the former; but when the Plants come up, they should be placed in Pots of fresh Earth, and in Winter put in an airy Part of the Green-house, where they may enjoy the free Air when the Weather is mild; for if they are too much drawn, they are subject to mould and decay. In the Summer-season they should be exposed to the open Air, with Myrtles, and other Foreign Plants; and must be frequently refreshed with Water.

SCOR-

SCORPIOIDES, Caterpillers.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes a jointed Pod, convoluted like a Snail or Caterpillar, having a Seed in each Joint, which is, for the most part, of an oval Figure.

The Species are;

1. SCORPIOIDES *bupleuri folio*. C. B. P. The great rough Caterpillar.

2. SCORPIOIDES *bupleuri folio, corniculis asperis, magis in se contortis & convolutis*. Mor. Hist. Prickly Caterpillar.

3. SCORPIOIDES *bupleuri folio, filiquis levibus*. Park. Theat. Smooth-podded Caterpillar.

4. SCORPIOIDES *filiqua crassa, Boëti*. Ger. Emac. Thick-podded Caterpillar.

5. SCORPIOIDES *filiqua cochleata & striata, Olyssiponensis*. H. R. Par. Caterpillar with a cochleated and furrowed Pod.

6. SCORPIOIDES *foliis viciæ, minima*. Mor. Hist. The least Caterpillar, with Vetch-leaves.

These Plants are preserved in several curious Gardens, for their Oddness, more than for any great Beauty: they are all of them annual Plants, which are propagated by sowing their Seeds upon a Bed of light fresh Earth; and when the Plants are come up, they should be thinned, so as to leave them about ten Inches or a Foot asunder, because their Branches trail upon the Ground; and if they have not room, they are apt to overbear each other, and thereby are very often rotted, especially in moist Seasons. The Weeds should also be diligently cleared from them, otherwise they will grow over and destroy them: in June these Plants will produce

small yellow papilionaceous Flowers, which are succeeded by Pods so much like Caterpillers, that a Person at a small Distance would imagine they were real Caterpillers feeding on the Plants; and it is for this Oddness of their Pods that these Plants are chiefly preserved.

These Sorts do seldom thrive well, if they are transplanted; therefore the best Method is to put in three or four good Seeds, in each Place where you would have the Plants remain (which may be in the Middle of large Borders in the Pleasure-garden, where being intermixed with other Plants, they will afford a pleasing Variety). When the Plants come up, there should be only one of the most promising left in each Place, which should be constantly kept clear from Weeds; and when their Pods are ripe, they should be gathered and preserved in a dry Place till the following Spring, in order to be sown.

The first, third, and fourth Sorts are the best worth cultivating, their Pods being large, and more visible than the other, and are more in form of a Caterpillar.

SCORZONERA, Viper's-grafs.

The Characters are;

It hath a semisfosculous Flower, consisting of many Half-florets, which rest upon the Embryoes, which are included in one common Empalement, which is scaly: the Embryoes after-ward become oblong Seeds, which are furnished with Down.

The Species are;

1. SCORZONERA *latifolia sinuata*. C. B. P. Common or broad-leaved Viper's-grafs, with an indented Leaf.

2. SCORZONERA *latifolia altera*. C. B. P. Another broad-leaved Viper's-grafs.

3. Scor-

3. SCORZONERA *laciniatis foliis*.
Journ. Viper's-grafs with jagged
 Leaves.

The first of these Sorts is what the College of Physicians have directed for Medicinal Use: and it is also cultivated for the Use of the Kitchen in divers Gardens near London; though, at present, it is not so much propagated as it hath been some Years since, when it was more commonly brought to the Markets.

The second Sort is equally as good as the first for all the Purposes for which that is cultivated; but as it is less common, it is rarely found in England, except in Botanic Gardens, where the third Sort is also cultivated for Variety, but is never applied to any Uses.

These Plants may be propagated by sowing their Seeds in the Spring upon a Spot of light fresh Soil. The best Method of sowing them is, to draw shallow Furrows by a Line, about a Foot asunder, into which you should scatter the Seeds, thinly covering them over about half an Inch thick with the same light Earth; and when the Plants are come up, they should be thinned where they are too close in the Rows, leaving them at least six Inches asunder; and, at the same time, you should hoe down all the Weeds to destroy them: and this must be repeated as often as is necessary; for, if the Weeds are permitted to grow among the Plants, they will draw them up weak, and prevent their Growth.

There are many People who sow these Seeds promiscuously in a Bed, and afterwards transplant them out at the Distance they would have them grow: but this is not so well as the former Method, because their Roots will commonly shoot down-

right, which in being transplanted are often broken, so that they never will make so fair Roots as those which remain in the same Place where they are sown; for, when the extreme Part of the Root is broken, it never extends itself in Length afterwards, but only shoots out into many forked small Roots, which are not near so valuable as those which are large and strait. These Roots may be taken up when their Leaves begin to decay, at which time they have done growing; tho' they may remain in the Ground until Spring, and may be taken up as they are used: but those which remain in the Ground after March, will shoot up their Flower-stems; after which they are not so good, being sticky and strong.

If you intend to save Seeds of these Plants, you should let a Parcel of the best remain in the Places where they grew; and when their Stems are grown to their Height, they should be supported with Stakes, to prevent their falling to the Ground, or breaking. In June they will flower, and about the Beginning of August their Seeds will ripen, when they should be gathered, and preserved dry till the Spring following for Use.

SCROPHULARIA, Figwort.

The Characters are;

It hath an anomalous Flower, consisting of one Leaf, gaping at both Sides, and generally globular, cut, as it were, into two Lips; under the upper one of which are two small Leaves; the Pointal rises out of the Flower-cup, which after-ward turns to a Fruit or Husk, with a roundish-pointed End, opening into two Divisions, parted into two Cells by an intermediate Partition, and full of small Seeds, which adhere to the Placenta.

The Species are ;

1. SCROPHULARIA *modosa. foetida.* C. B. P. Stinking knobbed-rooted Figwort.
2. SCROPHULARIA *aquatica major.* C. B. P. Greater Water Figwort.
3. SCROPHULARIA *Hispanica, sambuci folio glabro.* Tourn. Spanish Figwort, with a smooth Elder-leaf.
4. SCROPHULARIA *maxima Lusitanica, sambuci folio lanuginoso.* Tourn. Greatest Portugal Figwort, with a woolly Elder-leaf.
5. SCROPHULARIA *Ruta canina dicta, vulgaris.* C. B. P. Figwort, commonly called Dogs-rue.
6. SCROPHULARIA *saxatilis lucida, laserpitii Massiliensis foliis.* Boc. Mus. Shining rock Figwort, with Leaves like the *Marseilles* Laserwort.
7. SCROPHULARIA *glauco folio, in amplis laciniis diviso.* Tourn. Figwort with a sea-green Leaf, divided into large Segments.
8. SCROPHULARIA *foliis filicis modo laciniatis, vel Ruta canina latifolia.* C. B. P. Figwort with Leaves jagged after the manner of Fern, or broad-leaved Dogs-rue.
9. SCROPHULARIA *flore luteo.* C. B. P. Figwort with a yellow Flower.
10. SCROPHULARIA *folio urticae.* C. B. P. Figwort with a Nettle-leaf.
11. SCROPHULARIA *betonicae folio.* Inst. R. H. Figwort with a Betony-leaf.
12. SCROPHULARIA *scorodoniae folio.* Mor. Hist. Figwort with a Wood-sage-leaf.
13. SCROPHULARIA *peregrina frutescens, foliis steucii crassiusculis.* Breyn. Cent. Foreign shrubby Figwort, with thick Germander-leaves.
14. SCROPHULARIA *minor, Ruta canina dicta.* Moriss. Hist. Lesser Figwort, called Dogs-rue.
15. SCROPHULARIA *Lusitanica*

frutescens, verbenacae foliis. Inst. R. H. Shrubby Portugal Figwort, with Vervain-leaves.

16. SCROPHULARIA *Cretica frutescens, folio vario crassiori.* Tourn. Cor. Shrubby Figwort of *Candia*, with a thicker variable Leaf.

17. SCROPHULARIA *Græca frutescens & perennis, urticae folio.* Tourn. Cor. Greek shrubby and perennial Figwort, with a Nettle-leaf.

18. SCROPHULARIA *Ephesia, lunariae folio, flore rubro.* Tourn. Cor. Ephesian Figwort, with a Moonwort-leaf, and a red Flower.

19. SCROPHULARIA *orientalis, foliis cannabim.* Tourn. Cor. Eastern Figwort, with bastard Hemp-leaves.

20. SCROPHULARIA *orientalis, amplissimo folio, caule alato.* Tourn. Cor. Eastern Figwort, with a large Leaf, and a winged Stalk.

21. SCROPHULARIA *orientalis, tiliae folio.* Tourn. Cor. Eastern Figwort, with a Lime-tree-leaf.

22. SCROPHULARIA *orientalis, chrysanthemii folio, flore minimo variegato.* Tourn. Cor. Eastern Figwort, with a Corn-marigold-leaf, and the least variegated Flower.

The first Sort here mentioned grows wild in great Plenty in Woods, and other shady Places, in divers Parts of *England*, and is rarely cultivated in Gardens; but this being the Sort which the College of Physicians have directed for Medicinal Use, under the Title of *Scrophularia major*, is by some preserved in their Physic-gardens.

The second Sort is also very common in moist Places, and by the Sides of Ditches almost every-where. This is also an officinal Plant, and stands in the Catalogue of Simples, under the Title of *Betonica aquatica*, i. e. *Water Betony*, because the Leaves are somewhat like those of Betony.

These two Plants may be easily propagated in Gardens, by sowing their

their Seeds early in the Spring upon a Bed of fresh Earth, in a shady Situation; and when the Plants are come up, they should be transplanted out into a strong moist Soil, about two Feet asunder, observing to water them until they have taken Root; after which they will require no farther Care but to hoe down the Weeds between them from time to time as they are produced. The second Year these Plants will shoot up to flower; and if their Stems are suffered to remain, they will produce Seeds; but the Herb is generally cut for Use just as the Flowers begin to open; for if it stands longer, the Leaves change, and the whole Plant contains much less Juice. The Roots of the first Sort will abide many Years without renewing; but it will be proper to transplant them every other Year, otherwise the Roots will spread over each other, and thereby destroy themselves.

The third and fourth Sorts are very beautiful Plants, being worthy of a Place in every good Garden. These are somewhat tenderer than the former Sorts, tho' they will endure the Cold of our ordinary Winters, if planted in a light Soil, and a warm Situation. These may be propagated by sowing their Seeds in the Spring upon a Bed of fresh Earth; and when the Plants are come up, they should be transplanted into Beds of fresh Earth, at about six Inches Distance from each other, observing to water and shade them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, and in very dry Weather to refresh them with Water.

At *Michaelmas* some of them may be transplanted into the Middle of warm Borders in the Pleasure-garden,

and the rest may be planted into Pots filled with light fresh Earth, which in Winter should be sheltered under a common Hot-bed Frame, where they may be covered in frosty Weather; but in mild Weather they should have as much free Air as possible: these Plants, thus sheltered, will flower very strong in *April*, and if duly watered in dry Weather, will produce ripe Seeds in *July*, which may be gathered in the Pods, and preserved for Use. The Roots of these Plants will abide three or four Years, unless destroyed by great Cold, and may be parted to increase them: but these Plants which are propagated from Slips, do seldom flower so strong, as those produced from Seeds; so that it is the best way to raise every Year some from Seeds, to succeed the old Roots.

The fifth, sixth, seventh, and eighth Sorts are also tender, and will rarely endure the Cold of our Winters without Shelter, unless in some very warm Situations; therefore these should be planted in Pots filled with fresh light Earth, and sheltered in Winter as the two former Sorts. These may be propagated either from Seeds, as the former, or from Cuttings; but the former being the best Way, is generally practised, because the Plants raised from Seeds do always flower much stronger, than those produced from Cuttings, and likewise grow more regular. These Sorts will abide two or three Years, if defended from Frost in Winter; but if they should continue longer, they are seldom so beautiful as young Plants, so that they should be often renewed from Seeds.

The ninth, tenth, eleventh, fourteenth, eighteenth, and twenty-second Sorts are biennial Plants, which rarely live longer than two Years. These

feldom flower the same Season their Seeds are sown; or if they do, it is generally pretty late in the Autumn, so that they do not produce good Seeds; but when the Plants grow short, and do not put out their Flower-stems the first Year, they flower very strong early in the following Summer, and produce good Seeds. These Sorts are hardy enough to endure the Cold of our ordinary Winters very well, provided they are planted in a dry undunged Soil.

The twelfth, thirteenth, fifteenth, sixteenth, seventeenth, nineteenth, twentieth, and twenty-first Sorts are abiding Plants, their Roots continuing many Years; and the nineteenth Sort creeps at the Root, so that it propagates very fast that way, as also by Seeds. This is an extreme hardy Plant, and will live in almost any Soil and Situation; but should not be planted too near other Plants; because it creeps so far, as to interfere with such Plants as grow near it.

The other Sorts will endure the Cold of our ordinary Winters very well, if they are planted in a sheltered Situation: and when they are planted in a lean rubbishy Soil, they will not grow too freely; but will be stunted, and will endure a much greater Share of Cold, than when they are planted in a rich Soil, where they become very luxuriant.

All these Sorts may be propagated by Seeds, which may be sown, and the Plants managed, in the same manner as hath been directed for the former Sorts; and being intermixed with other hardy Plants in a large Garden, will make an agreeable Variety.

SECALE, Rie.

The Characters are;

The Flowers have no Leaves, but consist of several Stamina, which are

produced from the Flower-cup: these Flowers are collected into a flat Spike, and are disposed almost singly; from the Flower-cup arises a Pointal, which afterward becomes an oblong slender Seed inclosed in an Husk, which was before the Flower-cup. This differs from Wheat, in having a flatter Spike, the Awn larger and more naked.

The Species are;

1. SECALE *hybernum, vel majus.* C. B. P. Common or Winter Rie.

2. SECALE *vernum & minus.* C. B. P. Lesser or Spring Rie.

These are all the Sorts of Rie which are at present known in England. The Manner of sowing and husbanding these Plants being so well known to every Farmer, it would be needless to say any thing of it in this Place, more than that the first must be sown in Autumn, as Wheat; but the other may be sown in the Spring, at the Season for Barley, and will ripen almost as soon as that which was sown in Autumn; which is a great Advantage in such Countries, where it is subject to be destroyed in Winter.

SECURIDACA, Hatchet-vetch.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes an upright, plain, annual, articulated Pod, containing in each Joint a rhomboid Seed, having a Notch on the inner Side.

We have but one Species of this Sort in England; viz.

SECURIDACA *lutea major.* C. B. P. The greater yellow Hatchet-vetch.

This Plant grows amongst the Corn in Spain, Italy, and other warm Countries; but in England it is preserved

served in Botanic Gardens for the sake of Variety. This may be propagated by sowing the Seeds in Borders of light fresh Earth in the Spring, in the Places where they are to abide; for they seldom succeed well, if they are transplanted: they should be allowed at least two Feet Distance, because their Branches trail upon the Ground: in June these Plants will flower, and in August their Seeds will ripen, when they should be gathered, and preserved for Use. A few of these Plants may be admitted into every good Garden for Variety, though there is no great Beauty in their Flowers.

SEDUM, Houfleeck.

The Characters are;

The Flower consists of several Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Flower-cup rises the Pointal, which afterward turns to a Fruit, composed, as it were, of many Seed-vessels, resembling Husks, which are collected into a Sort of Head, and full of small Seeds.

The Species are;

1. SEDUM majus vulgare. C.B.P. Common great Houfleeck.
2. SEDUM minus luteum, folio acuto. C. B. P. The most ordinary Prickmadam, or sharp-pointed yellow Houfleeck.
3. SEDUM minus luteum, ramulis reflexis. C. B. P. Yellow Stonecrop, with reflected Flowers.
4. SEDUM parvum acre, flore luteo. J. B. Wall Pepper, or Stonecrop.
5. SEDUM minus, a rupe Sancti Vincentii. Raii Syn. Stonecrop of St. Vincent's Rock.
6. SEDUM minus teretifolium album. C. B. P. White flowered Stonecrop, with round pointed Leaves.

7. SEDUM minus, circinato folio. C. B. P. Lesser Stonecrop, with round Leaves.

8. SEDUM majus, vulgari simile, globulis decidentibus. Mor. Hist. Houfleeck like the common Sort, throwing off the young ones.

9. SEDUM montanum tomentosum. C. B. P. Mountain woolly Houfleeck, commonly called Cobweb Houfleeck.

10. SEDUM majus arborescens. J. B. Greater Tree Houfleeck.

11. SEDUM majus arborescens, foliis elegantissime variegatis tricoloribus. Boerb. Ind. Greater Tree Houfleeck, with beautiful variegated Leaves.

12. SEDUM Canarium, foliis omnium maximis. H. A. The greatest Houfleeck of the Canaries.

13. SEDUM Afrum saxatile, foliis sedi vulgaris, in rosam vere compositis. Boerb. Ind. African rock Houfleeck, with small Leaves, like the common Sort, collected like a Rose.

14. SEDUM Afrum montanum, foliis subrotundis, dentibus albis serratis, confertim natis. Boerb. Ind. African mountain Houfleeck, with roundish indented serrated Leaves, with white Edges.

15. SEDUM Africanum frutescens, folio longo serrato, confertim nato. Boerb. Ind. African shrubby Houfleeck, with long serrated Leaves.

16. SEDUM majus montanum, dentatis foliis, alterum. C. B. P. Another great mountain Houfleeck, with indented Leaves.

17. SEDUM majus montanum, foliis non dentatis, floribus rubentibus. C. B. P. The great mountain Houfleeck, with indented Leaves, and reddish Flowers.

18. SEDUM teretifolium majus, flore albo. Mor. Hort. R. Blas. Greater Houfleeck,

Housleek, with taper Leaves, and a white Flower.

19. *SEDUM minus, lato & crasso caule, Portlandicum Belgarum.* H. R. Par. Small Portland Housleek, with a broad and thick Stalk.

20. *SEDUM Alpinum roseum, acuto folio, hæmatodes majus.* H. R. Par. Greater bloody rose Housleek of the Alps, with a sharp-pointed Leaf.

21. *SEDUM Alpinum roseum medium, aculeo rubente.* H. R. Par. Middle rose Housleek of the Alps, with reddish Prickles.

22. *SEDUM Alpinum roseum minus, viride & subbirsutum.* H. R. Par. Small rose green and hairy Housleek of the Alps.

23. *SEDUM Alpinum subbirsutum, folio longiore.* H. R. Par. Hairy Housleek of the Alps, with a longer Leaf.

24. *SEDUM Alpinum subbirsutum, corona floris purpurascente, disco viridi.* H. R. Par. Hairy Housleek of the Alps, with the Borders of a purplish Colour, and the Middle green.

25. *SEDUM minus teretifolium luteum.* C. B. P. Small taper-leaved yellow Housleek.

26. *SEDUM minus teretifolium alterum.* C. B. P. Another small taper-leaved Housleek.

27. *SEDUM longifolium, citrino flore.* Mor. H. R. Blas. Long-leaved Housleek, with a citron-coloured Flower.

28. *SEDUM minimum luteum, non acre.* J. B. The smallest yellow Housleek, which is not acrid.

29. *SEDUM minimum non acre, flore albo.* Raii Hist. The least Housleek, which is not acrid, with a white Flower.

30. *SEDUM Alpinum, flore pallido.* C. B. P. Alpine Housleek, with a pale Flower.

31. *SEDUM Alpinum, rubro magno*

flore. C. B. P. Alpine Housleek, with a large red Flower.

32. *SEDUM Hispanum, folio glauco acuto, flore albedo.* Boerb. Ind. alt. Spanish Housleek, with a pointed sea-green Leaf, and a whitish Flower.

33. *SEDUM palustre subbirsutum purpureum.* C. B. P. Hairy purple marsh Housleek.

34. *SEDUM echinatum, vel stellatum, flore albo.* J. B. Starry Housleek, with a white Flower.

35. *SEDUM echinatum, flore luteo.* J. B. Prickly Housleek, with a yellow Flower.

The first Sort is very common in England, being often placed upon the Tops of Houses, and other Buildings, where being preserved dry, it will endure the greatest Cold of our Climate. This is directed by the College of Physicians to be used in Medicine as a great Cooler. It may be propagated by planting the Offsets (which are produced in great Plenty from the old Plants) any time in Summer. It requires to be placed very dry; for, if its Roots are moist, the Plants will rot in cold Weather.

The second, third, fourth, sixth, and seventh Sorts grow in Plenty upon Walls and Buildings in divers Parts of England, where they propagate themselves by their trailing Branches, so as in a short time to cover the whole Place, provided they are not cut off. The sixth Sort is also prescribed by the College of Physicians to enter some official Compositions; but the People who supply the Markets, do commonly sell the Wall Pepper instead of this; which is a very wrong Practice, because the sixth Sort is a very cold Herb, and is accordingly directed to be put into cooling Ointments; and the Wall Pepper is an exceeding sharp acrid Plant (from whence it

it

it received the Name of Wall Pepper), which renders it contrary to the Intention of the Physician; therefore whoever makes use of these Plants, should be very careful to have the right; otherwise it is better to use the common great Sort, in which they are not so liable to be imposed on.

The fifth Sort is a Native of *St. Vincent's Rock* in *Cornwall*, from whence it hath been taken, and distributed into the several Gardens of such Persons as are curious in preserving a Variety of Plants.

These Plants are all extreme hardy, and will thrive exceedingly, if planted in a dry Soil, and an open Situation; where they will propagate themselves by their trailing Branches; which take Root where-ever they touch the Ground.

The eighth and ninth Sorts will propagate themselves by Off-sets in the manner as the common Sort, though the eighth throws off the young ones from the Top of the old Plants, which, falling on the Ground, take Root, and thereby are increased very plentifully. These are both very hardy, and if planted in a dry rubbishy Soil, will thrive, and endure the severest Cold of our Climate.

The tenth Sort is propagated by planting Cuttings during any of the Summer-months, which should be laid in a dry Place a Fortnight after they are cut from the old Plants, that their wounded Parts may heal over before they are planted, otherwise they are subject to rot. These should be planted in Pots filled with light fresh sandy Earth, and placed in a shady Situation (but not under the Drip of Trees), observing to give them now-and-then a little Water, when the Earth is dry; but you must be very careful not to let them

have too much Moisture, which will rot them.

When they have taken Root, they may be removed into a more open Situation, placing them amongst other Exotic Plants, in a Place where they may be defended from strong Winds; in which Situation they may remain until Autumn, when they must be removed into the Conservatory, to be preserved from Cold in Winter, which will destroy them. Though they do not need any artificial Heat, but only to be protected from Frost, yet do they require to have as much free Air as possible in mild Weather; therefore the best way of preserving these Plants is, to have an airy Glass-case, in which many Sorts of Ficoides's, and other succulent Plants, may be intermixed with these, where they will thrive much better, than if placed amongst Oranges, Myrtles, and other Trees, in a Green-house; because the Perspiration of those Trees renders the Air of the Place damp, and when the House is closely shut up, this Air is often rancid; which, being imbibed by the Houleeks, will cause their Leaves to fall off, and the Plants will decay soon after; whereas in an open airy Glass-case, where are none but succulent Plants, there will never be near so much Damp in the Air; and in such Places they will thrive and flower almost every Winter, when the Plants have gotten sufficient Strength. These Plants in moist Weather will send forth long Roots from their Branches, four or five Feet from the Ground; and if the Earth is placed near to these Roots, they will strike into it, and the Branches may be afterwards separated from the old Plants.

The eleventh Sort is a Variety of the tenth, which was accidentally obtained

obtained in the Gardens of the late Dukes of *Beaufort* at *Badmington*, from a Branch which broke off from one of the plain Sort of *Housleek*-trees by Accident, and being planted in Lime-rubbish afterwards, became beautifully variegated; from which Plant there have been vast Numbers raised, and distributed into many curious Gardens, both at Home and Abroad. This is propagated in the same manner as the former, and requires the same Management in Winter; but the Soil in which it is planted should be one Half fresh sandy Soil, and the other Half Lime-rubbish and Sea-sand, equally mixed, in which it will thrive much better than in a rich Soil: you must also be very careful not to give it too much Water in Winter, which will cause it to cast its Leaves, and decay. With this Management these Plants will grow to be eight or ten Feet high, and will produce beautiful Spikes of Flowers every Year, which are commonly in Beauty in Winter, and are thereby more valuable for coming at a Season when few other Plants flower. Sometimes these Plants will produce ripe Seeds, which, if permitted to fall upon the Earth of the Pots, will come up the Summer following, from whence a great Stock of the Plants may be produced; tho', as they do so easily take Root from Cuttings, there will be no Occasion to propagate them any other way.

The twelfth Sort seldom produces any Side-branches; but grows up to one single large Head, with very large Leaves. This is only propagated from Seeds; for, when the Plants produce their Flowers, they always decay as soon as the Seed is ripe; therefore the Seed should either be sown in Pots filled with light sandy Earth, as soon as it is ripe, or permitted to shed upon the Pots

where they grew; which must be sheltered from the Frost in Winter, and the Spring following the young Plants will come up in Plenty; when they should be transplanted into Pots filled with fresh light Earth, and exposed in Summer with other Exotic Plants, in some well-sheltered Situation, where they may remain until *October*, when they should be housed with the foregoing Sorts, and managed in the same manner as hath been directed for them. These Plants will flower in four or five Years from Seed, provided they are well managed; after which (as was before said) they usually decay: therefore it is necessary to have a Succession of young Plants, that there may be annually some to flower.

The thirteenth and fourteenth Sorts are of smaller Growth: these rarely rise above six Inches high; but send forth a great Quantity of Heads from their Sides, which if taken off, and planted in fresh light sandy Earth, will take Root, and make fresh Plants, which may be preserved in Pots, and housed in Winter with the other Sorts before-mentioned, and require to be treated in the same way.

The fifteenth Sort grows to be shrubby, and may be propagated by planting the Cuttings in the manner directed for the Tree *Housleek*, and must also be housed in Winter, and treated in the same manner as hath been already directed for that Sort.

These are all of them very ornamental Plants in the Green-house, and greatly add to the Variety, when placed amongst other curious Exotic Plants.

Most of these Sorts of *Housleek* are very hardy Plants, which will thrive in the open Air in *England*, and may be easily propagated by

Off.

Off-sets or Branches, which will readily take Root. Those Kinds which trail on the Ground (as many of these do) will push out Roots from their Branches, and thereby spread themselves to a great Distance. But the thirty-second, thirty-fourth, and thirty-fifth Sorts are annual Plants, which are only propagated by Seeds; but if their Seeds are permitted to scatter on the Ground, the Plants will come up in Autumn, and require no other Care, but to clear them from great Weeds, which, if permitted to grow amongst them, would overbear and destroy the Plants.

These Plants are preserved in the Gardens of some Persons, who are curious in Botany; but are very rarely admitted into other Gardens; tho' they may be very ornamental, when rightly disposed. For there are no Plants so proper to plant on the Walls of Ruins, or other rustic Buildings, where they will thrive without any Trouble, and endure the greatest Drought, and are never injured by Frosts. And as there is a great Variety of *Species*, which differ greatly from each other, not only in their Flowers, but also in the whole Face of the Plants; they will afford an agreeable Variety, if they are properly disposed. In planting of these Sorts, there is no other Care required, but to lay a little moist Earth on the Joints of the Walls or Buildings, where they are designed to grow, and therein to plant some of the Kinds in small Bunches, which will soon take Root, and in one Year's time will spread to a considerable Distance. The best Season for this Work is a little before *Michaelmas*, that the Plants may be rooted, before the hard Frost comes on. The annual Kinds will also grow in the same manner, and will shed their Seeds, and maintain

themselves without any Trouble, when they are once fixed in the Place. These Sorts will most of them grow from the Joints of Walls, which are perpendicular, where scarce any other Plants will live; which renders them more valuable, especially as they are so easily propagated.

The eighteenth, twenty-fifth, and twenty-sixth Sorts produce large Bunches, which hang down from the Walls where they grow; therefore should be disposed near the Edges of Buildings, or on the Tops of rustic Houses, and near the Sides, where they will trail, and make a pretty Appearance.

The twenty-eighth, twenty-ninth, and thirty-second Sorts have the Appearance of the Stonecrop; these have short Branches, and small Leaves, producing their Flowers on the Tops of the Shoots, which are seldom above three or four Inches high, but spread and form themselves into close large Bunches; and where they scatter their Seeds, if there is but a small Share of Earth, the Plants will come up, and multiply so fast, as to cover the Top of an House in a few Years.

The sixteenth, seventeenth, nineteenth, twentieth, twenty-first, twenty-second, twenty-third, twenty-fourth, twenty-seventh, thirtieth, and thirty-first, their Sorts grow in close Heads, somewhat like the common Houseleek, and are propagated by Off-sets in the same manner; these may be disposed on the Tops of Walls and Buildings, intermixed with the common Sorts of Houseleek, where they will make a pretty Diversity, being very different in their Appearance, and producing a greater Variety of their Flowers.

SEEDS.

I shall here give a List of Seeds which are frequently sown in the
English

English Gardens; in which I shall distinguish such of them as require to be sown soon after they are ripe, others which should be kept no longer than the first Spring, from such as will be good the second or third Year.

The first Class of Seeds are those which should be sown in the Autumn, soon after they are ripe; otherwise many of them will not succeed; and others of them will often remain in the Ground a whole Season, if they are kept out of the Ground till Spring, so that a full Year is thereby lost.

Adonis or Flos Adonis, *see* Adonis.

Alexanders or Alifanders, *see* Smyrnum.

Anemony or Windflower, *see* Anemone.

Angelica.

Arse-smart, the Eastern Sort, *see* Persicaria.

Ash-keys, *see* Fraxinus.

Asphodel or Kingspear, *see* Asphodelus.

Auricula.

Beech-mast, *see* Fagus.

Bishopweed, *see* Ammi.

Christopher-herb, *see* Christophoriana.

Ciceli, *see* Myrrhis.

Colchicum or Bastard-saffron.

Cornfallet, *see* Valerianella.

Cornflag, *see* Gladiolus.

Crocus.

Crown Imperial, *see* Corona Imperialis.

Fennel-giant, *see* Ferula.

Flower-de-luce, *see* Iris.

Fraxinella.

Fritillaria or Chequered Tulip.

Gentian, *see* Gentiana.

Ground-pine, *see* Chamæpytis.

Hares-ear, *see* Bupleurum.

Hart-wort, *see* Bupleurum and Sefeli.

Hogs-fennel, *see* Peucedanum.

Hornbeam, *see* Carpinus.

Hyacinth, *see* Hyacinthus.

Juniper, *see* Juniperas.

Lasewort, *see* Laserpitium.

Lily, *see* Liliium.

Lily-asphodel, *see* Lilio-asphodelus.

Lily-hyacinth, *see* Lilio-hyacinthus.

Lily-narcissus, *see* Lilio-narcissus.

Lovage, *see* Ligusticum.

Mandrake, *see* Mandragora.

Maple-tree, *see* Acer.

Masterwort, *see* Imperatoria and Astrantia.

Mercury, *see* Mercurialis.

Moly.

Muscari.

Narcissus or Daffodil.

Oak, *see* Quercus.

Oak of Jerusalem, *see* Chenopodium.

Pasque-flower, *see* Pulsatilla.

Piony, *see* Pæonia.

Polyanthus, *see* Primula Veris.

Ranunculus or Crowfoot.

Samphire, *see* Crithmum.

Scurvy-grass, *see* Cochlearia.

Sefeli or Sermountain, *see* Siler.

Snow-drop, *see* Narcisso-leucoium.

Sowbread, *see* Cyclamen.

Spiderwort, *see* Phalangium.

Spignel, *see* Meum.

Star of Bethlehem, *see* Ornithogalum.

Staves-acre, *see* Delphinium.

Tulip, *see* Tulipa.

Turnsole, *see* Heliotropium.

Yew-tree, *see* Taxus.

In the next Class I shall enumerate those Sorts of Seeds, which are best the first Spring after they are sowed, many of which will not grow, if they are kept longer; so that whoever deals in Seeds, should destroy the Seeds they have remaining after the Season is over, and not sell them to impose on their Dealers to the great Loss of their Crops, nor keep them

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them to mix with new Seeds, as is too often practised.
 African Marigold, *see* Tagetes.
 Agrimony, *see* Agrimonia.
 Alkanet, *see* Anchusa.
 Amaranthoides or Globe-amaranthus.
 Anise, *see* Anisum.
 Asparagus or Spearage.
 Balsamine, *see* Balsamina.
 Basil, *see* Ocimum.
 Bastard-saffron, *see* Carthamus.
 Bay-tree, *see* Laurus.
 Bean, *see* Faba.
 Beet, *see* Beta.
 Blue-bottle, *see* Cyanus.
 Borrage, *see* Borago.
 Buckweat, *see* Fagopyrum.
 Bugloss, *see* Buglossium.
 Canterbury-bell, *see* Campanula.
 Caraway, *see* Carum.
 Carnation, *see* Caryophyllus.
 Carrot, *see* Daucus.
 Caterpillar, *see* Scorpioides.
 Celery, *see* Apium.
 Chervil, *see* Chærophyllum.
 Chestnut, *see* Castanea.
 Chickling-pea, *see* Cicer.
 Clary, *see* Hortinnum.
 Columbine, *see* Aquilegia.
 Coriander, *see* Coriandrum.
 Cranebill, *see* Geranium.
 Cress, *see* Nasturtium.
 Cumin, *see* Cuminum.
 Cypress, *see* Cupressus.
 Dames-violet, *see* Hesperis.
 Everlasting-pea, *see* Lathyrus.
 Fennel, *see* Fœniculum.
 Fennel-flower, *see* Nigella.
 Fenugreek, *see* Fœnum Græcum.
 Finochia, *see* Fœniculum.
 Fir, *see* Abies.
 French Honeyfuckle, *see* Hedyfarum.
 French Marigold, *see* Tagetes.
 Goats-rue, *see* Galega.
 Globe-thistle, *see* Echinopus.
 Gromwel or Gray-mill, *see* Lithospermum,

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Hemp, *see* Cannabis.
 Henbane, *see* Hyoscyamus.
 Hollyhock, *see* Malva rosea.
 Hyssop, *see* Hyssopus.
 Indian Pepper, *see* Capsicum.
 Kidney-bean, *see* Phaseolus.
 Larch-tree, *see* Larix.
 Larkspur, *see* Delphinium.
 Lavender, *see* Lavendula.
 Laurel, *see* Laurocerasus.
 Leek, *see* Porrum.
 Lentil, *see* Lens.
 Love-apple, *see* Lycopersicon.
 Lupine, *see* Lupinus.
 Lychnis or Catchfly.
 Mad-apple, *see* Melongena.
 Mallow, the Venetian, *see* Ketmia.
 Marigold, *see* Caltha.
 Marjoram, *see* Majorana.
 Marvel of Peru, *see* Jalapa.
 Millet, *see* Miliun.
 Mullein, *see* Verbascum.
 Moth-mullein, *see* Blattaria.
 Navew, *see* Napus.
 Oil-nut or Palma Christi, *see* Ricinus.
 Roman Nettle, *see* Urtica.
 Onion, *see* Cœpa.
 Orach, *see* Atriplex.
 Origany, *see* Origanum.
 Panic, *see* Panicum.
 Parsley, *see* Apium.
 Parsnep, *see* Pastinaca.
 Peas, *see* Pisum.
 Pink, *see* Caryophyllus.
 Poppy, *see* Papaver.
 Purslain, *see* Portulaca.
 Radish, *see* Raphanus.
 Rape, *see* Napus.
 Rue, *see* Ruta.
 Savory, *see* Satureia.
 Scabious, *see* Scabiosa.
 Skerrit, *see* Sisarum.
 Snails, *see* Medica.
 Snapdragon, *see* Antirrhinum.
 Spinach, *see* Spinachia.
 Succory, *see* Cichoreum.
 Sun-flower, *see* Corona solis.
 Thyme, *see* Thymus.
 Trefoil,

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Trefoil, *see* Trifolium.
 Turnep, *see* Rapa.
 Venus Looking-glass, *see* Campanula.
 Venus Navelwort, *see* Omphalodes.
 Vetch, *see* Vicia.
 Woad, *see* Isatis.

The next Class of Seeds are such as may be kept two Years, and will not be the worse, provided they are well saved: tho' these are equally good for Use the first Year.

Amaranthus or Flower-gentle.
 Citrul or Water-melon, *see* Anguria.
 Cabbage, *see* Brassica.
 Clover, *see* Trifolium.
 Colliflower, *see* Brassica.
 Convolvulus or Bindweed.
 Endive, *see* Endivia.
 Flax, *see* Linum.
 Indian Flowering-reed, *see* Canacorus.

La-lucern, *see* Medica.
 Lettuce, *see* Lactuca.
 Melilot, *see* Melilotus.
 Mustard, *see* Sinapi.
 Sorrel, *see* Acetosa.

The third Class of Seeds are such as may be kept three Years or more, and will grow very well afterward, provided they are well saved; and some of the Sorts are generally preferred for being three Years old, particularly the Cucumber and Melon Seeds; because when the Seeds are new, the Plants grow too vigorous, and produce a small Quantity of Fruit: but it is not proper to keep these longer than three Years, notwithstanding they will grow at eight or nine Years old; because when the Seeds are old, the Plants will be weak, and the Fruit which they produce will be small.

Amaranthus or Flower-gentle.
 Cabbage, *see* Brassica.
 Cedar of Libanus, *see* Cedrus, if kept in the Cones.

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Cucumber, *see* Cucumis.
 Gourd, *see* Cucurbita.
 Lettuce, *see* Lactuca.
 Melon, *see* Melo.
 Pumpkin, *see* Pepo.
 Savoy, *see* Brassica.
 Simnel or Squash, *see* Melopepo.
 Water Melon, *see* Anguria.

The following is a List of such Seeds, as do frequently remain in the Earth a whole Year, especially if they are sown in the Spring of the Year; so that whenever the Plants do not come up the first Year, the Ground should remain undisturbed till the following Spring (but must be kept clear from Weeds), when the Plants will come up.

Adonis or Flos Adonis.
 Alaternus.
 Alexanders, *see* Smyrnum.
 Angelica.
 Corn-fallet, *see* Valerianella.
 Fennel, *see* Foeniculum.
 Fraxinella or white Dittany.
 Grom-well or Gray-mill, *see* Lithospermum.
 Hares-ear, *see* Bupleurum.
 Hartwort, *see* Bupleurum.
 Hawthorn, *see* Mespilus.
 Hogs-fennel, *see* Peucedanum.
 Holly, *see* Aquifolium.
 Juniper, *see* Juniperus.
 Laferwort, *see* Laferpitium.
 Lovage, *see* Ligusticum.
 Maple, *see* Acer.
 Masterwort, *see* Astrantia.
 Mercury, *see* Mercurialis.
 Moly.
 Piony, *see* Pæonia.
 Sefeli or Sermountain, *see* Siler.
 Spignel, *see* Meum.
 Staves-acre, *see* Delphinium.
 Turnsole, *see* Heliotropium.
 Yew, *see* Taxus.

If the Seeds mentioned in this List are sown soon after they are ripe, many of the Sorts will come up the following

following Spring; but whenever they fail so to do, there will be no Danger of their growing the following Year, provided the Seeds were good; therefore People should not despair of them the first Year. Most of the umbelliferous Plants have this Property of remaining in the Ground several Months, and sometimes a whole Year, before the Plants appear; therefore they should be managed accordingly, by sowing their Seeds on a Border, which can be suffered to remain undisturbed till the Plants come up. There are some particular Sorts of Seeds, which I have known remain in the Ground eighteen Months, and sometimes two Years; after which time the Plants have come up very well; of these Sorts are the *Morina*, *Tribulus terrestris*, *Staveacre*, *Mercury*, and some others; but as they do not constantly remain so long in the Ground, there can be no Certainty of the Time when the Plants will appear.

The Rules here laid down, concerning the Length of Time which Seeds may be kept out of the Ground, and prove good, will in general be found true, being drawn up from several Years Experience, having taken Notes every Year from the Times of sowing great Varieties of Seeds, to the Appearance of the Plants above-ground. And in this I have observed such Oddness in the Growth of Seeds, as is not to be accounted for; as that of sowing Seeds of the same Plant for two or three Years successively, and not having had one Plant arise; and the fourth Year, from the remaining Part of the Seeds, I have had some Plants come up, notwithstanding the Age of the Seeds. At other times it has happened, that some Seeds have grown the same Spring they were

sown, and a great Part of them have remained in the Ground till the following Autumn, when the Plants have come up; so that there have been two different Crops from the same Sowing.

I have also tried many Experiments in keeping of Seeds, and find the best Method to preserve them good is, to keep them in a moderate Temperature of Warmth, where they may not suffer from any Inclemencies in the outward Air, nor have too much Warmth, which will exhale the Moisture too freely, and cause the Seeds to decay sooner than they otherwise would do. This is well known to most People who cultivate Melons; who, when their Seeds are new, which would occasion the Plants being too vigorous, and therefore not so fruitful, put them into the inner Pocket of their Breeches, which are in constant Wear, where they keep them for six Weeks or two Months before they sow them; which will weaken the Seeds as much as two Years longer keeping in the ordinary Way.

All Sorts of Seeds will keep much longer in their Pods, or outer Coverings, where they can be thus preserved; because the Covering not only preserves them from the Injuries of the outward Air, but if the Seeds are not separated from them, they supply them with Nourishment, and thereby keep them plump and fair. But the Seeds of all soft Fruits, such as Cucumbers, Melons, &c. must be cleansed from the Fruit and Mucilage which surrounds them; otherwise the rotting of these Parts will corrupt and decay the Seeds in a short time.

When Seeds are gathered, it should always be done in dry Weather, when there is no Moisture upon them; and then they should be hung

hung up in Bags (especially those which Vermin eat), in a dry Room; in which Situation they will keep good, longer than if they were more closely shut up, and the Air excluded from them.

There are but few People so curious as they should be, in saving of their Seeds: some, for want of Judgment, do not distinguish the best Plants of their Kinds, to let grow for Seeds; and others out of Covetousness, to save a great Quantity of Seeds, frequently let a whole Spot of Ground, filled with any particular Sort of Plants, run up to Seed; so that the good and bad Plants are saved indifferently, which is the Occasion of the general Complaint of the Badness of the Seeds which are commonly vended, and is what the Dealers in Seeds should endeavour to remedy.

In the Tables here subjoined, I have given the common *English* Names of the Seeds, opposite to which I have added the *Latin* Names, that the Reader may with Ease turn to the several Articles in the Dictionary, where each Sort is particularly treated of, and Directions are given for their Management.

SENECIO, Groundsel.

The Characters are;

It hath a stoculous Flower, consisting of many Florets, divided into several Segments, sitting on the Embryo, contained in an Empalement consisting of one Leaf, and divided into many Parts, afterward becoming of a conical Figure: the Embryo afterward becomes a Seed, furnished with Down; at which time the Empalement is reflexed to make way for the Seeds to escape.

The Species are;

1. SENECIO *minor vulgaris*. C. B. P. Common Groundsel.
2. SENECIO *Africanus arborescens*,

folio serrate. Boorb. Ind. African tree-like Groundsel, with a serrated Leaf.

3. SENECIO *Virginianus arborescens, atriplicis folio*. Par. Bat. *Virginian Groundsel-tree, with an Orach-leaf.*

4. SENECIO *Africanus arborescens, folio ficoidis*. Com. Præl. *African Groundsel-tree, with a Ficoides-leaf.*

The first Sort here mentioned is one of the most common Weeds upon Dunghills, old Walls, and Gardens, that we have in *England*; so that, instead of cultivating it, it requires some Pains to destroy it in Gardens: for if it be suffered to seed in a Garden (which it soon will do, if permitted to stand), it will be very difficult to extirpate it. This is sometimes used in *Medicine*, but its chief Use in *England* is to feed Birds.

The second Sort grows to a Shrub of seven or eight Feet high, and produces its Flowers, in Summer and Autumn, at the Extremity of the Branches, in Bunches; which, though of no great Beauty, yet serve to add to the Variety of Exotic Plants in the Green-house. This Plant may be propagated by planting the Cuttings, during any of the Summer-months, in a Bed of fresh rich Earth, observing to water and shade them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, until *August*; when they should be taken up carefully, and planted into Pots filled with light rich Earth, and placed in a shady Situation until they have taken Root; after which they may be removed to a more open Situation, where they may remain till the Latter-end of *October*; when they should be removed into the Green-

Green-house, placing them in the coldest Part thereof : for they only require to be sheltered from severe Frost, and must have as much free Air as possible in mild Weather ; and be after refreshed with Water : in Summer they may be exposed with Myrtles, Oleanders, and other hardy Exotic Plants, where they will add to the Variety.

The third Sort grows to be a large woody Shrub, about ten or twelve Feet high ; but is hardly to be trained up into a regular Figure ; for the Branches are produced so irregularly, that it makes but an indifferent Appearance in a Garden ; but being an hardy Shrub, it is often preserved by such as are curious in collecting the various Sorts of hardy Plants.

This may be propagated by planting Cuttings taken from the tender Wood, in the Spring of the Year, observing to water and shade them until they have taken Root ; after which they must be carefully kept clear from Weeds, which is all the Management they will require until the succeeding Spring, when they should be transplanted either into the Places where they are designed to grow, or into a Nursery, where they may be trained up another Season : though it is the best way to plant them where they are to remain, when they are taken from the Bed where they were raised, because these Plants are with Danger removed when they are grown very woody.

The best Time to remove them is in the Beginning of *April*, just before they shoot : and they should be placed in a light Soil, and a warm Situation, where they will endure the Cold of our ordinary Winters without any Shelter ; but in very sharp Winters they are son e-

times destroyed. This Shrub produces its Flowers in *October*, which, altho' not very beautiful, yet are esteemed by some for their coming so late in the Season.

The fourth Sort is a very beautiful succulent Plant ; the Leaves, which are long, thick, and juicy, are covered over with a glaucous Flue, somewhat like Plums ; and these, being broken, emit a strong Turpentine Odour, which has occasioned some ignorant Persons to give it the Name of *Balsam-tree*.

This Plant is easily propagated by planting Cuttings of it during any of the Summer-months, which should be taken from the old Plants at least a Fortnight before they are planted, and laid in a dry Place for their Wounds to heal over, otherwise they will be subject to rot ; then planted in Pots of light sandy Earth, and placed in a Situation where they may enjoy the morning Sun, observing to refresh them gently with Water, as the Earth in the Pots dries : in this Place they may remain for eight or ten Days ; after which the Pots should be plunged into a moderate Hot-bed, which will greatly facilitate their taking Root : after they are rooted, they may be again exposed to the open Air, placing them amongst *Ficoides's*, *Sedums*, and other Exotic succulent Plants, in a well-sheltered Situation, where they may remain till the *October* following, when they should be removed into the Conservatory, placing them amongst the before-mentioned succulent Plants in an airy Glass-case, where they may be defended from Frost ; but should have as much free Air as possible in mild Weather ; for if they are shut up too close in Winter, or have the Addition of any artificial Heat, the Leaves

Leaves will decay and fall off, and the Plants will lose their Beauty; whereas, if they are treated in an hardier manner, and have the Advantage of a dry free Air, they will appear extreme beautiful, and flower throughout the Winter.

The Management of this Plant being nearly the same as most of the Ficoïdes require, I shall not repeat any Part of that in this Place; but desire the Reader to turn back to that Article for any farther Directions.

SENNA.

The Characters are;

The Flower, for the most part, consists of five Leaves, which are placed orbicularly, and expand in form of a Rose; the Pointal afterward becomes a plain incurved bivalve Pod, which is full of Seeds, each being separated by a double thin Membrane.

The Species are;

1. SENNA *Italica, foliis obtusis.* C. B. P. Italian Senna, with blunt-pointed Leaves.

2. SENNA *Americana, ligustri folio.* Plum. American Senna, with a Privet-leaf.

3. SENNA *Alexandrina, five foliis acutis.* C. B. P. Alexandrian Senna, with sharp-pointed Leaves.

The two first Species are preserved in several curious Gardens in England; but the third Sort, which is that used in Medicine, is at present very rare in this Country.

These Plants may be propagated by sowing their Seeds upon an Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted into small Pots filled with light fresh Earth, and plunged into a new Hot-bed, observing to water and shade them until they have taken Root; after which they should have Air admitted to them,

by raising the Glasses in proportion to the Warmth of the Season, and the Bed in which they are placed; you must also observe to refresh them with Water from time to time, as the Earth in the Pots shall require; and when the Roots of the Plants have filled the Pots, they should be shifted into other Pots a Size larger, observing to take off the Roots which are matted round the Outside of the Ball of Earth next the Pot, and then fill up the Pots with the same fresh Earth, and plunge them into the Hot-bed again, giving them Air and Water in proportion to the Warmth of the Season, and the Bed in which they are placed: in this manner they must be treated until Autumn, when they must be removed into the Stove, and plunged into the Bark-bed, where, during the Winter-season, they must be carefully preserved, refreshing them with Water every three or four Days, according as the Earth in the Pots dries. This Stove should be kept above temperate Heat in Winter, otherwise the Plants will not live therein. The Summer following, the two first Species will flower, and produce Seed; but the third Sort is an annual Plant, and rarely perfects its Seeds in this Country.

SENNA SPURIA, Bastard Senna.

Doctor Tournefort, in his Method of Plants, makes the Character of Senna to have a flat Pod, for the most part incurved; and the Character of *Cassia* to have swelling Pods, and the Seeds surrounded with Pulp; so that there are many Plants, which agree in the Flower, and outward Appearance, with the *Cassia* and *Senna*, that by this Method are removed from them: therefore Dr. Herman has given the Name

Name of *Senna-Spuria* to these Plants.

The Characters are;

It hath an irregular rosaceous Flower (which somewhat resembles a Butterfly-flower), whose Pointal afterward becomes a Pod, having for the most part two Rows of Seeds.

The Species are;

1. SENNA-SPURIA *Americana minor herbacea, plerumque hexaphylla, folio obtuso. Houst.* Small American herbaceous Bastard-Senna, having for the most part six obtuse Pinnæ, or Wings, on each Leaf.

2. SENNA-SPURIA *Americana herbacea, odore gravi, orobi Pannonici foliis mucronatis & hirsutis. Houst.* Stinking herbaceous American Bastard-Senna, with Leaves like the Portugal Bitter-vetch, which are pointed and hairy.

3. SENNA-SPURIA *Americana frutescens, foliis mucronatis glabris minoribus, siliquis teretibus, duplici seminum ordine factis. Houst.* Shrubby American Bastard-Senna, with the least smooth pointed Leaves, and taper Pods, containing two Rows of Seeds.

4. SENNA-SPURIA *Americana, plerumque hexaphylla, flore magno, siliqua pentagona alata. Houst.* American Bastard-Senna, for the most part having six Wings to the Leaf, a large Flower, and a five-cornered winged Pod.

5. SENNA-SPURIA *Americana herbacea, orobi Pannonici foliis rotundioribus, flore parvo. siliquis erectis. Houst.* American herbaceous Bastard-Senna, with rounder Portugal Bitter-vetch-leaves, a small Flower, and an erect Pod.

6. SENNA-SPURIA *Americana arborea villosa, foliis latis mucronatis, siliquis articulatis. Houst.* Hoary American tree-like Bastard-Senna,

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with broad pointed Leaves, and jointed Pods.

7. SENNA-SPURIA *Americana arborea, siliquis compressis angustis longissimis pendulis. Houst.* American tree-like Bastard-Senna, with narrow flat Pods, which are very long, and hang downward.

8. SENNA-SPURIA *Americana tetraphylla herbacea procumbens, siliquis hirsutis. Houst.* American four-leaved herbaceous trailing Bastard-Senna, with hairy Pods.

9. SENNA-SPURIA *Americana, siliqua multiplici, foliis herbæ mimosæ. Houst.* American Bastard-Senna, with many Pods, and Leaves like those of the Sensitive Plant.

10. SENNA-SPURIA *Americana frutescens, mimosæ foliis, flore parvo, siliquis hirsutis, brevissimis pediculis insidentibus. Houst.* Shrubby American Bastard-Senna, with Leaves like those of the Sensitive Plant, a small Flower, and hairy Pods growing on short Footstalks.

11. SENNA-SPURIA *Americana frutescens & procumbens, flore maximo, siliquis glabris. Houst.* Shrubby and trailing American Bastard-Senna, with a large Flower, and smooth Pods.

12. SENNA-SPURIA *Americana minima procumbens, foliorum pinnis subtundis, glabra. Houst.* The least trailing American Bastard-Senna, with roundish Wings to the Leaves, which are smooth.

13. SENNA-SPURIA *Americana, foliis herbæ mimosæ, siliqua singulari, floribus pediculis longioribus insidentibus. Sloan. Hist.* American Bastard-Senna, with Leaves like those of the Sensitive Plant, and a single Pod sustained by a long Foot-stalk.

14. SENNA-SPURIA *frutescens, foliorum pinnis latioribus, caudibus pilosis, siliquis longissimis pediculis insidentibus.*

fiditibus. Houft. Shrubby Bastard-Senna, with broader Wings to the Leaves, an hairy Stalk, and Pods growing on long Footstalks.

15. SENNA-SPURIA *minima procumbens, foliorum pinnis subrotundis, caule pubescente. Houft.* The least trailing Bastard-Senna, with roundish winged Leaves, and a downy Stalk.

These Plants are all of them Natives of the warm Parts of *America*: some of them were discovered in *Jamaica*, and the others were found at *Campechy*, and *La Vera Cruz*, by the late Dr. *William Houftoun*, who sent their Seeds to *England*, where many of the Plants are now growing.

They are propagated by Seeds, which should be sown on an Hot-bed, early in the Spring; when the Plants come up, they must be frequently watered; and if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats every Evening, to keep the Bed in a moderate Temperature of Heat: but in the Day-time, when the Sun shines warm, the Glasses should be raised with Stones, to admit fresh Air to the Plants, which will prevent their drawing up weak. When the Plants are about two Inches high, they should be carefully removed each into a separate small Pot filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun, until they have taken new Root; after which time they must have fresh Air admitted to them every Day, in proportion to the Warmth of the Season; and so long as the Nights continue cold, the Glasses must be every Evening covered with Mats, soon after the Sun is gone off from the Bed. These Plants do most of them

grow in moist Places; wherefore they should be frequently refreshed with Water, and in Summer they must have it given to them plentifully, otherwise they will not thrive.

In about five or six Weeks after planting, if the Plants have thriven well, they will have filled these small Pots with their Roots; therefore they should then be shaken out of the small Pots, and their Roots trimmed; after which they should be planted into larger Pots, and plunged again into the Hot-bed. Such of them as may have grown too tall to remain under the Frames, should be plunged into the Tan-bed in the Stove; but the others may be plunged into the former Hot-bed again, after having stirred up the Tan. As these Plants obtain Strength, they should have a larger Share of fresh Air admitted to them; otherwise they will draw up very weak, and become very tender, and very subject to be infested by Insects; which will render them unsightly, and prevent their Flowering.

The first, second, fourth, fifth, eighth, ninth, twelfth, thirteenth, and fifteenth Sorts frequently flower the first Season; but unless they do this pretty early in *August*, they will not produce ripe Seeds, except they are placed in a warm Stove, and plunged into the Bark-bed; so that where this Conveniency is wanting, they must be raised early in the Spring, and brought as forward as possible in the Spring Season, otherwise good Seeds cannot be obtained in this Country.

The third, sixth, seventh, tenth, eleventh, and fourteenth Sorts are abiding Plants, which grow shrubby; therefore should be inured to bear a large Share of Air, that they may become hardy in Autumn; for their
may

may be placed in the dry Stove in Winter, where, if they are kept moderately warm, they will thrive, and produce their Flowers in plenty. In the Summer Season these Plants may be placed abroad in a warm Situation, where they are secured from strong Winds; but they must be removed into the Stove in September, when the Nights begin to grow cold; otherwise they will lose their Leaves, and become very un-fightly. Most of these produce their Flowers in Winter, which renders them valuable, because in that Season there are not many Plants which make a better Appearance. The seventh Sort will grow to the Height of twelve or fourteen Feet, and will abide many Years. This constantly bears Flowers in the middle of Winter; which being large, and produced in Clusters at the Extremity of the Branches, make a fine Appearance at that Season.

SENNA THE BLADDER; *vide Colutea.*

SENNA THE SCORPION; *vide Emerus.*

SENSIBLE PLANT; *vide Mimosa.*

SERJANIA.

This Name was given to this Genus of Plants by Father Plumier, who discovered them in America, in Honour to the Reverend Father Philip Sergeant, who was of the Order of the Minims, and a Person well versed in the Knowledge of Botany and Physic.

The Characters are;

It hath a rose-shaped Flower, consisting of four or more Leaves, which are plac'd in a circular Order; from whose Flower-cup arises the Pointal, which afterward becomes a Fruit compos'd of three Cells, having three Wings, and each Cell containing one round Seed.

The Species are;

1. SERJANIA *scandens polyphylla* & *racemosa*. Plum. Nov. Gen. Climbing and branching Serjania, with many Leaves.

2. SERJANIA *scandens enneaphylla* & *racemosa*. Plum. Nov. Gen. Climbing and branching Serjania, with nine Leaves.

3. SERJANIA *scandens triphylla* & *racemosa*. Plum. Nov. Gen. Climbing and branching Serjania, with three Leaves.

These Plants were found by the late Dr. William Houstoun, at La Vera Cruz and Compechy; where they grow to a great Height, whenever they grow near large Trees to support them; for they have Tendrils by which they fasten themselves to whatever Trees grow near them.

They may be propagated either by Seeds, or from Layers; for if their Branches are laid in the Ground in the Spring, they will make good Roots before Winter; which may be taken off from the old Plants, and planted into separate Pots.

If they are propagated by Seeds (which must be obtained from the Countries of their natural Growth; for they do not perfect them in England), they must be sown on an Hot-bed early in the Spring; and when the Plants are come up, and are fit to transplant, they should be each put into a separate Pot filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; after which time they should have a large Share of free Air admitted to them every Day, when the Weather is warm, otherwise they will draw up too weak. As these Plants advance, their Branches must be supported by Stakes, to prevent their trailing over

other Plants, which grow near them; and when their Shoots are too tall to remain under the common Frames, they should be shifted into larger Pots, and plunged into the Bark-bed in the Stove; where they must be placed on the Backside, with Grnadillas, and other climbing Plants, which should be supported by an Espalier, on which they will climb to the Top of the Stove, and make a Variety, as their Leaves always remain green.

In the Summer Season, when the Weather is warm, they should have a great Share of free Air admitted to them, by drawing down the Glasses of the Stove every Day; but they are too tender to thrive in the open Air in *England*, even in the middle of Summer; therefore they should be constantly kept in the Stove, where they should have a moderate Degree of Warmth in Winter, in which they will thrive better than in a greater Share of Heat.

SERPYLELLUM, Mother-of-thyme.

The Characters are;

It hath trailing Branches, which are not so woody and hard as those of Thyme; but in every other respect is the same.

The Species are;

1. SERPYLELLUM *vulgare majus*, *flore purpureo*. C. B. P. Greater common Mother-of-thyme, with a purple Flower.

2. SERPYLELLUM *vulgare minus*. C. B. P. Common smaller Mother-of-thyme.

3. SERPYLELLUM *vulgare*, *flore amplo*. *Raii Syn.* Common Mother-of-thyme, with a large Flower.

4. SERPYLELLUM *citratum*. *Ger. Emac.* Lemon-thyme.

5. SERPYLELLUM *odore juglandis*
7. B. Mother-of-thyme smelling like Walnuts.

6. SERPYLELLUM *vulgare birsutum*. *Raii Syn.* Hairy wild Thyme.

7. SERPYLELLUM *latifolium birsutum*. C. B. P. Broad-leaved hairy wild Thyme.

8. SERPYLELLUM *vulgare majus*, *flore albo*. C. B. P. Greater wild Thyme, with a white Flower.

9. SERPYLELLUM *vulgare minus*. *folio ex albo & viridi vario*. H. L. Lesser wild Thyme, with variegated Leaves.

The eight first-mentioned Sorts grow wild upon Heaths, and other large open Places, in divers Parts of *England*, where in the Summer-time, when they are in Flower, they afford an agreeable Prospect, and being trod upon, emit a grateful aromatic Scent. Their common Places of Growth are upon small Hillocks, where the Ground is dry and uncultivated, where, in a short time, they propagate themselves plentifully, both from Seeds, and by their trailing Branches, which take Root at their Joints, and so extend themselves every way.

There are but two of these Species commonly cultivated in Gardens; viz. the Lemon-thyme, and that with striped Leaves; the first for its agreeable Scent, and the other for the Beauty of its variegated Leaves; these were formerly planted to edge Borders; but as they are very apt to spread, and difficult to preserve in Compass, they are disused at present for that Purpose.

All these propagate themselves very fast, by their trailing Branches, which strike out Roots from their Joints into the Earth, and thereby make

make new Plants; so that from a Root of each there may soon be a large Stock increased. They may be transplanted either in Spring or Autumn, and love an open Situation, and a dry undunged Soil, in which they will thrive and flower exceedingly, and continue several Years.

SERRATULA, Saw-wort.

The Characters are;

It hath a flosculous Flower, consisting of several Florets, divided into many Parts resting on the Embryo, and contained in a scaly Empalement, like the greater Centaury, from which this differs in having smaller Heads, and from the Knap-weed in having the Borders of the Leaves cut into small sharp Segments, resembling the Teeth of a Saw.

The Species are;

1. SERRATULA vulgaris, flore purpureo. C. B. P. Common Saw-wort, with a purple Flower.

2. SERRATULA flore candido. C. B. P. Common Saw-wort, with a white Flower.

3. SERRATULA Virginiana, foliis rigidis. Par. Bat. Saw wort of Virginia, with stiff Leaves.

4. SERRATULA præalta altera, angusto plantaginis folio. Bocc. Mus. The tallest Saw-wort, with a narrow Plantain-leaf.

5. SERRATULA præalta centaurides montana Italica. Bocc. Mus. The tallest Saw-wort of the Italian Mountains, resembling Centaury.

6. SERRATULA Noveboracensis altissima, foliis doriæ mollibus subincanis. Par. Bat. The tallest Saw-wort of New-York, with soft Doria-leaves, which are white on the Under-side.

The first and second Sorts are pretty common in the Woods in divers Parts of England, and there-

fore seldom admitted into Gardens; but as they are Plants which will grow in the closest Shade, they may be placed under Trees in large Plantations, where they will thrive and flower extremely well, and add to the Variety. They are easily propagated by parting of their Roots in Autumn, so as they may be well rooted before Spring; otherwise they will not flower very strong the following Season.

The third and sixth Sorts are Natives of North-America, where they are very common in the Woods. These are hardy Kinds, and will endure the Cold of our ordinary Winters very well; but if they are planted in the full Ground, they should have a moist light Soil; otherwise they will perish in dry Weather, unless they are duly watered. The third Sort seldom rises above two Feet high in this Country; tho' the sixth Sort will sometimes grow to the Height of five or six Feet, if it is planted in a moist rich Soil; but this last is very late in flowering, so that if the Season proves cold, it many times will not flower in this Country. These are both abiding Plants, which may be propagated by parting of their Roots; the best Time for which is in the Spring, just before they begin to shoot; for as these continue growing in Autumn, until the Frost puts a Stop to them, it would be dangerous to transplant them in Winter.

The fourth and fifth Sorts grow wild in the mountainous Parts of Italy and Spain, but are hardy enough to resist the Cold of this Climate; wherefore they may be intermixed with the other Sorts, in Woods, or under Plantations of Trees, where they will make an agreeable

agreeable Variety. These Plants may be propagated by Seeds, which should be sown early in the Spring on a Border of fresh Earth; and when the Plants appear, they should be carefully weeded, and in very dry Weather they must be frequently watered; which will bring them forward, so that they will soon be fit to transplant. When they are removed, they must be planted in a shady Border, about six Inches apart, and kept duly watered, until they have taken new Root; after which time they will require no farther Care, but to keep them clear from Weeds till *Michaelmas*, when they should be transplanted where they are designed to remain.

SESAMUM, Oily-grain.

The Characters are;

The Flowers are produced from the Wings of the Leaves, without any Foot stalk; the Flower-cup consists of one Leaf, divided into five long slender Segments; the Flower is of one Leaf, in Shape like those of the Foxglove; the Pointal, which rises in the Middle of the Flower, afterward becomes an oblong four-cornered Pod, divided into four distinct Cells, which are replete with esculent Seeds.

The Species are;

1. SESAMUM. *J. B.* Common Oily-grain.
2. SESAMUM *alterum, foliis trifidis, orientale, semine obscuro. Pluk. Phyt.* Another Eastern Oily-grain, with trifid Leaves, and dark-coloured Seeds.
3. SESAMUM *orientale trifidum, flore niveo. Hort. Compt.* Eastern Oily-grain, with trifid Leaves, and white Flowers.

These three Sorts are often promiscuously cultivated in the Fields of Syria, Egypt, Candia, &c. where

the Inhabitants use the Seeds for Food; and of late Years these Plants have been introduced in *Carolina*, where they succeed extremely well. The Inhabitants of that Country make an Oil from the Seed, which will keep many Years, and not take any rancid Smell or Taste, but in two Years becomes quite mild; so that when the warm Taste of the Seed, which is in the Oil when first drawn, is worn off, they use it as Sallad-oil, and for all the Purposes of Sweet-oil.

In *England* these Plants are preserved in Botanic Gardens, as Curiosities: their Seeds must be sown in the Spring upon a Hot-bed, and when the Plants are come up, they must be transplanted into a fresh Hot-bed to bring them forward; after they have acquired a tolerable Degree of Strength, they should be planted into Pots filled with rich light sandy Soil, and plunged into another Hot-bed, managing them as hath been directed for *Amaranthus's*, to which I shall refer the Reader, to avoid Repetition. For if these Plants are not brought forward thus in the former Part of the Summer, they will not produce good Seeds in this Country; though after they have flowered, if the Season is favourable, they may be exposed in a warm Situation with other annual Plants. When these Plants have perfected their Seeds, they decay, and never continue longer than one Season.

The Seed of the first Sort is mentioned in the List of *Official Simples* in the *College Dispensatory*, but is rarely used in Medicine in *England*. From nine Pounds of this Seed, which came from *Carolina*, there were upwards of two

Quarts

Quarts of Oil produced, which is as great a Quantity as hath been known to be drawn from any Vegetable whatever; and this, I suppose, might occasion its being called *Oily grain*.

SESELI, Wild-spignel.

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves placed in a Circle, and resting on the Empalement, which afterward becomes a Fruit, composed of two long Seeds, which are chaneled. To these Notes must be added, That the Leaves are broader and shorter than those of Fenel.

The Species are;

1. SESELI *perenne, folio glauco breviori.* Vaill. Perennial Wild-spignel, with a shorter Sea-green-leaf.

2. SESELI *perenne, folio glauco longiori.* Vaill. Perennial Wild-spignel, with a longer Sea-green-leaf.

3. SESELI *quæ ferule facie, Thapsia sive Turbith Gallorum.* J. B. Boerb. Ind. alt. Wild-spignel, with the Face of Giant-fenel, supposed to be the Turbith of the Gauls.

4. SESELI, *quæ Saxifraga Panonica.* Clus. Hist. Boerb. Ind. alt. Wild-spignel, or the Portugal Saxifrage of Clusius.

The three first Sorts are abiding Plants, whose Roots will continue several Years; but the fourth Sort is a biennial Plant, which perishes soon after it has perfected its Seeds.

SHERARDIA.

This Name was given to this Genus of Plants by Mr. Vaillant, who was Professor of Botany at Paris, in Honour to Dr. William Sherard, who was the most famous Botanist of the Age.

The Characters are;

It hath a labiated Flower consisting of one Leaf, which is divided into five Parts at the Brim; the upper Lip being divided into two, and the under Lip into three Parts: the Ovary, which is at the Bottom of the Flower-cup, afterward becomes a dry Capsule, containing two oblong Seeds. To these Notes may be added, That the Leaves grow opposite by Pairs.

The Species are;

1. SHERARDIA *repens nodiflora.* Vaill. Nov. Gen. Creeping Sherardia, with Flowers growing in round Heads.

2. SHERARDIA *repens, folio subrotundo crasso, nodiflora.* Vaill. Nov. Gen. Creeping Sherardia, with a roundish thick Leaf, and Flowers collected in round Heads.

3. SHERARDIA *incana nodiflora.* Vaill. Nov. Gen. Hoary Sherardia, with Flowers collected into round Heads.

4. SHERARDIA *nodiflora, stæchadis serrati folio.* Vaill. Nov. Gen. Round-flowering Sherardia, with a Leaf like the sawed-leaved Stæchas.

5. SHERARDIA *ocymi folio lanuginoso, flore purpureo.* Vaill. Nov. Gen. Woolly Sherardia, with a Basil-leaf, and a purple Flower.

6. SHERARDIA *teucrii folio, flore purpureo.* Vaill. Nov. Gen. Sherardia with a Tree-germander-leaf, and a purple Flower.

7. SHERARDIA *frutescens, teucrii folio, flore cæruleo purpurascente amplissimo.* Vaill. Nov. Gen. Shrubby Sherardia, with a Tree-germander-leaf, and a large purplish blue Flower.

8. SHERARDIA *teucrii folio, flore coccineo.* Vaill. Nov. Gen. Sherardia with

with a Tree-germander-leaf, and a scarlet Flower.

9. *SHERARDIA spicata, folio angusto serrato, flore cœruleo.* *Houft.* Spiked Sherardia, with a narrow sawed Leaf, and a blue Flower.

10. *SHERARDIA spicata, flore purpureo, seminibus majoribus, longioribus & laxius digestis.* *Houft.* Spiked Sherardia, with a purple Flower, and larger longer Seeds, which are loosely disposed in the Spike.

11. *SHERARDIA verbenæ folio subrotundo crasso, floribus cœruleis, spica longissima & crassissima.* *Houft.* Sherardia with a thick roundish Verbain-leaf, and blue Flowers, growing in a very long thick Spike.

12. *SHERARDIA foliis oblongis serratis, flore cœruleo, spica longissima.* *Houft.* Sherardia with oblong sawed Leaves, a blue Flower, and a very long Spike.

13. *SHERARDIA arborescens nodiflora, foliis rugosis & serratis, flore purpureo.* *Houft.* Tree-like Sherardia, with rough sawed Leaves, and purple Flowers growing in a round Head.

The first of these Plants, being a Native of *Europe*, will thrive in the open Air in this Country. The Seeds of this Kind should be sown in the Spring, on a Bed of light fresh Earth, in a warm Situation, and where the Plants are designed to remain (for they do not bear transplanting very well). When the Plants are come up, they should be thinned so as to leave them a Foot asunder; and if they are kept clear from Weeds, they will require no farther Care. The Branches of this Plant trail on the Ground, and send forth Roots from their Joints, whereby they may be propagated; but if they are not confined, they will not produce many Flowers.

All the other Sorts, being Natives of the warm Parts of *America*, are too tender to thrive in the open Air in *England*; but as most of them are annual, they may be raised by sowing of their Seeds on an Hot-bed; and if the Plants are brought forward early in the Spring, they will flower, and produce ripe Seeds, before Winter.

The second Sort was found by *Dr. William Houstoun*, growing plentifully in *Jamaica*. This Plant trails its Branches on the Ground, and emits Roots from the Joint, as the former Sort; but doth not produce many Flowers.

The fourth Sort was found in great Plenty at *La Vera Cruz*, by *Dr. Houstoun*, as were the ninth, tenth, eleventh, twelfth, and thirteenth Sorts, at *Campechy*, by the same Gentleman.

The third, fifth, and sixth Sorts, grow plentifully in *Jamaica*, and several other Places in the *West-Indies*, from whence I have received their Seeds.

The seventh Sort is a very specious Plant, which merits a Place in every good Collection of Plants. This produces long Spikes of large blue Flowers, which continue a long time, and make a fine Appearance. It is also an annual Plant, notwithstanding it has the Epithet of Shrubby given to it; for it always flowers the same Summer it is raised: but if it is not brought forward early in the Spring, and constantly kept in the Stove or Glas-case, it will not perfect Seeds in this Country. The Seeds of this Kind were sent to *England* by *Mr. Robert Millar*, Surgeon, who gathered them near *Panama*.

The thirteenth Sort rises to be nine or ten Feet high, and hath a woody Stem. This will abide many Years,

Years, provided it is preserved in a Stove in Winter. During the Summer Season, this Sort may be placed in the open Air in a warm Situation, and in hot Weather must be frequently watered; but in Autumn, when the Nights grow cold, the Plants must be removed into the Stove, and in Winter they should have a moderate Share of Heat; with which Management the Plants will thrive very well.

All these Plants are propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when they are come up, they should be each transplanted into a separate small Pot filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun every Day, until they have taken new Root; after which time they should have a large Share of free Air admitted to them in warm Weather, and they must be frequently watered. When the Plants have filled these Pots with their Roots, they must be shifted into larger Pots; and if there is Room for the Plants to grow under the Glasses of the Hot-bed, without being scorched by the Sun, they should be plunged into the same Bed again; but if there is not Room, they must be placed in the Stove, where they may have Room to grow in Height. In July those Sorts which are annual, will begin to flower, and their Seeds will ripen the Beginning of September.

SICYOIDES, Single-seeded Cucumber.

The Characters are;

It hath an expanded bell-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim; of these Flowers, some are

male, which adhere to no Embryo; and others are female, which rest on the young Fruit, which is afterwards enlarged to the Size of an Almond-Kernel, and is flat and prickly, containing one Seed of the same Shape.

The Species are;

1. **SICYOIDES Americana**, *fructu echinato, foliis angulatis*. *Inst. R. H. American Sicyoides*, with a prickly Fruit, and angular Leaves.

2. **SICYOIDES Americana**, *fructu echinato, foliis laciniatis*. *Plum. American Sicyoides*, with a prickly Fruit, and jagged Leaves.

These Plants are preserved in some curious Gardens, for the sake of Variety; but as they have little Beauty, and are not useful, they are not much cultivated in England. They are both annual Plants, which may be propagated by sowing of their Seeds in the Beginning of April, on a Border of fresh Earth, in the Place where they are designed to remain; and in about a Fortnight's time the Plants will appear; which at first are very like Cucumber-plants, and, as they grow, will trail on the Ground, and fasten themselves to whatever Plants grow near them, by their Tendrils; so that they should be either sown near an Hedge, where they may climb up, or be allowed a considerable Share of Room, otherwise they will run over the Plants which are near them. When they are come up, they will require no farther Care, but to keep them clear from Weeds, and to thin them where they grow too close together. In June they will produce their Flowers, and in August the Seeds will ripen, which, if permitted to scatter, will produce a Supply of young Plants the following Spring, without any Care.

SIDERITIS,

SIDERITIS, Iron-wort.

The Characters are;

It is a Plant with a labiated Flower, consisting of one Leaf, whose Upper-lip, or Crest, is upright; but the Under-lip, or Beard, is divided into three Parts; out of the Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which afterward turn to so many oblong Seeds, shut up in an Husk, which before was the Flower-cup: to these Marks must be added, The Flowers growing in Whorles at the Wings of the Leaves, which are cut like a Crest, and differ from the other Leaves of the Plant.

The Species are;

1. SIDERITIS *hirsuta procumbens*. C. B. P. Hairy trailing Iron-wort.
2. SIDERITIS *Alpina hyssopifolia*. C. B. P. Hyssop-leaved Iron-wort of the Alps.
3. SIDERITIS *orientalis, phlomidis folio*. T. Cor. Eastern Iron-wort, with a Phlomis-leaf.
4. SIDERITIS *Anglica, strumosa radice*. Park. Theat. English Iron-wort, with a strumose Root, commonly called Clowns All-heal.
5. SIDERITIS *arvensis rubra*. Park. Theat. Narrow-leaved All-heal or Iron-wort.
6. SIDERITIS *foliis hirsutis, profunde crenatis*. C. B. P. Iron-wort or All-heal, with hairy crenated Leaves.
7. SIDERITIS *Hispanica erecta, folio angustiore*. Inst. R. H. Upright Spanish All-heal, with a narrow Leaf.
8. SIDERITIS *Hispanica crenata procumbens, flore albo, major*. Inst. R. H. Greater trailing Spanish All-heal, with a white Flower.
9. SIDERITIS *Hispanica bituminosa angustifolia crenata*. Inst. R. H. Spanish All-heal, with a bituminous Scent, and a narrow crenated Leaf.

10. SIDERITIS *Hispanica foetidissima glabra, flore purpurascens, & coma canescente*. Inst. R. H. Spanish stinking smooth All-heal, with a purplish Flower, and whitish Tops.

11. SIDERITIS *Hispanica frutescens, seu lignosior*. Inst. R. H. Shrubby or more woody Spanish All-heal.

12. SIDERITIS *Pyrenaica hyssopifolia minima procumbens*. Inst. R. H. The least trailing hyssop-leaved All-heal of the Pyrenees.

13. SIDERITIS *montana, trifido folio*. Barrel. Icon. Mountain All-heal, with a trifid Leaf.

14. SIDERITIS *Cretica maxima, ocymastri valentini facie*. Tourn. Cor. The greatest All-heal of Candy, with the Face of *Ocymastrum Valentinum*.

15. SIDERITIS *Cretica tomentosa candidissima, flore luteo*. Tourn. Cor. The whitest woolly All-heal of Candy, with a yellow Flower.

The two Sorts first-mentioned may be propagated by sowing their Seeds in the Spring, upon a Bed of fresh light Earth; and when the Plants are come up, they may be transplanted out into other Beds, allowing them a Foot Distance from each other, observing to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds: the second Year they will produce Flowers and Seeds, and will perish soon after.

The third Sort will continue three or four Years, and will endure the Cold of our ordinary Winters very well, if it is planted in a dry Soil: but this Sort will not perfect its Seeds, unless the Summer proves warm.

The fourth Sort here mentioned grows plentifully by the Sides of Ditches, and in other moist Places,

in divers Parts of *England*; but is very rarely introduced into Gardens, because it is a very bad Weed, wherever it once gets Place; for the Roots creep very far under-ground, and will soon over-run a large Spot of Ground, if they are not confined. This Plant received the Name of *Clowns All-heal*, from Mr. *Gerard*, who was looking for Herbs in *Kent*, where he saw a Man who had cut his Leg to the Bone with a Sieth, as he was mowing the Grass, to whom he offered his Assistance to cure the Wound; which the Countryman churlishly refusing, crept to the Ditch-side, where there was plenty of this Plant growing; some of which he gathered and bruised, and applied it to the Wound, tying it close with his Handkerchief, which in few Days healed the Wound, without any other Application; for which Reason *Gerard* has recorded the Story in his *Herbal*, for the Benefit of Mankind.

The fifth Sort is also a Native of *England*, and grows amongst the Corn, or other Crops, on arable Land. This is an annual Plant, which perishes soon after it has ripened Seeds.

The other Sorts are most of them biennial Plants, which commonly perfect their Seeds the second Summer, and seldom continue much longer. These may be all propagated by Seeds, which should be sown in Autumn, soon after they are ripe; for when they are kept out of the Ground till Spring, they very often fail. These Seeds should be sown on a Bed of fresh undunged Earth, in an open Situation; and when the Plants come up, they should be thinned where they grow too close; and if they are kept clear from Weeds, it is all the Culture they require. If, when these Plants

are established in a Garden, their Seeds are permitted to scatter, the Plants will come up, and maintain their Place, provided they are not overborn by large Weeds.

All the Sorts of All-heal are supposed to have an astringent Quality, and are accounted good to heal Wounds, and may be applied either inwardly or outwardly.

SILAUM, Meadow-Saxifrage,

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves placed circularly, and resting upon the Empalement, which afterward becomes a Fruit composed of two short channelled Seeds: to which Notes must be added, That the Leaves are very narrow, and the Flowers are of a pale-yellow Colour.

The Species are;

1. SILAUM *quibusdam, flore luteo*. J. B. Common Meadow-Saxifrage.

2. SILAUM *quod Ligusticum, ferulæ folio*. Inf. R. H. Boerb. Ind. alt. Saxifrage with the Leaf of Giant-fenel.

3. SILAUM *quod Ligusticum Cre-ticum, folio fœniculi, caule nodoso*. Tourn. Cor. Boerb. Ind. Candy Meadow-Saxifrage, with a Fenel-leaf, and a knobby Stalk.

4. SILAUM *quod Ligusticum, cicutaæ folio, glabrum*. Tourn. Boerb. Ind. alt. Meadow-Saxifrage, with a smooth Hemlock-leaf.

The first Sort is directed by the College of Physicians to be used in Medicine: this grows wild in Meadows, and other moist Pastures, in divers Parts of *England*; but the other Sorts, being not Natives of this Country, are only to be met with in Botanic Gardens, where they are preserved for the sake of Variety.

All these Sorts are propagated by Seeds, which may be sown in Autumn on a Border of fresh Earth in a shady Situation; and when the Plants are come up, they will require no farther Care, but to keep them clear from Weeds, and, where they grow too close, to thin them, so as to leave them about eight or ten Inches asunder; which may be done by hoeing of them in the same manner as is practised for Carrots. These Plants will flower and seed the second Summer, and the Roots of the three first Sorts will abide some Years; but the fourth Sort commonly perishes soon after it has produced Seed.

SILER, *Seseli* or Sermountain.

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves, which are ranged orbicularly, and rest on the Empalement, which becomes a Fruit composed of two large oblong furrowed Seeds, having foliaceous Ridges on one Side. To these Notes may be added, That the Lobes of the Leaves are large, long, and intire, excepting their Extremity, where they are slightly cut into three Parts.

The Species are;

1. SILER *montanum majus*. Mor. Umb. Greater Sermountain.
2. SILER *montanum angustifolium*. Park. Narrow-leaved Sermountain.

The first Sort is used in Medicine by the Direction of the College of Physicians. The Seeds of this Sort are the *Semen Seselios* of the Shops, which enters in Compositions; and the green Herb also is used, for which some of the People who supply the Shops, often impose on their Customers the mountain Oser; which, by translating *Siler* an Oser, may afford them some Pretence.

The second Sort differs from the

first, in being somewhat less, and having narrow Leaves: this is found wild in *Austria*, and the former Sort grows on the *Alps* and *Apennines*, and other mountainous Parts of *Italy* and *Spain*.

These Plants may be propagated by Seeds, which should be sown in Autumn (soon after they are ripe) in a Border of fresh undunged Earth; and in the Spring, when the Plants will appear, they should be kept constantly clear from Weeds, and in very dry Weather should be watered, which will greatly promote their Growth. Where the Plants come up too close together, they should be thinned so as to leave them three or four Inches apart, which will be sufficient Room for them the first Season; and at *Michaelmas*, when their Leaves decay, some of the Plants may be carefully taken up, so as not to cut or break their Roots, and transplanted into a moist shady Border, about eighteen Inches asunder, where they may remain for good. If these Plants thrive well, they will produce Seeds the second Season, otherwise it will be the third Summer before they flower and seed; after which the Roots will abide many Years, and increase greatly in their Size, and will produce Seeds every Year.

The Culture which these Plants require, is only to keep them clear from Weeds, and every Spring, just before they put out their Leaves, to dig the Ground between them gently, so as not to injure their Roots; and when their Flower-stems are advanced, to place some Sticks down by them, to which their Stems should be fastened with Bafs, to support them from being broken down by Winds; for, as these Stems rise to the Height of four or five Feet, so when their Umbels of Seeds are

formed, which are generally pretty large and heavy, they often occasion their Stems falling to the Ground, where they are not supported.

These Plants flower the Latter-end of *June*, and their Seeds ripen toward the Latter-end of *August*, or the Beginning of *September*.

SILIQUA, Carob, or St. John's-bread.

The Characters are ;

It hath an apetalous Flower, having many Stamina, which grow from the Divisions of the Flower-cup ; in the Centre of which rises the Pointal, which afterward becomes a Fruit or Pod, which is plain and fleshy, containing several roundish plain Seeds.

We have but one Species of this Plant in *England* ; viz.

SILIQUA edulis. C. B. P. The Carob, or St. John's-bread ; *culgo*.

This Tree is very common in *Spain*, and in some Parts of *Italy*, as also in the *Levant*, where it grows in the Hedges, and produces a great Quantity of long flat brown-coloured Pods, which are thick, mealy, and of a sweetish Taste : these Pods are many times eaten by the poorer Sort of Inhabitants, when they have a Scarcity of other Food ; but they are apt to loosen the Belly, and cause Gripings of the Bowels. These Pods are directed by the College of Physicians to enter some Medicinal Preparations ; for which Purpose they are often brought from abroad.

In *England* the Tree is preserved by such as delight in Exotic Plants, as a Curiosity : the Leaves always continue green, and being different in Shape from most other Plants, afford an agreeable Variety, when intermixed with Oranges, Myrtles, &c. in the Green-house.

These Plants are propagated from Seeds, which, when brought over fresh in the Pods, should be sown

in the Spring upon a moderate Hot bed ; and when the Plants are come up, they should be carefully transplanted, each into a separate small Pot filled with light rich Earth, and plunged into another moderate Hot-bed, observing to water and shade them until they have taken Root ; after which you must let them have Air in proportion to the Heat of the Weather. In *June* you must inure them to the open Air by degrees, and in *July* they should be removed out of the Hot-bed, and placed in a warm Situation, where they may remain until the Beginning of *October*, when they should be removed into the Green-house, placing them where they may have free Air in mild Weather ; for they are pretty hardy, and will require only to be sheltered from hard Frosts. When the Plants have remained in Pots three or four Years, and have gotten Strength, some of them may be turned out of the Pots in the Spring, and planted into the full Ground, in a warm Situation, where they will endure the Cold of our ordinary Winters very well ; but must be allowed some Shelter in very hard Weather.

I have not as yet seen any of these Trees produce Flowers, tho' from some which have been planted some time against Walls, it is probable there may be Flowers and Fruit in a few Years.

SILIQUASTRUM, The Judas-tree.

The Characters are ;

It hath a papilionaceous Flower, whose Wings are placed above the Standard ; the Keel is composed of two Petals ; the Pointal, which rises in the Centre of the Flower-cup, and is encompassed with the Stamina, afterward becomes a long flat Pod, containing several kidney-shaped Seeds : to which may be added, Roundish Leaves

Leaves growing alternately on the Branches.

The Species are;

1. SILIQUASTRUM. *Cast. Durant.*
The Judas-tree; *vulgo.*

2. SILIQUASTRUM *Canadense.*
Tourn. Canada Judas-tree.

3. SILIQUASTRUM *quæ Ceracia*
agrestis, mucronato folio, floribus
parvis, Caroliniana. Pluk. Alm.
Carolina Judas-tree, with pointed
Leaves.

The first of these Trees is very common in the South Parts of *France, Italy, and Spain*, from whence it was formerly brought into *England*, and preserved as a Curiosity in Green-houses; but of late Years they have been transplanted into the open Air, where they thrive very well, and produce great Quantities of beautiful Flowers in the Spring, and in favourable Seasons will perfect their Seeds extremely well.

The second Sort is very common in *Virginia, New-England, Canada*, and most of the Northern Countries of *America*, where it is called *Red-bud*; which Name, I suppose, it received from the beautiful Colour of its Flower-buds, which, when fully expanded, are of a soft-purple Colour. These Flowers are produced in large Clusters from the old Wood of the Tree; and being opened before the green Leaves come out, they make a beautiful Appearance, especially when the Trees are old, and productive of Flowers; when many times the large Branches of the Tree are intirely covered with these beautiful Flowers, so as to afford as great Pleasure as any Sort of flowering Tree whatever. These Flowers are commonly gathered in *America*, and put into their Sallads, to which they add a quick, poignant, agreeable Flavour; and in *Eng-*

land they are by some curious Persons used for the same Purpose.

The third Sort was brought from *Carolina*, where it grows in the Woods in great Plenty. This differs greatly in the Shape of its Leaves from the other two Sorts, and the Flowers are much smaller. At present this is less common in the *English* Gardens, and will not endure the Cold of our Climate so well, being subject to have the young Shoots destroyed in very hard Winters; and if the Plants are young, sometimes they will die to the Ground.

These Plants may be propagated by sowing their Seed upon a Bed of light Earth towards the Latter-end of *March*, or the Beginning of *April*; and if you put a little hot Dung under the Bed, it will greatly facilitate the Growth of the Seeds: when your Seeds are sown, you should sift the Earth over them about half an Inch thick; and if the Season prove wet, it will be proper to cover the Bed with Mats, to preserve it from great Rains, which will burst the Seeds, and cause them to rot.

When the Plants are come up, they should be carefully cleared from Weeds, and in very dry Weather must be now-and-then refreshed with Water, which will greatly promote their Growth. The Winter following, if the Weather be very cold, it will be proper to shelter the Plants, by covering them either with Mats, or dry Straw, in hard Frosts; but they should constantly be opened in mild Weather, otherwise they will grow mouldy, and decay.

About the Beginning of *April* you should prepare a Spot of good fresh Ground, to transplant these out; for the best Season to remove them is just before they begin to shoot; then

then you should carefully take up the Plants, being mindful not to break their Roots, and plant them in the fresh Ground as soon as possible; because if their Roots are dried by the Air, it will greatly prejudice them.

The Distance these should be planted must be proportionable to the Time they are to remain before they are again transplanted; but commonly they are planted two Feet Row from Row, and a Foot asunder in the Rows, which is full room enough for them to grow two or three Years, by which time they should be transplanted where they are designed to remain; for, if they are too old when removed, they seldom succeed so well as younger Plants.

The Ground between the Plants should be carefully kept clean from Weeds in Summer, and in the Spring should be well dug to loosen the Earth, that their Roots may better extend themselves every way: you should also at that Season prune off all strong Side-branches (especially if you intend to train them up for Standard-trees) that their Top-branches may not be checked by their Side-shoots, which will often attract the greatest Part of the Nourishment from their Roots; and if their Stems are crooked, you must place a strong Stake down by the Side of each Plant, and fasten the Stem to it in several Places, so as to render it straight; which Direction it will soon take as it grows larger, and thereby the Plants will be rendered beautiful.

When they have remained in this Nursery three or four Years, they should be transplanted in the Spring where they are designed to remain, which may be in Wilderness-quarters among other flowering Trees,

observing to place them with Trees of the same Growth, so as they may not be over-hung, which is a great Prejudice to most Sorts of Plants.

The usual Height to which these Trees grow with us, is from twelve to twenty Feet, according to the Goodness of the Soil; tho' I never remember to have seen any of them exceed that Growth, where they have enjoyed the greatest Advantages; nor do I believe the Carolina Sort will arrive to near that Height.

SINAPI, Mustard.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross, out of whose Flower-cup rises the Pointal, which afterward becomes a Fruit or Pod, divided into two Cells by an intermediate Partition, to which the Valves adhere on both Sides, and are filled with roundish Seeds; these Pods generally end in a fungous Horn, containing the like Seeds: to these Marks must be added, An acrid burning Taste peculiar to Mustard.

The Species are;

1. SINAPI *siliqua latiuscula glabra, semine rufo, sine vulgare.* J. B. Common or Red Mustard.
2. SINAPI *hortensc, semine albo.* C. B. P. Garden or White Mustard.
3. SINAPI *Indicum, lactucae folio.* Par. Bat. Indian Mustard, with a Lettuce-leaf.

There are several other Species of this Plant, which are preserved in curious Botanic Gardens for Variety; but as they are not in Use, nor have any thing valuable to recommend them, I shall not enumerate them here.

The first Sort is very common in the Isle of Ely in Cambridgeshire, and in many other Places where the Land has been flooded with Water for

for many Years; but upon being drained, this Plant comes up in a most plenteous manner, which has given Occasion for some Persons to imagine, that it was produced spontaneously without Seeds; but the contrary of this has been fully proved by several learned Gentlemen, and therefore would be needless to repeat here; for the Reason why these Seeds remain good for so many Years, when covered with Water, is, because they abound with so sharp an Oil, that it prevents the Water from pervading its Body, and being kept from the Air, is preserved from Corruption.

This Sort is also cultivated in Gardens and Fields, in divers Parts of *England*, for the sake of its Seeds. The Method of cultivating this Plant is to sow the Seeds upon an open Spot of Ground, which hath been well dug or ploughed, in the Spring; and when the Plants are come up, they should be hoed, in order to destroy the Weeds, as also to cut out the Plants where they are too thick, leaving them about ten Inches asunder; for when they are left too thick, they draw up weak, and the Seeds are never so large and well nourished; and if the Weeds should grow again before the Plants have gotten strength enough to bear them down, they must be hoed a second time; after which they will require no farther Care until the Seeds are ripe, when the Haulm should be cut down, and spread upon the Ground to dry, and then the Seeds may be threshed out.

The second Sort is chiefly cultivated in Gardens for a Sallad-herb in the Winter-season. The Seeds of this are commonly sown very thick in Drills, either upon a warm Border, or in very cold Weather upon an Hot-bed with Cresses, and other

small Sallad-herbs, which are commonly fit for Use in three Weeks or a Month from sowing; for if they are large, they are too strong to put into Sallads. In order to save the Seeds of this Plant, a Spot of Ground must be sown with it in the Spring, which should be managed in the same manner as the former.

The third Sort may also be used in Sallads when it is very young, at which time it has no disagreeable Taste; but as it grows large, its Strength increases, and a certain Bitterness, which renders it very disagreeable. This is very hardy, and when allowed sufficient room, will spread very far, and produce large Leaves.

The Seeds of the two first *Species* are ordered for Medicinal Use; but the third Sort is seldom cultivated for Use in *England*.

SINAPISTRUM.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross, but are erected; under these Petals are placed six Stamina, which occupy the under Part of the Flower; out of whose Flower-cup rises the Pointal, which afterward becomes a cylindrical Pod, with two Valves, and filled with roundish Seeds.

The Species are;

1. SINAPISTRUM *Indicum pentaphyllum, flore carneo, minus, non spinosum. H. L. Indian five-leaved Sinapistrum, with a flesh-coloured Flower, and not prickly.*

2. SINAPISTRUM *Ægyptiacum heptaphyllum, flore carneo, majus spinosum. H. L. Greater prickly seven-leaved Egyptian Sinapistrum, with a flesh-coloured Flower.*

3. SINAPISTRUM *Zeylanicum, triphyllum & pentaphyllum, viscosum, flore flavo. Boerb. Three and five-leaved*

leaved viscous *Sinapistrum*, from *Ceylon*, with a yellow Flower.

The first and second Sorts are very common in *Jamaica*, *Barbados*, and other warm Countries in the *West-Indies*; but the third Sort I received from *Dr. Boerhaave*, who had it from *Ceylon*, with many other curious Seeds.

These Plants are preserved as *Curiosities*, by those who delight in Botanic Studies; but as they are not very beautiful, nor of any great Use, they are rarely cultivated in other Gardens. They are all annual Plants, which perish soon after their Seeds are ripe; and in *England* must be raised in an Hot-bed in the Spring; and when the Plants have acquired Strength, they should be planted into Pots, and managed as hath been directed for the *Female Balsamines*, to which Article the Reader is desired to turn, to avoid Repetition. In *July* these Plants may be placed in the open Air, at which time they will flower; and in *September* their Seeds will ripen, when they should be gathered, and preserved in their Pods until the Season for sowing them.

SISARUM, Skirret.

The Characters are;

It produces its Flowers in an Umbel, which consist of several Leaves, placed circularly, and expand in form of a Rose; the Empalement afterwards becomes a Fruit, composed of two narrow Seeds, that are gibbons and furrowed on one Side, but plain on the other: to these Marks must be added, That the Roots are shaped like long Turneps, and are joined to one Head.

We have but one Species of this Plant; *viz.*

SISARUM Germanorum. C. B. P. Skirrets.

This is one of the wholesomest and

most nourishing Roots that is cultivated in Gardens, and yet it is at present very rare to meet with in the Gardens near *London*. What may have been the Cause of its not being more commonly cultivated, I cannot imagine, since there are many Kitchen-gardens, which are proper for this Plant.

It may be propagated two ways; *viz.* either by sowing the Seeds, or planting the Slips: the former Method is what I would chiefly recommend, because the Roots which come from Seeds are much larger than those produced from Off-sets, and are much tenderer. The Season for sowing the Seed is in the Latter-end of *February*, and upon a moist rich Soil, which should be well dug and loosened, and being laid level, the Seeds should be sown thereon, and then trod in, after the common Method of sowing Radishes, raking the Ground over them smooth.

In *April* the Plants will come up, at which time the Ground should be hoed over (as is practised for Carrots) to destroy the Weeds, and to cut out the Plants where they are too close, leaving them at the first Hoeing about three Inches asunder; but at the second Hoeing, which should be performed about a Month after the first, they should be cut out to six Inches apart at least, observing to cut down all the Weeds; and, during the Summer-season, the Weeds should be diligently hoed down as fast as they are produced; for, if these Plants are stifled by Weeds, &c. they seldom come to good.

When their Leaves are decayed, their Roots may be taken up for Use; but this should be done only as they are wanted; for, if they are kept long above-ground, they will

Be good for little. The Leaves commonly decay in *October*, so that from that time till the Middle of *March*, when they begin to shoot again, they are in Season; but after they have shot forth green Leaves, the Roots become sticky, and are not so good.

The Method of propagating this Plant from Off-sets, is as follows: About the Latter-end of *February*, or Beginning of *March*, you should dig a moist rich Spot of Ground, in Size proportionable to the Quantity of Plants intended; then you should carefully dig up the old Roots, from which you should slip off all the Off-sets, preserving their Buds on the Crown of each intire: after this you should open a Drill cross the Spot of Ground with a Spade, in a strait Line, about eight or nine Inches deep, into which you should place the Off-sets, about six Inches apart, as upright as possible; then fill the Drill up again with the Earth which came out of it; and at a Foot Distance from the first make another Trench, laying the Off-sets therein, as before; and so continue the Drills at a Foot Distance, through the whole Spot of Ground; and if the Season should prove very dry, it will be proper to water them until they have taken Root in the Ground; after which they will require no other Care, but to keep the Weeds constantly destroyed as they are produced, in the manner before directed for the seedling Plants; and when their Leaves decay, they will be fit for Use, as before; but after any of these Roots have seeded, they are sticky, and good for nothing, so that they could never be more than one Year old.

SISYMBRIUM, Water-creffes.

The Characters are;

It hath a Flower composed of four

Leaves, which are placed in form of a Cross, out of whose Empalement rises the Pointal, which afterward becomes a Fruit or Pod, which is divided into two Cells by an intermediate Partition, to which the Valves adhere on both Sides, and furnished with Seeds which are roundish: to these Marks must be added, That the whole Appearance of the Plants is peculiar to the Species of this Genus.

The Species are;

1. **SISYMBRIUM aquaticum**. *Matth.* Common Water-creffes.
2. **SISYMBRIUM aquaticum, foliis minoribus, præcocius**. *Raii Syn.* Early-flowering Water-creffes, with smaller Leaves.
3. **SISYMBRIUM aquaticum, raphani folio, filiqua breviori**. *Inst. R. H.* Water-radish.
4. **SISYMBRIUM aquaticum, foliis in profundas laciniâs divisis, filiqua breviori**. *Inst. R. H.* Water-radish with deeply jagged Leaves.
5. **SISYMBRIUM palustre repens, nasturtii folio**. *Inst. R. H.* Water-rocket.
6. **SISYMBRIUM palustre minus, filiqua aspera**. *Inst. R. H.* The lesser Marsh-rocket, with a rough Pod.
7. **SISYMBRIUM erucæ folio glabro, flore luteo**. *Inst. R. H.* Common Winter-creffes.
8. **SISYMBRIUM erucæ folio glabro, flore pleno**. *Inst. R. H.* Winter-creffes with a double Flower.
9. **SISYMBRIUM erucæ folio glabro, minus & præcocius**. *Inst. R. H.* Small early-flowering Winter-rocket.
10. **SISYMBRIUM erucæ folio aspero, flore luteo**. *Inst. R. H.* Winter-creffes with a rough Rocket-leaf, and yellow Flower.

The first and second Sorts of Water-creffes grow promiscuously in standing Waters in most Parts of England, and are indifferently gathered

thered for Use. These Plants have of late Years been generally used as Sallet-herbs in the Spring of the Year, and are by many People preferred to all other Sorts of Sallets for their agreeable warm bitter Taste; and being accounted an excellent Remedy for the Scurvy, and to cleanse the Blood, as also a good Diuretic, they have greatly obtained with most People. These are generally gathered in the Ditches, and in other standing Waters near London, to supply the Markets; but whoever hath a mind to cultivate them, may easily do it by taking some of the Plants from the Places of their natural Growth, early in the Spring, being careful to preserve their Roots as intire as possible, and plant them into Mud, and then let the Water in upon them by degrees. When they have taken Root, they will soon flourish, and spread over a large Compass of Water: they should not be cut the first Season, but suffered to run to Seed, which will fall into the Water, and furnish a sufficient Supply of Plants afterward.

But where the Water is so deep, that it will not be easy to plant these Kinds, the best Method will be to get a Quantity of the Plants, just as their Seeds are ripening, and throw them on the Surface of the Water, where they are designed to grow; and their Seeds will ripen, and fall to the Bottom, where they will take Root, and produce a Supply of the Plants. These produce Seed the Latter-end of June, or the Beginning of July, which is the proper time for this Work.

The third, fourth, fifth, and sixth Sorts are Water-plants, which grow in standing Waters, and are not admitted into Gardens, except for the sake of Variety.

The seventh and ninth Sorts grow wild on dry Banks in several Parts of England: these were formerly used as a Winter Sallet; but since there has been a great Number of other Herbs introduced into the English Gardens, they have been intirely rejected. These may be propagated by Seeds, which should be sown soon after they are ripe; and when the Plants are come up, they should be hoed, to separate them where they are too close, as also to destroy the Weeds, which is all the Culture they require. The Summer following they will produce Seed, and the Plants perish soon after. But if the Seeds are permitted to scatter, the Plants will come up, and become troublesome Weeds.

The eighth Sort is a Variety of the seventh, which accidentally arose from Seeds, and is preserved in some curious Gardens, for having a double Flower. This is propagated by parting of the Roots, so that, in order to preserve this Kind, the Plants should not be suffered to send forth too many Flower-stems, lest they should exhaust the Root too much to send forth any Side-heads for parting. The best Time to transplant and part these Roots is at Michaelmas, when they should be planted into a Bed or Border of fresh undunged Earth, in an open Exposure.

The tenth Sort is very like the seventh, from which it differs in having a rough Leaf; but may be cultivated in the same manner; tho' these are rarely allowed a Place in any Gardens, unless for the sake of Variety.

SISYRINCHIUM, Spanish Nut.

The Characters are;

It hath a Flower resembling the IRI, from which it differs in having a double Root, one lying over the other, after the same manner

as those of the CROCUS and GLADIOLUS.

The Species are ;

1. SISYRINCHIUM *majus, flore lutea macula notato. C.B.P.* Greater Spanish Nut, with a Flower marked with a yellow Spot.

2. SISYRINCHIUM *majus, flore alba macula notato. C.B.P.* Greater Spanish Nut, with a Flower marked with a white Spot.

3. SISYRINCHIUM *medium. C.B.P.* Middle Spanish Nut.

4. SISYRINCHIUM *Creticum montanum, angustissimo folio. Tourn. Cor.* Mountain Sisyrrinchium of Candy, with a very narrow Leaf.

5. SISYRINCHIUM *Africanum, foliis longissimis, flore albo, radice venenata.* African Sisyrrinchium, with very long Leaves, a white Flower, and a poisonous Root.

The three first Sorts grow wild in Portugal and Spain, where the Roots are sought after, and dug up, by Children, and the Shepherds, who eat them, as also Hogs; for they are sweet, and in Taste resemble the Earth-nut. The fourth Sort was discovered in the Island of Crete by Dr. Tournefort, who sent it to the Royal Garden at Paris.

These Plants are preserved by the Curious for their Flowers, which make a fine Appearance, when they are in Beauty, which is commonly in May, or the Beginning of June, about the same time with the bulbous Iris. The Flowers come out alternately from their Sheaths of Coverings, after the manner of the Iris; so that there is seldom more than one Flower open upon each Stalk at one time; but they succeed each other: for there are commonly four or five Flowers produced on each Stalk, when the Roots are strong. These Flowers are in some of a fine blue Colour, spotted with Yellow;

and in other Sorts they are of a pale-purple Colour, spotted with White.

The four first Sorts are hardy Plants, which are multiplied by Offsets, and may be treated in the same manner as the bulbous Iris, to which the Reader is desired to turn; where there are full Directions exhibited, both for the propagating them by Offsets and Seeds, with which Management these Flowers may be cultivated.

The fifth Sort was brought from Africa, where the Inhabitants use the Root to fuddle the Fish in the Rivers, in order to catch them in plenty. The green Leaves of this Sort are poisonous; for as a Tub of these Plants, which were bringing to England, was placed on the Deck of the Ship, some Hogs, getting to it, eat down all the Leaves; which swelled two of the Hogs, and killed them.

This Plant, being a Native of a warm Country, is too tender to live in this Climate, unless it is preserved in a good Stove; the Roots should be planted into Pots filled with light rich Earth, and plunged into the Bark-bed in the Stove, where, if it is preserved in a kindly Warmth, the Roots will multiply greatly. The Leaves of this Sort die away in Winter, and new ones arise in the Spring: wherefore the best Time to transplant the Roots is, just before they put out new Leaves, which is commonly in the Beginning of April; at which time the Bark-bed should be stirred up and renewed with some fresh Tan, and the Pots must be plunged again, and frequently refreshed with Water in warm Weather, which will make them grow very vigorous; but during the Winter-season, while the Leaves are decayed, they must not have

have much Wet, lest it rot the Roots.

SIUM, Water Parsnep.

The Characters are;

It hath a rose-shaped umbellated Flower; consisting of several Petals, which are commonly equal, and placed orbicularly, resting upon the Empalement, which afterward becomes a roundish Fruit, composed of two Seeds, which are gibbous and furrowed on one Side, but plain on the other: to these Notes must be added, That the Leaves are joined together, and adhere to the Rib, with an odd Lobe at the End.

The Species are;

1. *SIUM sine Apium palustre, foliis oblongis.* C. B. P. Water Parsnep, with oblong Leaves.

2. *SIUM umbellatum repens.* Ger. Emac. Creeping Water Parsnep.

3. *SIUM latifolium.* C. B. P. Broad-leaved Water Parsnep.

4. *SIUM palustre alterum, foliis serratis.* Inst. R. H. Another Water Parsnep, with sawed Leayes.

5. *SIUM foliorum conjugationibus laciniatis.* Inst. R. H. Water Parsnep with the Wings of the Leaves jagged.

6. *SIUM aquaticum, ad alas floridum.* Mar. Umb. Water Parsnep with Flowers growing at the Wings of the Leaves.

7. *SIUM minimum umbellatum, foliis ovatis.* Bluk. Alm. The least Water Parsnep, with variable Leaves.

8. *SIUM alatum, alusatri facti.* Lob. Kan. Long-leaved Water Hemlock.

9. *SIUM graveolens sine segetum.* Inst. R. H. Corn Parsley or Hone-wort.

10. *SIUM aromaticum, Sison officinarum.* Inst. R. H. Stone-parsley, or German Amomum.

The first, second, third, seventh, and eighth Sorts grow pretty common in Ditches, Ponds, and other

standing Waters, in divers Parts of England; but are not cultivated, because they will not live on dry Ground. The second Sort is directed to be used in Medicine by the College of Physicians, and is esteemed very good in scrophulous Cases. The first Sort is by some People mistaken for Water-creffes, and is sometimes gathered as such, and eaten, though they are very different Plants.

The eighth Sort is a very poisonous Plant, which was by Dr. Wesfer taken from the Hemlock of the Antients; who has written a large Treatise of this Plant, in which he has mentioned a Number of Instances of the noxious Quality thereof; so that it should be extirpated from Places near Habitations, to prevent any Mischief which may happen by Persons using of it, thro' Ignorance.

The fourth, fifth, and sixth Sorts grow in standing Waters in France, Germany, and some other Parts of Europe, but are not Natives of this Country. These are sometimes preserved in Botanic Gardens for Variety-sake, but are not used in Medicine.

The ninth and tenth Sorts grow on dry Banks, and under Hedges, in several Parts of England, but are rarely cultivated in Gardens. The ninth Sort has been by some Writers greatly esteemed for discussing hard Swellings of the Face, which by some Country-people are called Hones, on account of which Quality, the Name of Hone-wort was given to this Plant. The Seeds of the tenth Sort are used in Medicine, as one of the lesser warm Seeds. This is called Amomum by the Germans, though it is not what the Antients meant by that Name.

All these Sorts may be cultivated by Seeds, which should be sown in the Autumn soon after they are ripe; those Sorts, which grow in standing Waters, must be scattered into such Places; but the other Sorts may be sown on a shady Border, where the Plants will come up in the Spring, and require no farther Care, but to keep them clear from Weeds, and where they grow too close together, to thin them, so as to allow them room to grow. The second Year these Plants will produce Flowers and Seeds, soon after which the Roots will perish.

SMALLAGE; *vide* Apium.

SMILAX, Rough Bindweed.

The Characters are;

The Flower consists of several Leaves, which are placed circularly, and expand in form of a Rose, whose Pointal afterward becomes a Fruit, or soft roundish Berry, containing oval-shaped Seeds.

The Species are;

1. SMILAX *aspera*, fructu rubente. C. B. P. Rough Bindweed, with a red Fruit.

2. SMILAX *viticulis asperis*, foliis longis angustis mucronatis lævibus, auriculis ad basim rotundioribus. Pluk. Phyt. Rough Bindweed, with long narrow-pointed smooth Leaves, having round Ears at the Base.

3. SMILAX *viticulis asperis*, Virginiana, folio hederaceo lævi, Zorca nobilissima nobis. Pluk. Phyt. Rough Virginian Bindweed, with a smooth Ivy-leaf, commonly called Zorca-parilla.

4. SMILAX *orientalis*, sarmentis atuleatis, altissimas arbores scandentibus, foliis non spinosis. Tourn. Cor. Eastern rough Bindweed, with prickly Shoots, and smooth Leaves.

5. SMILAX *lævis*, lauri folio, baccis nigris. Catseb. Hist. Nat. Carol. Smooth Bindweed, with a Bay-leaf, and black Berries.

6. SMILAX *non spinosa humilis*, folio aristolochiæ, baccis rubris. Catseb. Hist. Nat. Car. Dwarf smooth Bindweed, with a Birthwort-leaf, and red Berries.

7. SMILAX *bryonia nigra foliis*, caule spinoso, baccis nigris. Catseb. Hist. Nat. Carol. Bindweed with black Bryony-leaves, a prickly Stalk, and black Berries.

8. SMILAX *Caroliniana*, stipite quadrato leni, foliis angustis asperis, auriculis ad basim angulosis. Pluk. Phyt. Carolina Bindweed, with square smooth Shoots, and rough narrow Leaves, which have cornered Ears at their Base.

9. SMILAX *foliis latis*, in margine spinosis, Caroliniana, stipite leni quadrato. Pluk. Phyt. Carolina Bindweed, with broad Leaves, having Spines on their Edges, and a smooth square Shoot.

10. SMILAX *aspera Bermudensis*, grandioribus foliis cordiformibus, radice surculosa. Pluk. Phyt. Rough Bindweed of Bermudas, with larger heart-shaped Leaves, and a Root full of Shoots.

11. SMILAX *claviculata*, hederæ folio, tota lævis, e Terra Mariana. Pluk. Phyt. Smooth Bindweed with Tendrils, and an Ivy-leaf from Maryland.

12. SMILAX *viticulis asperis*, Virginiana, foliis angustis lævibus, nullis auriculis prædita. Pluk. Phyt. Virginian Bindweed, with rough Shoots, and smooth narrow Leaves, having no Ears.

13. SMILAX *Virginiana*, spinis innocuis armata, latis canellæ foliis, radice arundinacea crassa & carnosa. Pluk. Phyt. Virginian Bindweed, armed with innocent Spines, broad Cinamon-leaves, and a thick fleshy Root, called Bastard China.

14. SMILAX *Americana lævis*, canellæ foliis, baccis rubris. Smooth Ame-

American Bindweed, with Cinamon-leaves, and red Berries.

15. *SMILAX aspera Americana, aristolochiæ foliis longioribus, ad basim auriculatis.* Rough *American Bindweed*, with longer Birthwort-leaves, with Ears at their Base, whose Root is the *Zaraxparilla* of the Shops.

16. *SMILAX Americana lævis, tamni folio, clavicularis longioribus donato.* Smooth *American Bindweed*, with a black Bryony-leaf, sending forth long Tendrils.

17. *SMILAX Americana lævis, latissimo folio, auriculis ad basim rotundioribus.* Smooth *American Bindweed*, with a broad Leaf, having round Ears at the Base.

18. *SMILAX unifolia humillima.* *Inst. R. H.* The lowest *Bindweed* or *One-blade*.

19. *SMILAX aspera racemosa, polygonati folio.* *Inst. R. H.* Rough branching *Bindweed*, with a *Solomons-feal-leaf*.

20. *SMILAX spicata, polygonati folio.* *Inst. R. H.* Spiked *Bindweed*, with a *Solomons-feal-leaf*.

These Plants are preserved in the Gardens of such as are curious in Botany, for their Variety; but there is no great Beauty or Use in them, so that they are not very commonly cultivated in other Gardens.

They are most of them hardy enough to endure the Cold of our Climate, if planted in a light Soil, and under the Shelter of Trees, where they delight to grow. They may be easily propagated by Offsets taken from the old Roots in *March*, just before they begin to shoot, and transplanted where they are to remain, where, if it be in a good Soil, they will flower very well; but they seldom produce Fruit in this Country.

But as the Seeds are often brought into *England*, they may be sown in Pots of light rich Earth, and placed in a shady Situation in Summer; but in Winter they must be removed into Shelter, observing always to keep the Earth moist; and the following Spring the Plants will come up, when the Pots should be again removed into the Shade, and kept clear from Weeds, watering them in dry Weather; and the Spring following they may be transplanted where they are to remain.

The fourth Sort was discovered by Dr. *Tournefort* in the *Levant*. This is a very rambling Plant, which climbs up Trees, and rises to a great Height in the Places of its natural Growth; but is an humbler Plant in this Country. This may be propagated by Seeds, or from Offsets taken from the old Roots; and is hardy enough to live in the open Air in this Country, provided it is planted under Trees, where it may be a little protected in Winter.

The fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, and thirteenth Sorts are Natives of *Carolina*, *Virginia*, and the other Northern Parts of *America*, where they grow in the Woods in the greatest Shade. These may also be propagated by Seeds or Offsets from the old Roots, as the former. Most of these Plants are preserved in Pots in the Gardens of the Curious; but they will endure the Cold of our Winters in the open Air very well, and may be rendered ornamental by planting them under Trees in Wilderness-quarters, where they will fill up and cover the Ground, and may be disposed so as to make an agreeable Variety. These Plants require a Soil rather moist than dry;

and if it be tolerably light, they will thrive much better, than in a very strong Soil.

The fourteenth, fifteenth, sixteenth, and seventeenth Sorts, being Natives of the warmer Parts of *America*, are more tender than either of the former. These Sorts were discovered at *Campechy* by Mr. *Robert Millar*, Surgeon, who sent Samples of them to *England*; the Root of the twelfth Sort is the *Zarzaparilla*, which is directed by the College of Physicians to be used in Medicine.

These Sorts are propagated by Seeds or Off-sets, in the same manner as those before-mentioned; but these must be preserved in Pots, and sheltered in Winter, otherwise they will not live in this Country. As these Plants rarely produce Seeds in *England*, they are commonly increased by parting of their Roots; the best Time for doing this is in *March*, just before they send forth new Shoots from their Roots; for although the old Shoots abide, and retain their Leaves throughout the Year, yet there are every Spring new Shoots sent forth from their Roots, which come up like the small Shoots of *Asparagus*, with a naked Stem; but afterward they send forth Side-branches, which are beset with Leaves. Some of these Sorts multiply greatly by their creeping Roots, which will extend to a great Distance, provided they are not confined; but when they extend their Roots very far, they seldom produce very strong Shoots, nor do they make so good an Appearance, as when they grow close and thick.

When the Seeds of these Plants are obtained from abroad, they should be sown in Pots filled with fresh light Earth, and plunged into

a moderate Hot-bed, observing to water the Earth frequently to keep it moist, because the Seeds being hard, will not vegetate without a considerable Share of Moisture, and many times remain in the Ground a whole Year, before they grow; so that if the Plants do not come up the first Season, the Pots should be kept clear from Weeds all the Summer, and in Winter they should be sheltered from Frost under a common Frame; the following Spring they must be again plunged into the Hot-bed, which will bring the Plants up very soon. When the Plants are come up, they must be constantly kept clear from Weeds, and frequently watered in warm Weather; and toward the End of *May* they should be inured to the open Air by degrees, and in *June* they may be removed out of the Bed, and placed abroad in a sheltered Situation, where they should remain till the Frost comes on in Autumn, when they must be removed into Shelter. These Plants should remain in the Seed-pots, till the following Spring, when they should be turned out of the Pots, and carefully separated. The tender Sorts should be planted in Pots filled with fresh Earth; and if they are plunged into a very temperate Hot-bed, it will cause them to take new Root very soon, and greatly strengthen the Plants: but the hardy Kinds may be planted abroad under Trees, where (if they are kept clear from Weeds, until they have obtained sufficient Strength to overbear the Weeds) they will make an agreeable Variety, amongst other hardy Wood Plants.

The eighteenth, nineteenth, and twentieth Sorts die to the Root every Year, and rise in the Spring; the eighteenth Sort is a very humble Plant, seldom rising above four Inch-

es high; this increases by its creeping Root, for it rarely produces Seeds in this Country. It is a very hardy Plant, and grows in Woods, but is not a Native of *England*. I observed it grow plentifully in a Wood near the *Hague*, in a moist light sandy Soil; so that whoever would cultivate this Sort, should plant it in such Situations. The best Time to transplant it is in the Autumn, when the Leaves are decayed.

The nineteenth and twentieth Sorts are also propagated by parting of their Roots, which may be done either in the Autumn, soon after their Leaves decay, or in the Spring, before they send forth new Shoots. These Plants usually grow between two or three Feet high, and have very much the Appearance of *Solomons-seal*, until they produce their Flowers. These Sorts, being very hardy, will grow in almost any Situation; but should have a fresh light Soil, inclining to Moisture.

SMYRNIUM, Alexanders.

The Characters are;

The Flowers are produced in Umbels, consisting of several Leaves, which are placed orbicularly, and expand in form of a Rose: these rest upon the Empalement, which afterward becomes an almost globular Fruit, composed of two pretty thick Seeds, sometimes shaped like a Crescent, gibbous, and streaked on one Side, and plain on the other.

The Species are;

1. SMYRNIUM, *Matth.* Common Alexanders.
2. SMYRNIUM *peregrinum*, *rotundo folio*. C. B. P. Foreign Alexanders, with a round Leaf.
3. SMYRNIUM *peregrinum*, *folio oblongo*. C. B. P. Foreign Alexanders, with an oblong Leaf.
4. SMYRNIUM *Creticum*, *palu-*

dapii foliis. T. Cor. Candy Alexanders, with a Smallage-leaf.

The first of these Sorts (which is that ordered by the College for Medicinal Use) grows wild in divers Parts of *England*, and at present is seldom cultivated in Gardens; tho' formerly it was greatly used in the Kitchen, before Celeri was so much cultivated, which hath taken place of Alexanders in most Peoples Opinion. The other Sorts are preserved in Botanic Gardens for Variety; but may either of them be cultivated for the Use of the Kitchen. The second Sort is much preferable to the first for blanching, as I have tried; and will be tenderer, and not quite so strong.

All these Plants may be propagated by sowing their Seeds upon an open Spot of Ground in *August*, as soon as they are ripe; for if they are preserved till Spring, they often miscarry, or at least do not come up until the second Year; whereas those sown in Autumn do rarely fail of coming up soon after *Christmas*, and will make much stronger Plants than the other.

In the Spring these Plants should be hoed out, so as to leave them ten Inches or a Foot apart each way; and during the following Summer they must be constantly cleared from Weeds, which, if permitted to grow amongst them, will draw them up slender, and render them good for little. In *February* following, the Plants will shoot up again vigorously; at which time the Earth must be drawn up to each Plant to blanch them; and, in three Weeks after, they will be fit for Use, when they may be dug up, and the white Part preserved, which may be stewed and eaten as Celeri.

SNAP-

SNAP-DRAGON; *vide* Antirrhinum.

SNEEZWORT; *vide* Ptarmica.

SNOWDROP; *vide* Narcissifolucium.

SOLANOIDES, Bastard Nightshade.

The Characters are;

It hath a rose-shaped Flower, consisting of five Leaves, whose Pointal afterward becomes a roundish Fruit, having one hard Seed, which is covered with a thin Pulp, so as to have the Appearance of a Berry.

The Species are;

1. **SOLANOIDES Americana**, *circa foliis canescentibus*. Tourn. American Solanoides, with hoary Inchanters Nightshade-leaves.

2. **SOLANOIDES Americana**, *circa foliis glabris*. Tourn. American Solanoides, with smooth Inchanters Nightshade-leaves.

These Plants are Natives of the warmer Parts of *America*, from whence their Seeds have been brought into *Europe*, and the Plants are now become pretty common in the Gardens of the Curious. They are propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be removed, each into a separate small Pot filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun, until they have taken new Root; after which time they must have a large Share of Air admitted to them in warm Weather, and they must be constantly watered. When the Plants have obtained Strength, they should be inured to bear the open Air by degrees, and in June they should be shifted into larger Pots, and removed either into the Stove, or an airy Glass-case, where

they may have a large Share of Air in warm Weather; and if they are duly watered, they will thrive, and produce Flowers in July, and their Fruit will ripen in September; but there will be a Succession of Flowers and Fruit all the Winter, provided the Plants are preserved in a moderate Temperature of Heat: so that the Fruit of these Plants afford an agreeable Variety in the Stove in Winter; for being of a bright red Colour, and growing in long Bunches, they make a fine Appearance. These Plants will abide several Years, and produce plenty of Flowers and Fruit: but they should constantly remain in Shelter; for if they are exposed in Summer, they will lose their large Leaves, and appear stunted, nor will the Fruit continue on the Plants; so that the best way is, to let them remain always in the Stove, giving them a large Share of Air in Summer, which will keep them in Vigour, and render them beautiful.

The Fruit of these Plants afford a fine red Colour, when bruised; but it soon fades on Paper, which renders it worth little. If a Quantity of these Fruit is squeezed into a Glass of fair Water, so as to colour the Water of a deep Red, and a Stem of Flowers of the Tuberofo put into the Glass, it will in one Night imbibe so much of the Liquor as to variegate the Flowers with a rose Colour.

SOLANUM, Nightshade.

The Characters are;

The Flower consists of one Leaf, which is divided into five Parts, and expands in form of a Star; from the Flower-cup rises the Pointal, which afterward becomes a round or oval soft succulent Fruit, containing many flat Seeds in each.

The

The Species are ;

1. *SOLANUM officinarum, acinis nigricantibus.* C. B. P. Common Nightshade, of the Shops, with black Fruit.
2. *SOLANUM officinarum, acinis puniceis.* C. B. P. Nightshade with red Fruit.
3. *SOLANUM officinarum, acinis luteis.* C. B. P. Nightshade with yellow Fruit.
4. *SOLANUM scandens, seu Dulcamara.* C. B. P. Perennial climbing Nightshade, commonly called, Bitter-sweet.
5. *SOLANUM scandens, seu Dulcamara, flore albo.* C. B. P. Perennial climbing Nightshade, with a white Flower.
6. *SOLANUM scandens, foliis variegatis.* H. R. Par. Perennial climbing Nightshade, with variegated Leaves.
7. *SOLANUM fruticosum bacciferum.* C. B. P. Shrubby berry-bearing Nightshade, commonly called *Amomum Plinii*.
8. *SOLANUM Guineense, fructu magno instar cerasi nigerrimo umbellato.* Boerb. Ind. Nightshade from Guiney, with large Fruit, resembling black Cherries, which grow in an Umbel.
9. *SOLANUM spiniferum frutescens, spinis igneis, Americanum.* Pluk. Phyt. Shrubby and thorny American Nightshade, with fire-coloured Thorns.
10. *SOLANUM spinosum, maxime tomentosum.* Bocc. Rar. Plant. Thorny Nightshade, very much covered with a Wool or Down.
11. *SOLANUM Americanum spinosum, foliis melongenæ, fructu mammoso.* D. Lig. Tourn. Thorny American Nightshade, with Leaves like those of Mad-apple, and a Fruit shaped like an inverted Pear, commonly called in Barbadas, Bachelor's Pear.
12. *SOLANUM pomiferum frutescens, Africanum spinosum, nigricans, flore boraginis, foliis profunde laciniatis.* H. L. Shrubby African apple-bearing Nightshade, with black Thorns, a Flower like Borage, and deeply jagged Leaves, commonly called *Pomum Amoris*.
13. *SOLANUM tuberosum esculentum.* C. B. P. Potatoes.
14. *SOLANUM tuberosum esculentum, flore albo.* H. R. Par. White Potatoes.
15. *SOLANUM Americanum spinosum herbaceum, acanthi folio, flore amplo cæruleo.* Houst. Prickly herbaceous American Nightshade, with a Bears-breech-leaf, and a large blue Flower.
16. *SOLANUM Americanum spinosissimum herbaceum, anguriæ folio, flore luteo.* Houst. The most prickly American Nightshade, with a Water-melon-leaf, and a yellow Flower.
17. *SOLANUM Americanum frutescens & spinosum, quercus folio, baccis rubris.* Houst. Shrubby and prickly American Nightshade, with an Oak-leaf, and red Berries.
18. *SOLANUM Americanum bacciferum, caule & foliis tomento incanis spinosis, flore luteo, fructu croceo.* Sloan. Cat. Berry-bearing American Nightshade, with hoary Stalks and Leaves, a yellow Flower, and saffron-coloured Fruit.
19. *SOLANUM Americanum fruticosum bacciferum spinosum, flore cæruleo.* Sloan. Shrubby berry-bearing American Nightshade, with a blue Flower.
20. *SOLANUM Americanum frutescens & spinosum, flore magno albo.* Houst. Prickly and shrubby American Nightshade, with a large white Flower.
21. *SOLANUM Americanum, scandens*

ans & frutescens, flore magno caeruleo, fructu rubro. *Houft.* Shrubby climbing *American* Nightshade, with a large blue Flower, and a red Fruit.

22. *SOLANUM Americanum frutescens, non spinosum, lauri folio, flore vacuoso caeruleo. Houft.* Smooth shrubby *American* Nightshade, with a Bay-leaf, and blue Flowers, growing in Clusters.

23. *SOLANUM Americanum, frutescens & spinosum, foliis infra tomentosis, flore magno caeruleo. Houft.* Shrubby and prickly *American* Nightshade, with Leaves which are hoary underneath, and a large blue Flower.

24. *SOLANUM Americanum arborescens, verbasci folio, fructu flavescente majori. Plum.* Tree-like *American* Nightshade, with a Mullein-leaf, and a larger yellow Fruit.

25. *SOLANUM Bonariense arborescens, papas floribus. Hort. Elib.* Tree-like Nightshade of *Buenos Ayres*, with Flowers like the Papaw.

26. *SOLANUM Bahamense arborescens, folio sinuato. Hort. Elib.* Tree-like Nightshade from the *Bahama* Islands, with a sinuated Leaf.

27. *SOLANUM lignosum Africanum sempervirens, laurinis foliis. H. Amst.* Woody ever-green *African* Nightshade, with Bay-leaves.

28. *SOLANUM Americanum scandens, foliis tomentosis. Plum.* Climbing *American* Nightshade, with woolly Leaves.

29. *SOLANUM Americanum scandens aculeatum, hyssopami folio, flore intus albo, extus purpureo.* Climbing prickly *American* Nightshade, with an Henbane-leaf, and a Flower white within, and purple on the Outside.

30. *SOLANUM Americanum frutescens, persicae foliis, aculeatum. Plum.* Shrubby and prickly *American* Nightshade, with Peach-leaves.

31. *SOLANUM dulcamarum Afri-*

canum, foliis crassis bisectis. Hort. Elib. Climbing *African* Nightshade, with hairy thick Leaves.

32. *SOLANUM Americanum arborescens non spinosum, flore parvo rubente, fructu aureo. Houft.* Smooth *American* tree-like Nightshade, with a small reddish Flower, and a gold-coloured Fruit.

33. *SOLANUM Americanum arborescens non spinosum, lauri folio aspero, floribus umbellatis albis. Houft.* Smooth tree-like *American* Nightshade, with a rough Bay-leaf, and white Flowers growing in Umbels.

There are several other *Species* of this Plant, which are preserved in some curious Botanic Gardens for Variety; but those here mentioned being the most valuable Sorts I have observed in the *English* Gardens, I shall not enumerate the others.

The first Sort is now very common upon Dunghills, and on rich cultivated Soils, in many Parts of *England*, where it often becomes a troublesome Weed. This is the Sort which the College of Physicians have directed to be used in Medicine, under the Title of *Solanum bortense*. The second and third Sorts are very near to the first, differing from it in the Colour of their Fruits, and the Plants being woolly. The eighth Sort produces much larger Fruit than either of the former, and the Plants grow proportionably larger.

All these Sorts are annual Plants, which may be propagated by sowing their Seeds in *March* upon a Bed of light rich Earth, in a warm Situation; and when the Plants come up, they should be transplanted out into fresh Beds of rich Earth, at about six Inches Distance, observing to water and shade them until they have taken Root, as also

to keep them clear from Weeds; and in very dry Weather they should be often refreshed with Water; in these Beds they may remain until they have grown so large as to meet each other, when they may be taken up, with a good Ball of Earth to each Plant, and planted where they are to remain, observing to allow them at least two Feet Distance; otherwise they will spread over each other, or any other Plants which grow near them: This Care may be taken with a few Plants of the red, and yellow-berried, and Guiney Sorts, for the sake of Variety; but the common Sort, if permitted to scatter its Seeds, will come up in plenty without any Care.

The fourth Sort is a climbing woody Plant, which grows in the Hedges in divers Parts of *England*, and is by some planted in Gardens to cover Arbours, or shady Walls, in *London*, and other close Places, where few other Plants will thrive. This Plant is also used in Medicine for some particular Preparations; but the Herb-folks in the Markets do often sell this instead of the Garden Nightshade, which is a cooling Plant, and this an hot acrid one, which renders it contrary to the Intention of the Ointment, wherein Nightshade is one of the Ingredients.

The Sort with white Flowers is a Variety of the former, as is also that with variegated Leaves, both which are preserved by those who are very curious in collecting the various Kinds of Plants.

These may be easily propagated by laying down their Branches, or by planting their Cuttings in the Spring upon a moist Soil, where they will soon take Root, and may afterward be transplanted where they are to remain.

The *Amomum* *Plum* is propagated

in great Plenty for the Beauty of its large red Fruit, which is always ripe in Winter; so that when the Trees have plenty of Fruit, they make a very handsome Appearance in a Green-house, when intermixed with Orange, Myrtle, and other Exotic Trees.

This Plant may be propagated by sowing its Seeds in a Pot of rich Earth in the Spring, placing it upon a moderate Hot-bed, which will greatly facilitate the Growth of the Seeds: the Earth in the Pot should be frequently watered; for if it is kept too dry, the Seeds will not grow. When the Plants are come up, you should make a gentle Hot-bed, which must be covered with rich Earth, about six Inches thick; in this they should be planted about six Inches Distance each Way, and the Bed arched over with Hoops, &c. and covered with Mats, to shade them from the Sun and Cold, observing frequently to water them.

When the Plants have acquired Strength, and the Season becomes favourable, you must inure them to bear the open Air by degrees, to which they should be fully exposed in *June*, when also they should be taken up with a Ball of Earth to the Root of each Plant, and placed separately in Pots filled with rich Earth, which must be set in a shady Situation, and frequently watered until they have taken Root; after which they may be removed into a more open Exposure, and placed amongst other Exotic Plants: but they will require a great Plenty of Water in dry Weather, without which they seldom produce much Fruit.

In Winter they must be removed into the Green-house, and placed in the coldest Part of the House, where

where they may have as much free Air as possible in mild Weather, being so hardy as many times to endure the Cold of our ordinary Winters abroad, when planted in a warm Situation, so that they only require to be sheltered from severe Frost.

These Plants should be annually shifted about the Latter-end of *April*, when their Roots should be pared round, cutting off all the mouldy Fibres which were next the Pot, and the Pots filled up with fresh rich Earth, which will strengthen their Flowers, and cause them to produce plenty of Fruit, which, as I said before, ripens in Winter, and, being of the Shape and Size of Cherries, are commonly called Winter-cherries by the Gardeners.

The ninth and eleventh Sorts are much tenderer than the former, being brought from the warm Parts of *America*: these are also propagated by sowing their Seeds in the Spring upon a good Hot-bed; and when the Plants are come up, they should be each transplanted into a separate small Pot filled with rich Earth, and plunged into a fresh Hot-bed, observing to water and shade them until they have taken Root; after which they should have Air and Water in proportion to the Heat of the Season, and the Bed in which they are placed; and when their Roots have filled the Pots in which they were planted (which they will do in a Month's time, if they thrive), they must be shaken out; and after having gently pared off the Fibres which grew next the Pot, they should be placed in Pots a Size larger, which must be filled with fresh rich Earth, and plunged into a fresh Hot-bed to bring the Plants forward, observing to water them frequently; for they will not

thrive without plenty of Moisture in warm Weather.

In *July* these Plants may be inured to bear the open Air by degrees, into which they may be removed, if the Season be warm; but otherwise they may always be preserved either under Glasses, or in the Stove; and if they are placed in the open Air, they should not remain there longer than the Middle of *August*, lest the Nights, growing cold, should hurt them: during the Winter-season they may be preserved in the Stove, observing to water them frequently, and the second Year they will produce Flowers and Fruit.

The tenth and twelfth Sorts are not so tender as the last, but require an open airy Glass-case, or a warm Green-house, in Winter; but in Summer may be exposed to the open Air with other Exotic Plants. These may be propagated by sowing their Seeds on an Hot-bed as the former, and should be managed as hath been directed for them, with this Difference, that they may be much sooner exposed to the Air, and should not be bred so tenderly. These are preserved for their odd Appearance, by such as are curious in cultivating Exotic Plants: their Fruits, being ripe in Winter, will afford a Variety in the Green-house; and their Leaves and Flowers, being very remarkable in their Colour, Shape, &c. render them worthy of a Place in every good Collection of Plants.

There is also another Variety which differs very much from the tenth Sort, tho' called by that Name in most of the *English* Gardens, where it is preserved; which I believe came from *Virginia*, and being somewhat like the Figure given by Father *Boccone* of the tenth Sort, I suppose was taken for the same Plant;

Plant; but they are very different from each other, as appeared by some Plants which I raised from Seeds sent me by Signior *Tilli*, Professor of Botany at *Pisa*, of *Boccone's* Plant, and others raised from the old Sort which came from *Virginia*, both which, being cultivated together, retained a specific Difference.

The red and white Potatoes are both indifferently cultivated in *England*; tho' the red Sort is most commonly brought to the Markets. These Plants were originally brought from *Virginia* into *Europe*, where they are at present so generally esteemed, as to be one of the most common esculent Roots now in Use.

These Plants are propagated by planting the smallest Roots in Spring, which, in a good Soil, will multiply exceedingly; for I have many times seen ten, twelve, or more Roots produced from a single Off-set in one Year.

The Soil on which these should be planted, ought to be rather moist than dry, and of a rich, soft, loose Texture; for if the Ground be too dry or binding, they will produce but very small Roots, and those but sparingly. This Soil should be well dug or ploughed, and the small Roots laid in Trenches or Furrows six Inches deep, and about six Inches asunder in the Furrows: but the Furrows must be a Foot Distance from each other; for when they are too close, their Roots will not be large, which is what People usually covet.

In the Spring and Summer-months, the Weeds should be carefully hoed down between the Plants, until their Haulm is strong enough to bear them down, and prevent their Growth: and when their Haulm decays in Autumn, the Roots may be taken up for Use; which

may be done as they are wanted, till the Frost begins to set in; when there must be a Quantity taken up, and laid in Sand in a dry Cellar, where they may be protected from Frost. The best of these may be taken out for Use in Winter, and the small ones reserved to plant in the Spring.

The fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, twentieth, twenty-first, and twenty-second Sorts were discovered by the late Dr. *Houftoun*, near *La Vera Cruz*, in *America*, from whence he sent their Seeds to *England*, many of which have succeeded in several curious Gardens, where the Plants are now growing.

The fifteenth and sixteenth Sorts, being annual Plants, rarely produce ripe Seeds in *England*; but the others are abiding Plants, which flower every Year, and sometimes they perfect their Fruit in this Country.

These being Natives of a warm Country, must be raised on a Bed early in the Spring; and when they are fit to transplant, they must be each planted in a separate small Pot filled with fresh rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun until they have taken new Root; after which time they should have a large Share of fresh Air admitted to them in warm Weather, and they must be plentifully watered. Toward the latter End of *June*, it will be proper to harden the Plants to endure the open Air; and soon after they should be removed into the Stove, where they must have as much free Air as possible in warm Weather; but as the Cold approaches in Autumn, they must be carefully protected therefrom, and in Winter they should be kept in a moderate Temperature of Warmth,

Warmth, otherwise they will not live in this Country.

Some of these Sorts will bear to be exposed in the open Air, in the Heat of Summer, provided they are placed in a warm Situation; but if the Season should prove cold, they will not thrive abroad: wherefore it will be the better Method to let them remain in the Stove, and open the Glasses in Front, and at the Top of the Stove, every Day, to admit as much Air as possible in hot Weather: with which Management they will thrive much better than in the open Air.

The eighteenth and nineteenth Sorts were discovered by Sir *Hans Sloane*, in *Jamaica*, where they grow in plenty. The Seeds of these were also sent to *England* by the late Dr. *William Houfoun*.

The twenty-second Sort was discovered by the late Dr. *William Houfoun*, at *Campechy*, where it hath since been found in great plenty by Mr. *Robert Millar*, a Surgeon, who sent the Seeds to *England*.

The twenty-fourth, twenty-eighth, and twenty-ninth Sorts were discovered by Father *Plumier*, in some of the *French Settlements* in the *West-Indies*; and have since been found by Mr. *Robert Millar*, near *Carthagena* in *America*, from whence he sent their Seeds.

The twenty-fifth Sort was sent from *Buenos Ayres*, and the twenty-sixth Sort is a Native of the *Babama* Islands.

All these being Natives of warm Countries, must be treated in the same manner as hath been directed for the former Sorts, otherwise they will not thrive in *England*.

The twenty-seventh and thirty-first Sorts, being Natives of the *Cape of good Hope*, are less tender than any of the other Kinds. These must be

preserved in Pots, and placed in a good Green-house in Winter, where they should have a large Share of free Air in mild Weather; but must be secured against Frost during the Winter Season. These Plants will require to be frequently refreshed with Water, but in cold Weather it must be given to them in moderate Quantities; and in Summer the Plants should be placed in the open Air, in a warm sheltered Situation; during which Season they will require a more plentiful Supply of Water in dry Weather; for they are thirsty Plants, as are all of this Tribe.

The climbing Sorts of Nightshade may be propagated by Cuttings, which should be taken off in *May*; and those of the tender Kinds should be planted in Pots filled with fresh Earth, and plunged into an Hot-bed of Tanners Bark, where they should be carefully screened from the Heat of the Sun every Day, until they have taken Root; after which time they may be treated in the same manner, as those Plants which come from the Seeds. But the thirty-first Sort, which is more hardy, will not require so much Care; for if the Cuttings of this Kind are planted in a shady Border, they will take Root, and may be afterwards taken up and potted, and placed in a warm Situation in the open Air till *October*, when they must be removed into the Green-house for the Winter Season.

These Plants, when they thrive well, and produce plenty of Fruit, make an agreeable Variety amongst other Exotic Plants, in the Stove and Green-house, especially in the Winter Season; at which time they commonly have plenty of Fruit, which make a pretty Appearance, when there are not many other Plants in Beauty. And some of these Sorts, whose Flowers are large, and of beautiful

beautiful Colours, make a fine Appearance, and are worthy of a Place in the Stove, tho' they do not constantly produce Fruit in this Climate, especially the fifteenth Sort, whose Flowers are very large, and of a fine blue Colour; and the twenty-second Sort, whose Flowers, though small, yet being produced in long Clusters and being of a fine blue Colour, make a fine Appearance; and these frequently flower in the Winter Season.

SOLDANELLA, Soldanel.

The Characters are;

It hath a bell-shaped Flower, consisting of one Leaf, which is for the most part fringed; the Pointal, which arises from the lower Part of the Empalement, afterward becomes a Fruit of a cylindrical Figure, opening at the Top, and full of Seeds, which adhere to a Placenta.

The Species are;

1. SOLDANELLA *Alpina rotundifolia*. C. B. P. Round-leaved Soldanel of the Alps.

2. SOLDANELLA *Alpina rotundifolia, flore niveo*. C. B. P. Round-leaved Soldanel of the Alps, with a snow-white Flower.

3. SOLDANELLA *Alpina, folio minus rotundo*. C. B. P. Soldanel of the Alps, with a Leaf less round.

These Plants grow on the Alps, and several other mountainous Places of Italy, Germany, and Hungary; from whence they have been obtained by some curious Persons, who preserve them in their Gardens for the sake of Variety. They are Plants of humble Growth, seldom rising above six or eight Inches high; their round Leaves grow close to the Ground, from between which the Flower-stems arise; each of which have four or five Flowers, which in the first Sort are of a fine blue Colour, but the second of a Snow-white, which hang down and are shaped

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like Bells. They flower the latter End of April, or the Beginning of May, and their Seeds are ripe in July.

The best Method to propagate these Plants is, by parting of their Roots, because their Seeds do not succeed, unless they are perfectly ripe, and well nourished; and this rarely happens in England: nor do the Seeds which are brought from abroad, succeed; for they seldom grow, unless they are sown soon after they are ripe.

The Season for transplanting and parting of these Roots is in September, that they may have time to make good Roots before Winter; for if they are removed in the Spring, they never flower very strong; and if the Season should prove dry, the Plants will decay, unless they are constantly supplied with Water.

The Soil in which these Plants thrive best, is a strong cool Loam, and they must have a shady Situation; for if they are exposed to the Sun, they will not live, nor will they thrive in a warm light Soil. In dry Weather these Plants should be frequently watered, which will cause them to flower strongly, and make a good Increase.

If the Seeds ripen in England, and any Person is desirous to propagate the Plants that way, they should be sown in Boxes or Pots filled with fresh loamy Earth, soon after they are ripe; and the Boxes must be placed in a shady Situation, and frequently watered in dry Weather. The Plants will sometimes appear the same Autumn the Seeds are sown, but more frequently they do not come up till the following Spring; so that the Earth must not be disturbed, nor Weeds permitted to grow in the Boxes. When the Plants come up, they must be duly

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watered

watered in dry Weather, and constantly placed in a shady Situation. The following Autumn, the Plants should be taken out of the Boxes, and planted in a shady Border, about six or eight Inches asunder, where they may remain to flower; or they may be intermixed with other low *Alpine* Plants in North Borders, where they will make an agreeable Variety.

SONCHUS, Sowthistle.

These are most of them Weeds in *England*, and are not planted in Gardens; for if their Seeds are once permitted to scatter upon the Ground, they will soon stock it with Plants; for which Reason they should always be extirpated, not only those the Garden, but also in the Parts near it, because their Seeds, being furnished with Down, are wafted in the Air to a considerable Distance; where falling to the Ground, they soon come up, and prove troublesome.

SORBUS, The Service-tree.

The Characters are;

The Flower consists of several Leaves, which are placed orbicularly, and expand in form of a Rose, whose Flower-cup afterward becomes a Fruit shaped like a Pear or Medlar: to which must be added, Pennated Leaves, like those of the *Ash*.

The Species are;

1. SORBUS *sativa*. C. B. P. The manured Service-tree.

2. SORBUS *sativa*, fructu pyriformi, medio rubente. H. Cath. The manured Service, with pear-shaped Fruit, red in the Middle.

3. SORBUS *sativa*, fructu serotino minori turbinato rubente. Tourn. The lesser late-ripe Service, with a medlar-shaped Fruit.

4. SORBUS *aucuparia*. J. B. The wild Service, or Quick-beam, by some called, *The Quicken-tree*.

5. SORBUS *fykvestris*, foliis ex luteo variegatis. The wild Service, or Quick-beam, with striped Leaves.

6. SORBUS *sativa*, fructu ovato, medio rubente. Hort. Cath. The manured Service, with an oval Fruit, which is red within.

7. SORBUS *sativa*, magno fructu turbinato, pallide rubente. Inst. R. H. The manured Service with a large turbinated Fruit of a pale-red Colour.

8. SORBUS *sativa*, magno fructu nonnihil turbinato rubro. Inst. R. H. The manured Service, with a large red Fruit not turbinated.

9. SORBUS *sativa*, fructu turbinato, omnium minimo. Inst. R. H. The manured Service, with the least Fruit.

10. SORBUS *orientalis*, fraxini folio. Tourn. Cor. Eastern Service, with an *Ash*-leaf.

11. SORBUS *orientalis*, fructu magno, compresso & flavescente. Tourn. Cor. Eastern Service, with a large flat yellowish Fruit.

The manured Service was formerly said to be growing wild in *England*: but this I believe was a Mistake; for several curious Persons have strictly searched those Places where it was mentioned to grow, and could not find it; nor could they learn from the Inhabitants of those Countries, that any such Tree had grown there.

In *Italy* these Trees are very common, where they have a great Variety of Sorts, which were obtained from Seeds; but I have not observed in the *English* Gardens more than the five first Sorts here mentioned, and those are yet very scarce; for I have not seen more than one large Tree of the true Service in *England*, which was lately growing in the Gardens formerly belong-

belonging to *John Tradescant*, at *South-Lambeth* near *Vaux-hall*, in *Surry*, who was a very curious Collector of rare Plants, in *King Charles* the Second's time; which Tree was near forty Feet high, and did produce a great Quantity of Fruit annually. There are indeed some Trees of middling Growth in the Gardens of *Henry Marsh*, Esq; at *Hamer-Smith*, which produce Fruit (from whence several young Plants have been-raised of late in the Nurseries near *London*); but these are small, when compared to that in *John Tradescant's* Garden.

These Fruits do nearly resemble Medlars in their Nature, being of a very austere Taste till they are rotten, when they have a more agreeable Flavour; but in *England* their Fruit does not ripen so well as in warmer Countries, and is therefore less esteemed: however, the Trees are propagated by such Persons as are curious in collecting the various Kinds of hardy Trees and Shrubs, for the Oddness of their Leaves and Fruit.

They may be propagated by sowing their Seeds on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be carefully kept clear from Weeds, and in dry Weather watered; but they should be exposed to the open Air: for the only Reason for making an Hot-bed, is to forward the Growth of the Seeds; but if, when the Plants are come up, the Bed is covered, it will draw the Plants, and spoil them. In this Bed the Plants should remain until the Middle of *March* the succeeding Spring, when there should be a warm light Spot of Ground prepared to receive them; into which they should be planted in Rows two Feet asunder, and a Foot distant

in the Rows; observing to take them up carefully, and to plant them as soon as possible, that their Roots may not dry.

During the Summer, the Ground should be kept constantly clear from Weeds, and in Winter there should be a little Mulch laid upon the Surface of the Ground about their Roots, to protect them from being injured by Frost; but in the Spring the Ground between them should be dug, burying the Mulch therein: in doing of which, you must be careful not to cut or injure the Roots of the Plants.

In this Nursery they may continue three or four Years, according to their Growth, when it will be proper to transplant them out where they are to remain. The best Season for which is in *March*, just before they begin to shoot: the Soil should be warm in which they are planted, and the Situation defended from cold Winds: in which Place they will thrive, and produce Fruit in a few Years; but as the Fruit will vary from those which the Seeds were taken from (as is the Case of most Sorts of Fruit), the surest Method to have the particular Sorts which you intend to cultivate, is, to bud or graft them either upon their own or the wild Service-stock; upon which they will take, and produce Fruit in a few Years.

The wild Service or Quick-beam grows wild in divers Parts of *England*; but it is often cultivated in Gardens for Variety. This produces large Bunches of Flowers at the Extremity of its Branches in *May*, which are succeeded by large roundish Fruit, which change to a beautiful scarlet Colour in Autumn, when they afford an agreeable Variety in Wilderness-quarters.

This Tree seldom growing above twenty Feet high, should be always placed in Lines of Trees of the same Growth.

The Wood of this Tree is much commended by the Wheelright for being all Heart; and it is of great Use for Husbandmens Tools, Goads, &c. The Flowers of this Tree smell very sweet, and the Fruit is extraordinary Food for Thrushes; so that where these Trees are planted, they will greatly frequent.

The Sort with variegated Leaves is preserved by such as are curious in collecting the several Sorts of striped Plants; but there is no great Beauty in it. This may be propagated by Layers, or by being budded on the plain Sort; but they will become plain again, if planted on a very rich Soil.

These Trees should have a moist strong Soil, but will grow in the most exposed Places, being extreme hardy; which renders them worthy of Care, since they will thrive where few other Trees will succeed.

The sixth, seventh, eighth, and ninth Sorts are very common in the Italian Gardens, and have been lately brought into England by the Persons who bring over Orange-trees, &c. so that in a few Years they may be common in England. But the great Difficulty is in keeping of the Sorts; because, when these Trees are propagated by Seed, they vary as much in their Kinds as Apples and Pears. And it is very difficult to propagate them by grafting or budding; for they seldom succeed when grafted on Pears, Apples, or Medlars; and it is not easy to raise Stocks of their own Kind; for the Fruit do not always ripen in this Country.

The tenth and eleventh Sorts were if covered by Dr. Tournefort in the

Levant; but at present they are not in the *English* Gardens. These Sorts may be all propagated by Seeds, after the manner directed for the former. The best way to procure good Seeds of these Plants is, to have the Fruit, when duly ripened abroad, put up in Boxes of Sand, and sent over; by which Method they may be brought over very well: for, if the Fruit should rot, the Seeds will remain good by being preserved in Sand.

SORREL; *vide* Acetosa.

SOUTHERNWOOD; *vide* Abrotanum.

SOWBREAD; *vide* Cyclamen.

SPARTIUM, The Broom-tree.

The Characters are;

It hath a papilionaceous Flower, whose Pointal, which rises from the Flower-cup, afterwards becomes a short roundish swelling Pod, containing, for the most part, one kidney-shaped Seed in each.

The Species are;

1. SPARTIUM *alterum monospermum, semine reni simile.* C. B. P. Another Spanish Broom, with Pods containing one kidney-shaped Seed.

2. SPARTIUM *tertium, flore albo.* C. B. P. The white Spanish Broom.

3. SPARTIUM *orientale humile, fructu villoso & rostrato.* Tourn. Cor. Dwarf Eastern Broom, with an hairy beaked Fruit.

4. SPARTIUM *orientale, siliqua compressa, glabra & annulata.* Tourn. Cor. Eastern Broom, with a flat smooth circular Pod.

5. SPARTIUM *Americanum, portulacæ foliis, aculeatum, ebeni materie.* Plum. Prickly American Broom, with Purslane-leaves, whose Wood is taken for Ebony.

6. SPARTIUM *Americanum scandens, citri foliis, floribus albis, ad nodos confertim nascentibus.* Plum. Climbing American Broom, with

Citron-

Citron-leaves, and white Flowers, which are produced in Bunches at the Joints.

These Plants are propagated by sowing their Seeds upon a moderate Hot-bed in the Spring; and, when they are come up, they must each be planted in a separate small Pot filled with fresh light Earth, and plunged into a fresh Hot-bed, observing to water and shade them until they have taken Root; after which they must have a good Share of free Air, by raising the Glass'es when the Weather is favourable; and, when the Plants begin to have Strength, they must be inured to the open Air by degrees: into which they should be removed in July, placing them in a warm Situation; and, during the Summer-season, they must be frequently watered; and the Beginning of October they must be removed into the Green-house, placing them where they may have Air and Sun; and, as the Earth of the Pots dries, they must be refreshed with Water.

The Spring following, they should be taken out of the small Pots, and put into others a Size larger, filling them up with fresh light Earth; and, as the Season advances, they must be inured to the open Air again; and in May they should be carried abroad, and placed amongst other Exotic Plants, where they will add to the Variety.

While these Plants are young, they are somewhat tender; but, when they are woody, they will endure a greater Degree of Cold; and, if planted in a very warm Situation, will endure the Cold of our ordinary Winters in the open Air.

The Flowers of these Plants are small, and generally produced thinly upon the Branches, so that they

do not make a very great Appearance; however, for Variety, they may have a Place in every good Collection of Plants. The Sort with white Flowers will often produce ripe Seeds in England, when the Summer is warm; but the Seeds of both Sorts may easily be obtained from Spain or Portugal, where they grow wild in great Plenty.

The two first Sorts are common, but the third and fourth Sorts were discovered by Dr. Tournefort in the Levant, from whence he sent the Seeds to the Royal Garden at Paris. These Plants are as hardy as the common Sorts. They are propagated by Seeds, which should be sown in the Spring on a moderate Hot-bed, as hath been directed for the two common Sorts, and the Plants must also be managed in the same manner.

The fifth Sort is very common in Jamaica, and several other Places in the West Indies, where the Wood is cut, and sent to England under the Title of Ebony, though it is not the true black Ebony, which is a Native of the Eastern Country, and is a Plant of a very different Genus. The Wood of this American Ebony is of a fine greenish brown Colour, and polishes very well; on which account it is much coveted by the Instrument-makers, and is used for several Purposes, being of a very hard durable Nature.

The sixth Sort is pretty common in the Spanish West-Indies, from whence I have received the Seeds, which were collected by Mr. Robert Millar. This is a climbing Plant, which will twist round whatever Trees grow near it, and will rise to a great Height. The Leaves of this Plant are thick and strong, somewhat resembling those of th,

Citrons

Citron-tree; and, continuing green the whole Year, they make an agreeable Variety in the Stove, amongst other tender Exotic Plants.

These Plants are propagated by Seeds, which must be procured from the Countries of their natural Growth; for they do not produce Seeds in this Climate. These Seeds should be sown in Pots filled with light fresh Earth, early in the Spring, and plunged into a good Hot-bed of Tanners Bark, where they should be frequently refreshed with Water; and, if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats, to keep the Bed in a good Temperature of Warmth: In the middle of the Day, when the Sun shines warm, the Glasses should be raised, to let the Steam of the Bed pass off, as also to admit fresh Air. In about a Month after the Seeds are sown, the Plants will appear, when they must be carefully treated (being very tender while young); they must have fresh Air admitted to them every Day, when the Weather is warm, and should be frequently refreshed with Water when the Earth in the Pots appears dry. In about five or six Weeks after the Plants appear, they will be fit to transplant, when they should be carefully shaken out of the Pots, and separated, planting each into a small Pot filled with light fresh Earth; and then plunge them into the Hot-bed again, being careful to shade them from the Sun every Day, until they have taken new Root; after which time they must be treated in the same manner as other very tender Exotic Plants, by giving them Air every Day in warm Weather, and watering them every other Day gently; and, when the Nights are cold, to cover the Glasses. In this Hot-bed the Plants may remain till Autumn, when they

must be removed into the Stove, and plunged into the Bark-bed: those of them, whose Roots have filled the Pots, should be carefully shifted into Pots one Size larger, before they are plunged; but, as these Plants are not of quick Growth while young, they do not require to be often shifted out of the Pots. During the Winter Season these Plants must be kept very warm (especially the first Year), and they must be frequently refreshed with Water; but in cold Weather it must be given to them in small Quantities; and, if their Leaves should contract Filth, they must be washed with a Sponge to clean them, otherwise the Plants will not thrive. As these Plants are very tender, they will not live in the open Air in this Country, even in the warmest Part of the Year; therefore they must be constantly kept in the Stove, and should be plunged in the Bark-bed, observing in the Summer-season, when the Weather is warm, to admit a large Share of fresh Air to the Plants; but in Winter they must be kept very warm. With this Management, the Plants will thrive very well, and in a few Years will produce their Flowers, when they will make a pretty Appearance in the Stove.

SPERGULA, Spurrey.

The Characters are;

It hath a rose-shaped Flower, consisting of five Leaves, which are included in a five-leaved Empalement; in the Centre of the Flower arises the Pointal, which afterward becomes a roundish membranaceous Fruit, which opens in three Parts, and is filled with small Seeds, which in some Species have a Border round them.

The Species are;

1. SPERGULA. *J. B.* The common Spurrey.

2. SPER-

2. SPERGULA *maritima nigra*. J. B. The Sea Spurrey.

3. SPERGULA *purpurea*. J. B. Purple Spurrey.

4. SPERGULA *minima, seminibus marginatis*. The least Spurrey, with bordered Seeds.

These Plants grow wild in several Parts of England. The second Sort is found on the Sea-shores, where the Salt-water usually flows; but the other Sorts grow on sandy Commons, and amongst Corn in great Plenty.

The first Sort is cultivated in Holland and Flanders, for feeding their Cattle; the usual Time of sowing the Seed is in August, that the Plants may have time to get Strength before the Winter's Cold. The Use that is made of this Grass, is to feed Sheep and other Cattle in Winter, when the common Grass hath done growing. This Plant, seldom rising above six Inches high, will not afford a very great Quantity of Food; but, as it will grow on the poorest Sand, it may be cultivated in many Places to good Advantage, where no other Grass will thrive so well; and, by feeding it off the Ground, the Dung of the Cattle will improve the Land. This Pasture, as is affirmed, will make excellent Butter; and the Mutton fed on it is said to be well-tasted; wherefore it is by many preferred to that fed on Turneps. Hens greedily eat this Herb, and it makes them lay more Eggs.

This Plant, being annual, must be sown every Year; and whoever is willing to save the Seeds, should sow it in April, that the Plants may flower the Beginning of July, and the Seeds will ripen in August; when it must be cut before the Heads are quite brown, otherwife the Seeds will soon scatter.

The Seeds being very small, about twelve Pounds will be sufficient to

sow an Acre of Land. The Ground should be well dressed before the Seeds are sown; for, if the larger Clods are not broken, there will be an uneven Crop of Grass. People in the low Country sow this Seed after a Crop of Corn is taken off the Land. The fourth Sort is now much cultivated in Flanders, though it is a much lower Plant than the common Sort; but they esteem it a much better Grass. The Seeds of this Kind are smaller and flatter than those of the common Sort, and have a white Border round each.

SPHONDYLIIUM, Cow-parf-nep.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of five uneven heart-shaped Leaves, which are placed circularly, and rest on the Empalement; which afterward becomes a Fruit composed of two large Seeds, which are flat and oval, having a Point that wants a Border within, channeled, and generally casting off their Cover, and marked with dark Spots on the Part where they adhere to each other.

The Species are;

1. SPHONDYLIIUM *vulgare hirsutum*. C. B. P. Common hairy Cow-parf-nep.

2. SPHONDYLIIUM *vulgare hirsutum, floribus purpureis*. C. B. P. Common hairy Cow-parf-nep, with purple Flowers.

3. SPHONDYLIIUM *majus, fove panax Herculeum quibusdam*. J. B. Greater Cow-parf-nep, or Hercules's All-heal.

4. SPHONDYLIIUM *crispum*. J. B. Curled Cow-parf-nep.

5. SPHONDYLIIUM *foliis angustioribus*. C. B. P. Hairy Cow-parf-nep, with narrower Leaves.

6. SPHONDYLIIUM *foliis angustioribus atro-purpureis*. H. K. *vis sp.*

Cow-parsnep with narrower dark-purple Leaves.

7. SPHONDYLIIUM *Alpinum parvum*. C. B. P. Small Cow-parsnep of the *Alps*.

8. SPHONDYLIIUM *Alpinum glabrum*. C. B. P. Smooth Cow-parsnep of the *Alps*.

9. SPHONDYLIIUM *orientale maximum*. Tourn. Cor. Greatest Eastern Cow-parsnep.

10. SPHONDYLIIUM *orientale, amplissimo folio, caule brevi*. Tourn. Cor. Eastern Cow-parsnep, with a very large Leaf, and a short Stalk.

11. SPHONDYLIIUM *orientale, longissimo & angustissimo folio*. Tourn. Cor. Eastern Cow-parsnep, with a very long and very narrow Leaf.

12. SPHONDYLIIUM *orientale angustifolium glabrum, anisum olens*. Tourn. Cor. Smooth narrow-leaved Eastern Cow-parsnep, smelling like Anise.

13. SPHONDYLIIUM *orientale, foliis ammi perennis*. Tourn. Cor. Eastern Cow-parsnep, with perennial Bishops-weed-leaves.

14. SPHONDYLIIUM *orientale humilium, foliis absinthii*. Tourn. Cor. Dwarf Eastern Cow-parsnep, with Wormwood-leaves.

15. SPHONDYLIIUM *orientale, dauci vulgaris folio, asphodeli radice*. Tourn. Cor. Eastern Cow-parsnep, with a common Carrot-leaf, and an Asphodel-root.

The first and fifth Sorts grow wild in *England*; the first is very common on the Sides of Ditches, and the Borders of Fields, in moist Land every-where. The other Sorts are not Natives of this Country; but are many of them preserved in Botanic Gardens, for the sake of Variety.

They are all very hardy Plants, which may be propagated by Seeds: The best Time for sowing them is in Autumn, soon after the Seeds are

ripe. They should be sown where the Plants are designed to remain, because they send forth Tap-roots, somewhat like those of the Parsnep; wherefore they do not thrive so well when transplanted, as if suffered to remain where they are sown. The Plants growing very large, the Seeds should be sown in Drills, at two Feet and an half Distance; and in the Spring, when the Plants appear, they should be thinned, so as to leave them at least eighteen Inches asunder in the Rows; after which they will require no farther Care, but to keep them clear from Weeds; and, when the Plants have obtained Strength, they will not easily be injured by Weeds; for they will overbear them, and prevent their getting up. The second Year these Plants will produce Flowers and Seeds, and their Roots will abide many Years, and produce Seeds every Year, which, if permitted to scatter, will fill the neighbouring Ground, and become troublesome Weeds.

The third Sort (which is very common in *Germany*) hath been, by some of the *German* Writers, taken for the *Acanthus* or *Bears-breech*, and the same Qualities applied to it.

The Name of Cow-parsnep was given to this Plant, from the Cows eating of it; but they do not choose to eat the Leaves of this Plant, if they can get any other Food, as may be observed in the Fields where the Plant is in great Plenty; for the Cows will eat the Grass very close about these Plants, though they are rarely found to be touched by them, unless when the Grass is burnt up. Rabbits will eat the Leaves of this Plant, and seem fond of it.

SPINA ALBA; *vide* *Mespilus*.

SPINACHIA, Spinach or Spinage.

The Characters are;

It hath an apetalous Flower, consisting of many Stamina included in the Flower-cup, which are produced in Spikes upon the Male Plants, which are barren; but the Embryoes are produced from the Wings of the Leaves on the Female Plants, which afterwards become roundish or angular Seeds, which in some Sorts have Thorns adhering to them.

The Species are;

1. SPINACHIA vulgaris, capsula seminis aculeata. Tourn. The common prickly or narrow-leaved Spinach.

2. SPINACHIA vulgaris, capsula seminis non aculeata. Tourn. Common smooth-seeded Spinach, with broader Leaves.

3. SPINACHIA vulgaris, capsula seminis non aculeata, folio maximo rotundo. Spinach with smooth Seeds, and a very large round Leaf.

The first of these Sorts is commonly cultivated in Gardens for Winter-use, it being much hardier than any of the other Sorts.

The Seeds of this Kind should be sown upon an open Spot of Ground towards the Latter-end of July, observing, if possible, to do it when there is an Appearance of Rain; for, if the Season should prove dry for a long time after the Seed is sown, the Plants will not come up regularly, and many times there will not be half a Crop. When the Spinach is come up, the Ground should be hoed to destroy the Weeds, and also to cut up the Plants where they are too close, leaving the remaining Plants about four or five Inches asunder: but this should always be done in dry Weather, that the Weeds may be destroyed after they are cut.

About a Month or five Weeks after the first Hoeing, the Weeds

will begin to grow again; therefore the Ground should be then hoed again the second time, observing, as before, to do it in dry Weather; but, if the Season should prove moist, it will be proper to gather up the Weeds after they are cut, and carry them off the Ground; for, if the Spinach is not cleaned before Winter from Weeds, they will grow up and stifle it, so that in wet Weather the Spinach will rot away.

In October the Spinach will be fit for Use, when you should only crop off the largest Leaves, leaving those in the Centre of the Plants to grow bigger; and thus you may continue cropping it all the Winter and Spring, until the young Spinach, sowed in the Spring, is large enough for Use, which is commonly in April; at which Season the Spring advancing, the Winter-spinach will run up to Seed, so that you should cut it up, leaving only a small Parcel to produce Seeds.

But the Ground in which this Winter-spinach is sown, being commonly planted with early Cabbages, it is not proper to let any of the Spinach remain there for Seed; but it should be cleared off as soon as ever the Spinach is fit for Use, that the Cabbages may be earthed up, and laid clear, which is of great Service to them: therefore you should sow a small Spot of Ground with this Sort of Spinach, on purpose to stand for Seed, where there should be no other Plants among it.

The two Sorts with smooth Seeds produce much larger and thicker round Leaves than the former; but, being somewhat tenderer, are always sown in the Spring, especially the third Sort, which is preferable to either of the former for Summer use.

These

These are either sown upon an open Spot of Ground by themselves, or else mixed with Radish-Seed, as is the common Practice of the Gardeners near *London*, who always endeavour to have as many Crops from their Land in a Season as possible: but, where Land is cheap in the Country, it will be the better Method to sow it alone without any other Sort of Seed mixed with it; and, when the Plants are come up, the Ground should be hoed to destroy the Weeds, and cut out the Plants where they are too close, leaving the remaining about three Inches asunder; and, when they are grown so large as to meet, you may then cut out a Part of it to use, thinning them, that they may have room to spread: and this Thinning may be twice performed, as there is Occasion for the Spinach, at the last of which the Roots should be left eight or ten Inches asunder; and if then you hoe the Ground over again, to destroy the Weeds, it will be of great Service to the Spinach; for, if the Land is good, upon which it was sown, the third Sort, with this Management, will many times produce Leaves as large as the broad-leaved Dock, and be extremely fine.

But, in order to have a Succession of Spinach through the Season, it will be proper to sow the Seed at three different times in the Spring; the first early in *January*, which must be on a dry Soil; the second the Beginning of *February*, upon a moister Soil; and the third the Beginning of *March*, which should be on a very moist Soil; and this third Sowing should be hoed out thinner the first time of hoeing it, than either of the former Sowings; for there will be

no Necessity to leave it for cutting out thin for Use, because the former Sowings will be sufficient to supply the Table, till this third Sowing is full grown; besides, by leaving it thin at first, it will not be apt to run up to Seed so soon as it would if the Plants were close.

In order to save Seed of either of these Kinds, you should sow an open rich Spot of Ground, with the Sort you intend, in *February*, after the Danger of being injured by Frost is over; and, when the Plants are come up, they should be hoed out to six or eight Inches Distance, observing to cut down the Weeds at the same time; and, when the Plants have grown about three Weeks or a Month longer, they should be hoed a second time, when they should be left twelve or fourteen Inches asunder at least; for, when they have shot out their Side-branches, they will sufficiently spread over the Ground.

You must also observe to keep them clear from Weeds, which, if suffered to grow amongst the Spinach, will cause it to run up weak, and greatly injure it. When the Plants have run up to Flower, you will easily perceive two Sorts among them, *viz.* Male and Female; the Male will produce Spikes of staminateous Flowers, which contain the Farina, and are absolutely necessary to impregnate the Embryoes of the Female Plants, in order to render the Seeds prolific. These Male Plants are by the Gardeners commonly called *She Spinach*, and are often by the Ignorant pulled up as soon as they can be distinguished from the Female, in order, as they pretend, to give room for the Seed-bearing to spread; but, from several Experiments which I made on these Plants,

Plants, I find, where-ever the Male Plants are intirely removed, before the Farina is shut over the Female Plants, the Seed will not grow which they produce; so that it is absolutely necessary to leave a few of them in every Part of the Spot; though there may be a great many drawn out where they are too thick: for a small Quantity of Male Plants, if rightly situated, will be sufficient to impregnate a great Number of Female, because they greatly abound with the Farina, which, when ripe, will spread to a considerable Distance, when the Plants are shaken by the Violence of the Wind.

SPIRÆA FRUTEX, *Spiræa Frutex; vulgo.*

The Characters are;

The Flower is composed of many Leaves, which are placed in a circular Order, and expand in form of a Rose; out of whose Flower-cup rises the Pointal, which afterward becomes a Fruit composed of several Pods, in which are contained several oblong Seeds.

The Species are;

1. **SPIRÆA salicis folio.** *Tourn.* *Spiræa Frutex; vulgo.*

2. **SPIRÆA opuli folio.** *Tourn.* *Spiræa* with a Marsh-elder-leaf, commonly called *Virginian Gelder-rose,* with a *Curran-leaf.*

3. **SPIRÆA hyperici folio non crenato.** *Tourn.* *Hypericum Frutex; vulgo.*

4. **SPIRÆA Hispanica, hyperici folio crenato.** *Ins. R. H.* *Spanish Spiræa,* with a notched St. John's-wort-leaf, commonly called *Hypericum frutex,* with a notched Leaf.

5. **SPIRÆA Africana odorata, foliis pilosis.** *Com. Rar.* Sweet-scented *African Spiræa,* with hairy Leaves.

The first of these Shrubs is very common in the Nurseries near *London,* where it is sold with other flowering Shrubs at a certain Price

by the Hundred. This Shrub, seldom rising above five Feet high, is proper to intermix with other Shrubs of the same Growth, in small Wilderness-quarters, and other Plantations of flowering Trees.

This Plant may be propagated from Suckers, which are sent forth in Plenty from the Stems of the old Plants, or by laying down the tender Branches, which, when rooted, should be transplanted out in Rows, at three Feet Distance; and the Plants a Foot asunder in the Rows. In this Nursery they may remain two Years, observing to keep the Ground clear from Weeds, and in the Spring to dig up the Ground between the Rows, so that their Roots may the more easily extend themselves; and, if they shoot out many Side-branches, they should be pruned off, so as to reduce the Shrubs to a regular Figure; and afterward they may be transplanted where they are to remain, either in small Wilderness-quarters, or in Clumps of flowering Shrubs, observing to place them amongst other Sorts of equal Growth.

The second Sort is not quite so common in *England* as the former. This was originally brought from *America;* but, being full as hardy as the former, and increasing as fast by Suckers, it may soon be obtained in Plenty. This is nearly of the same Growth with the former, and may be intermixed therewith in Wilderness-quarters, to add to the Variety; it may be propagated and managed in the same manner as the former.

The third Sort is very common in the Nurseries near *London,* where it is generally known by the Name of *Hypericum Frutex,* and is sold amongst other flowering Shrubs at a common Rate. This may be propagated by laying down the Un-

der-branches, which will take Root in the Compass of one Year, when they may be taken off, and planted in a Nursery for two or three Years (as hath been directed for the former); after which they may be transplanted out where they are designed to remain, placing them with the two former, being nearly of the same Growth, where they will add to the Variety.

The fourth Sort is equally hardy with the third, and rises to the same Height; wherefore it may be disposed in the same manner in Plantations of flowering Shrubs. It may be propagated by laying down the Branches, or by Suckers from the Root, as hath been directed for the third Sort.

The two first Sorts produce their Flowers at the Extremity of their Shoots, the first in a long Spike, and the second in form of an Umbel; but the third Sort produces its Flowers at the Joints of the former Year's Wood, in Bunches, so that the whole Tree seems covered with white Flowers, when they are blown. They all three produce their Flowers in May, and sometimes continue in Beauty till June in a cool Season, for which they are esteemed by the Curious.

These Shrubs will require no other Pruning but to cut out all the dead Branches, and such as grow irregular, and take off all their Suckers every Year: for, if these are permitted to grow, they will starve the old Plants, by drawing away their Nourishment. The Ground between them should also be dug every Spring, to encourage their Roots, and every third Year a little rotten Dung buried therein, which will cause them to flower very strong.

The fifth Sort is a Native of

the *Cape of Good Hope*, where the Inhabitants call it *Bucbu*, and esteem it extremely for many medicinal Purposes, but particularly for expelling the Venom of Snakes.

This Plant is at present very rare in *England*, and I believe in most Parts of *Europe*, though formerly it was growing in several curious Gardens in *Holland*; but hath been lost in that Country for some time, till two Years ago it was retrieved again from the *Cape of Good Hope*, by Mr. *George Clifford* of *Amsterdam*, a Gentleman who is extremely curious in Botany and Gardening, from whom I was furnished with it.

This Plant is propagated from Seeds, which should be sown upon a moderate Hot-bed in the Spring; and, when the Plants are come up, they must be transplanted each into a separate small Pot filled with light fresh Earth, and plunged into a fresh Hot-bed, observing to water them, and shade the Glasses, in the Heat of the Day, until they have taken Root, after which they should have Air in proportion to the Heat of the Weather, and the Bed in which they are placed. In June they should be inured to the open Air by degrees; and the Beginning of July they should be removed out of the Hot-bed, and placed in a warm Situation; where they may remain until the End of September; at which time they must be removed into the Greenhouse, placing them in a warm Part, but not too close under other Plants. During the Winter-season they must be now-and then gently refreshed with Water; but they should not have it given them in large Quantities at that Season; but in the Summer they require to be watered more plentifully; and at

least

least once a Year they must be shifted into other Pots of a larger Size, as the Plants advance their Growth, giving them fresh Earth, which should be light and rich.

This Plant produces its Flowers near the extreme Parts of the Branches, which, although not very beautiful, yet, for the singular Appearance of the hairy Leaves, which add to the Variety of Exotic Plants in the Green-house, it deserves a Place in every curious Garden, especially as it requires no artificial Heat in Winter.

SQUAHES; *vide* Melo-pepo.

SQUILLS; *vide* Scilla.

STACHYS, Base-horehound.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is somewhat arched and erect; and the Under-lip is cut into three Segments, the middle one being larger than the other two; out of the Flower-cup rises the Pointal, attended by four Embryoes, which afterward become so many Seeds, which are roundish, and inclosed in an Husk, which before was the Flower-cup: to these Marks may be added, Downy hoary Leaves.

The Species are;

1. STACHYS *major Germanica*. C. B. P. Greater German Base-horehound.

2. STACHYS *Cretica*. C. B. P. Base-horehound of Candia.

3. STACHYS *Cretica latifolia*. C. B. P. Broad-leaved Base-horehound of Candia.

4. STACHYS *minor Italica*. C. B. P. Lesser Italian Base-horehound.

5. STACHYS *Canariensis frutescens, verbasci folio*. Tourn. Canary shrubby Base-horehound, with a Mullen-leaf.

There are several other Species of this Plant, which are preserved in

some curious Botanic Gardens for Variety; but, as they have little Beauty or Use, I shall not enumerate them here.

The four Sorts first-mentioned will seldom abide longer than two or three Years; for, after they have produced Flowers and Seeds, the old Roots are very apt to decay, unless Part of their Flower-stems are taken off early in the Summer, which will cause them to break out again at Bottom, where by the Roots may be preserved.

They are all propagated by Seeds, which should be sown in *March* upon a Bed of light fresh Earth; and, when the Plants are come up, they may be planted out into other Beds about six Inches asunder, observing to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds till *Michastmas*, when they should be transplanted where they are to remain, which must be in an open Situation, and upon a dry light Soil not too rich, in which they will endure the Winter much better than in a rich strong Soil. The Summer following, these Plants will flower, and in *August* their Seeds will ripen, when they may be gathered and preserved till Spring for sowing.

The fifth Sort is a shrubby Plant, which with us rises to be six or seven Feet high: this is propagated by sowing the Seeds upon a Bed of light fresh Earth, as the former; and, when the Plants are come up, they must be transplanted into Pots filled with fresh light sandy Soil, placing them in a shady Situation until they have taken Root, after which they may be removed into a more open Exposure; but in dry Weather must be frequently watered. In this Place they

they may remain until the Middle or Latter-end of *October*, when they must be removed into the Green-house, placing them in the coolest Part, where they may have as much free Air as possible, and must be often watered, otherwise they will soon decay.

In Summer-time these Plants will require to be shifted twice, adding fresh Earth to their Roots; and, if they are only sheltered from hard Frost in Winter, it will be sufficient; for they are very hardy. The second Year after sowing, they will produce Flowers and Seeds, and will continue so to do every Year after; and although their Flower has no great Beauty, yet, for the Variety of its large soft woolly Leaves, it deserves a Place amongst other Exotic Plants.

STAPHYLODENDRON, Bladder-nut.

The Characters are;

The Flower consists of several Leaves, which are placed circularly, and expand in form of a Rose; out of whose many-leaved Flower-cup rises the Pointal, which afterward becomes a membranous Fruit, somewhat like the inflated Bladder of Fishes, and divided into two or three Cells, containing Seeds in form of a Skull.

The Species are;

1. *STAPHYLODENDRON sylvestre & vulgare. H. L.* The common wild Bladder-nut.

2. *STAPHYLODENDRON Virginianum trifoliatum. H. L.* Three-leaved Virginian Bladder-nut.

3. *STAPHYLODENDRON Africanum, folio singulari lucido. Par. Bat.* African Bladder-nut, with single shining Leaves.

4. *STAPHYLODENDRON Americanum, foliis lauri angustis. Plum.*

Cat. American Bladder-nut, with narrow Bay-leaves.

5. *STAPHYLODENDRON Americanum trifoliatum, foliis incis. Hauss.* Three-leaved American Bladder-nut, with cut Leaves.

The first of these Trees is found wild in the Woods, and other shady Places, near *Pontefract* in *Yorkshire*, and in some other Northern Parts of *England*; but near *London* it is preserved in the Gardens of those who are curious in collecting the various Kinds of hardy Trees.

The second Sort is a Native of *America*; but is so hardy, as to endure the severest Cold of our Climate in the open Air; and produces Flowers and Fruit as plentifully in *England* as the common wild Sort.

Both these Kinds may be propagated by sowing their Seeds early in the Spring, in Beds of light fresh Earth; and, when the Plants are come up, they must be carefully kept clear from Weeds; and in very dry Weather, if they are now-and-then refreshed with Water, it will greatly promote their Growth. In these Beds they may remain until *March* following, at which time they should be carefully taken up, and planted in a Nursery, placing them in Rows three Feet asunder, and the Plants eighteen Inches Distance in the Rows; observing to lay a little Mulch upon the Surface of the Ground about their Roots, to prevent the Sun and Wind from penetrating the Ground to dry them; and if the Spring should prove very dry, it will be convenient to give them a little Water, to encourage their taking Root; after which they will require no farther Care, but to keep the Ground clear from Weeds in Summer, and every Spring to prune
off

off irregular Branches, and dig the Ground between the Rows, to loosen the Earth, that their Roots may the more easily extend. In this Nursery they may remain two or three Years, by which time it will be proper to transplant them out where they are to remain, either in Wilderness-quarters, or in Clumps of various Trees, where they will add to the Diversity. The best Season for transplanting these Trees is in the Spring, just before they begin to shoot, though they may be transplanted in *October* and *November*, as is practised for other deciduous Trees.

These will commonly grow in *England* to the Height of twelve or fourteen Feet; therefore they should be placed with other Trees of the same Growth.

They may also be propagated by laying down their tender Branches, which will take Root in the Compass of one Year; and may be afterwards taken off and transplanted, as hath been directed for the seedling Plants.

The *African* Sort does not produce Seeds in this Country, as I could ever observe; for which Reason it is only propagated by laying down the tender Branches in the Spring, observing to notch them at a Joint, as is practised in laying down Carnations. These, if duly watered in dry Weather, will take Root in the Compass of one Year, and may the succeeding Spring be taken off, and transplanted into Pots filled with light fresh rich Earth, and placed in a shady Part of the Green-house, until they have taken Root; and in *May* they should be carried into the open Air, placing them amongst other Exotic Plants, in a warm Situation. During the Summer-season they must be fre-

quently watered, and, when their Roots have filled the Pots, they should be removed into larger, observing always, in shifting these Plants, to pare off the Earth and Fibres on the Outside of the Ball, before they are placed into the other Pots, which must also be filled up with the same light rich Earth, as before directed. In Winter they must be housed with Oranges, Myrtles, &c. being too tender to endure the Cold of our Climate in the open Air, but requiring no artificial Warmth in Winter; and though the Flowers of this Tree (which it often produces in *England*) are not very beautiful; yet, as it retains its Leaves all the Winter, which have a very shining Appearance, when the Trees are trained up to regular Heads, it adds greatly to the Beauty of a Green-house, when intermixed with Exotic Plants, and deserves a Place in every good Collection.

The fourth Sort is pretty common in *Jamaica*, *Barbados*, and some other Places in the warm Parts of *America*; where it usually rises to the Height of ten or twelve Feet, and produces its Branches regularly; which are beset with Leaves shaped in some measure like those of the Bay-tree; but are narrower, and full of Veins, and of a lighter green Colour. The Flowers are small, and of an herbaceous Colour; which are succeeded by flat Bladders, having a Border round them, and inclosing two or three roundish Seeds.

It may be propagated by Seed, which should be sown early in the Spring, on a moderate Hot-bed; and, when the Plants are come up, they should be frequently refreshed with Water, and kept clear from Weeds, until they have obtained Strength enough to transplant; when they

they should be carefully taken up, and each planted into a separate small Pot filled with fresh light Earth; and then plunged into an Hot-bed of Tanners Bark, where they must be carefully shaded until they have taken new Root; after which time they should have free Air admitted to them every Day in warm Weather, by raising the Glasses of the Hot-bed; and they must be constantly watered every other Day, during the Summer-season. If the Plants thrive, they will fill the small Pots with their Roots by the Beginning of July; when they must be shaken out of the Pots, and their Roots trimmed, and then put into Pots a little larger, which should be filled with fresh light Earth, and then plunged again into the Hot-bed, to facilitate their making new Roots; but, after this, they should have a larger Share of Air to harden them before Winter. At Michaelmas, when the Nights begin to be cold, the Plants should be removed into the Stove; where, during the Winter-season, they should be kept in a moderate Temperature of Warmth, and must be frequently refreshed with Water; but it should be given to them in small Quantities, when the Weather is cold. The following Summer the Plants should be by degrees inured to bear a large Share of Air; but, while they are young, they should not be intirely exposed abroad, though, when the Plants are become woody, they will bear to be set abroad every Summer, in a warm sheltered Situation, and in Winter will live in a good Greenhouse, without any artificial Heat. This Plant doth frequently produce Flowers in this Country, and in warm Seasons will sometimes perfect Seeds. It continues green throughout the Year, and will make an

agreeable Variety in the Conservatory in the Winter-season, for which it is chiefly preserved.

The fifth Sort was discovered by the late Dr. *William Houshoun*, at *Campechy*; this Sort hath weak flexible Branches, and doth not make a regular Stem like the former, but forms itself into a rude Bush. The Flowers of this Kind are produced in Bunches, at the Extremity of the Branches, which are succeeded by compressed Bladders, very like those of the former Sort.

This Kind may be propagated by Seeds, which must be sown, as hath been directed for the former Sort, and the Plants must be treated much after the same way; but, as these are somewhat tenderer than those, they should not be exposed abroad in Summer, nor will they live thro' the Winter, unless they are preserved in a moderate Degree of Warmth.

STARWORT; *vide* Aster.

STAR-FLOWER; *vide* Ornithogalum.

STATICE, Thrift, or Sea-pink.

The Characters are;

It is a Plant with a Flower gathered into an almost spherical Head, furnished with a common scaly Empalement. This Head is composed of several Clove-gilliflower-flowers, consisting of several Leaves, in a proper Empalement, shaped like a Funnel. In like manner the Pointal rises out of the same Empalement, and afterward turns to an oblong Seed, wrapped up in the Empalement, as in an Husk.

The Species are;

1. STATICE. *Lugd.* Thrift, Scagilliflower, or Sea-cushion.

2. STATICE. *montana minor.* Tourn. Lesser mountain Thrift, or Scagilliflower.

3. STATICE *foliis angustioribus,*
 flore

flora rubra. Barb. Ind. Narrow-leaved Thrift, with red Flowers.

4. *STATICE foliis angustioribus, flore albo. Barb. Ind.* Narrow-leaved Thrift, with a white Flower,

5. *STATICE Lusitanica fruticosa maritima, magno flore. Town.* Shrubby Portugal Sea-thrift, with a large Flower.

The first of these Plants grows wild in Germany, and some other inland Countries in great Plenty, from whence it hath been brought into England; but the second Sort is found wild very plentifully in the salt Marshes near the Sea, in divers Parts of England.

The third and fourth Sorts have been brought into England from the Alps, or some other mountainous Parts; and are preserved for the Beauty of their Flowers in some old Gardens.

The fifth Sort is not so common in England, as either of the former Sorts; and is only to be found in the Gardens of such as are curious in collecting rare Plants.

The first four Sorts have been promiscuously planted in Gardens, to make Edgings on the Sides of Borders in the Flower-gardens; for which Purpose they were formerly in great Esteem, but of late they have been very justly rejected for that Use, because there was a Necessity of transplanting these Edgings every Year, otherwise they could not be kept within due Bounds; besides, where-ever a Plant failed, which was no extraordinary thing, there always appeared a large unsightly Gap. However, though they are not in Use at present for that Purpose, yet a few Plants of the first, third, fourth, and fifth Sorts, should have a Place in some Part of the Flower-garden, for Variety, especially the third and fourth,

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which are extreme hardy Plants, and will grow in almost any Soil or Situation, and their Flowers will continue a long time in Beauty.

All these Sorts may be propagated by parting their Roots, the best Time for which is in Autumn, that they may take Root before the Frost, which will cause them to flower much sooner than those transplanted in the Spring, and the Plants will not be in so much Danger of miscarrying as those are, especially when the Spring happens to prove dry. After these Plants have taken Root, they will require no farther Care, but to keep them clear from Weeds; and the May following they will begin to flower, which will continue in Beauty three Weeks, or a Month, provided the Season be not too hot and dry.

The Portugal Sort is not so hardy as either of the former, tho' it will endure the Cold of our ordinary Winters very well in the open Air, provided it is planted in a dry Soil, and a warm Situation; but in very severe Frosts it is often destroyed. This may also be propagated by Cuttings or Slips, which should be planted on a Bed of fresh Earth in the Spring, and watered and shaded until they have taken Root; after which they must be kept clear from Weeds till Michaelmas, when they should be planted either in Pots to be sheltered in Winter, or in some warm Situation in the full Ground, where they may remain to flower.

This Plant will grow two or three Feet high, and become shrubby, provided it be not injured by Cold.

STOCK-GILLIFLOWER; *vide* Leucium.

STOECHAS, Cassidony, French Lavender, or Stickadore.

The Characters are;

It hath a labiated Flower, consist-

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ing

ing of one Leaf, whose Upper-lip is upright, and cut into two, tho' the Under-lip (or Beard) is cut into three Parts; but both are so divided as at first to appear like a Flower cut into five Segments; out of whose Flower-cup rises the Pointal, attended by four Embryoes, which afterward become so many roundish Seeds inclosed in the Flower-cup: to these Marks must be added, That the Flowers are ranged in a various Series into scaly Heads, out of the Top of which peep some small Leaves, which look very beautifully.

The Species are;

1. *STOECHAS purpurea*. C. B. P. Purple *Stœchas* or *Cassidony*, commonly called Arabian *Stœchas*.

2. *STOECHAS folioserrato*. C. B. P. *Cassidony* or French Lavender, with a serrated Leaf.

3. *STOECHAS cauliculis non foliatis*. C. B. P. *Cassidony* or French Lavender, with long naked Flower-stalks.

The Heads of Flowers of the first Kind are used in some of the capital Medicines directed by the College of Physicians, which are commonly brought from the South Parts of France, where the Plants are in great Plenty; but these are very apt to take a Mouldiness in their Passage, and therefore are not near so good for Use as those which are gathered fresh in England, where the Plants may be cultivated to great Advantage.

The second and third Sorts are preferred in many curious Gardens for Variety; but they are not of any Use.

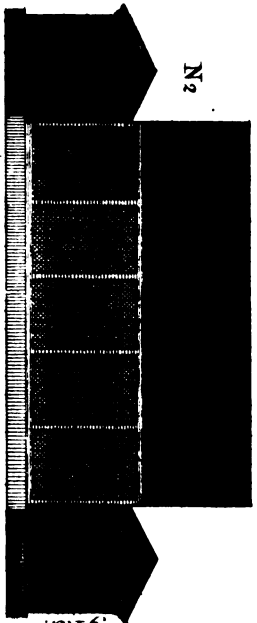
All these Plants may be cultivated by sowing their Seeds upon a Bed of light dry Soil in March; and, when the Plants are come up, they should be carefully cleared from Weeds until they are two Inches high, at which time they should be

removed; therefore there must be a Spot of light dry Ground prepared, and laid level, which must be trodden out in Beds; into which the Sorts should be planted at about five or six Inches Distance each way, observing to water and shade them until they have taken Root; after which they will require no further Care, but to keep them clear from Weeds the following Summer; but, if the Winter should prove very severe, it will be proper to screen them with Mats, Peas-haulm, or some other light Covering to guard them against the Frost, which otherwise would be apt to injure them while they are so young: but in March, or the Beginning of April, the following Spring, they must be removed into the Places where they are to remain, observing, if possible, to transplant them in a warm moist Season, and not to let them remain long above-ground; for, if their Roots are dried, they seldom grow well after. The Soil, in which these are planted, should be a dry warm Sand or Gravel; and the poorer the Soil is in which they are planted, the better they will endure the Cold of the Winter, provided the Ground be dry; tho' indeed the Plants will thrive better in Summer upon a rich moist Ground; but then they will not produce so many Flowers, nor will the Plant afford near so strong an aromatic Scent; as is the Case with most Sorts of aromatic Plants.

These Plants may also be propagated by planting Slips or Cuttings of any of the Kinds in the Spring, observing to refresh them with Water until they have taken Root, after which they may be managed as hath been directed for the seedling Plants; but, as those Plants raised from Seeds are much better than

please this cut before A.C. 3. Vol. 3

A Plan of the Stove.



N²

An explanation of the Draught.

N 1. Is the *Plan*.

A The pit for y^e *Barth*.

B Shields at each end one

where y^e *Fire* is kept y^e other

for a *Food* house in order to

make y^e draught *uniform*.

C The distance from the

Barth to y^e *inside Wall*.

D The *funnel* w^{ch} comes from y^e *Stom*.

E Where y^e *fire* is kept w^{ch} *pages*

thru all y^e *Shues* in y^e *barth Wall*.

F Is y^e *Chimney* where the

Smoke is carried off after

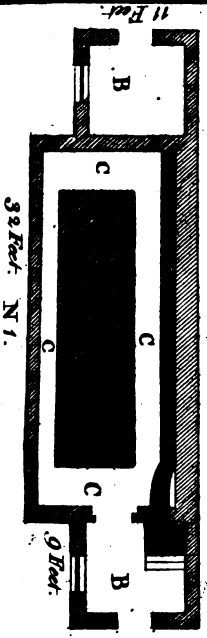
having *pass'd* the *Shues*.

N 2 Is y^e *Elevation* of y^e *Stom*.

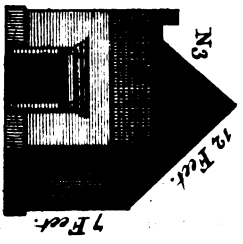
N 3 Is y^e *Elevation* of one end

w^{ch} shows y^e *Shape* of y^e *Shade* & y^e

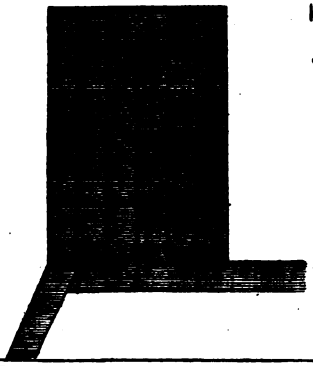
Angle w^{ch} it makes wth y^e *Stom*.



32 Feet. N 1.



N 3



B. Code. Saup.



than these, it is hardly worth while to propagate them this way, especially since their Seeds ripen so well in this Country.

The Heads of the first Sorts may be gathered for Use when the Flowers are in full Perfection, and spread to dry in a shady Place; after which they may be put up for Use.

STONECROP; *vide* Sedum.

STOVES are Contrivances for the preserving such tender Exotic Plants, which will not live in these Northern Countries without artificial Warmth in Winter. These are built in different Methods, according to the Ingenuity of the Artist, or the different Purposes for which they are intended; but in *England* they are at present reducible to two.

The first is called a *dry Stove*, being so contrived, that the Flues, thro' which the Smoke passes, are either carried under the Pavement of the Floor, or else are erected in the Back-part of the House, over each other. In these Stoves the Plants are placed on Shelves of Boards laid on a Scaffold above each other, for the greater Advantage of their standing in Sight, and enjoying an equal Share of Light and Air. In these Stoves are commonly placed the tender Sorts of Aloes, *Cereus's*, *Euphorbiums*, *Tithymals*, and other succulent Plants, which are impatient of Moisture in Winter, and therefore require to be kept in a separate Stove, and not placed among Trees, or herbaceous Plants, which perspire freely, and thereby cause a damp Air in the House, which is often imbibed by the succulent Plants to their no small Prejudice. These Stoves may be regulated by a Thermometer, so as not to over-heat them, nor to let the Plants suffer by Cold; in order to

which, all such Plants, as require nearly the same Degree of Heat, should be placed by themselves in a separate House; for if in the same Stove there are Plants placed of many different Countries, which require as many different Heats, by making the House warm enough for some Plants; others, by having too much Heat, are drawn and spoiled.

The other Sort of Stoves are commonly called *Bark-stoves*, to distinguish them from the dry Stoves already mentioned. These have a large Pit, nearly the Length of the House, three Feet deep, and six or seven Feet wide, according to the Breadth of the House; which Pit is filled with fresh Tanners Bark to make an Hot-bed; and in this Bed the Pots of the most tender Exotic Trees, and herbaceous Plants, are plunged. The Heat of this Bed being moderate, the Roots of the Plants are always kept in Action, and the Moisture detained by the Bark keeps the Fibres of their Roots in a ductile State, which in the dry Stove, where they are placed on Shelves, are subject to dry too fast, to the great Injury of the Plants. In these Stoves (if they are rightly contrived) may be preserved the most tender Exotic Trees and Plants, which, before the Use of the Bark was introduced, were thought impossible to be kept in *England*. But, as there is some Skill required in the Structure of both these Stoves, I shall not only describe them as intelligibly as possible, but also annex a Plan of the *Bark-stove* hereto, by which it is hoped every curious Person will be capable of directing the Workmen in their Structure.

The Dimension of this Stove should be proportioned to the Number of Plants intended to be pre-

served, or the particular Fancy of the Owner; but their Length should not exceed forty Feet, unless there are two Fire-places; and, in that Case, it will be proper to make a Partition of Glass in the Middle, and to have two Tan-pits, that there may be two different Heats for Plants from different Countries (for the Reasons before given in the Account of *dry Stoves*): and were I to erect a Range of Stoves, they should be all built in one, and only divided with glass Partitions, which will be of great Advantage to the Plants, because they may have the Air in each Division shifted, by sliding the Glasses of the Partitions, or by opening the Glass-door, which should be made between each Division, for the more easy Passage from one to the other.

This Stove should be raised above the Level of the Ground, in proportion to the Dryness of the Place; for if it be built on a moist Situation, the whole should be placed upon the Top of the Ground; so that the Brick-work in Front must be raised three Feet above the Surface, which is the Depth of the Bark-bed, whereby none of the Bark will be in Danger of lying in Water: but if the Soil be dry, the Brick-work in Front need not be more than one Foot above-ground, and the Pit may be sunk two Feet below the Surface. Upon the Top of this Brick-work in Front must be laid the Plate of Timber, into which the Wood-work of the Frame is to be fastened, and the upright Timbers in Front must be placed four Feet asunder, or somewhat more, which is the Proportion of the Width of the Glass-doors or Sashes; these should be about six Feet and an half, or seven Feet long, and placed upright; but from the Top of these should be

sloping Glasses, which should reach within three Feet of the Back of the Stove, where there should be a strong Crown-piece of Timber placed, in which there should be a Groove made for the Glasses to slide into. The Wall in the Back-part of the Stove should be thirteen Inches thick, and carried up about nine Feet above the Surface of the Bark-bed: and from the Top of this Wall there should be a sloping Roof to the Crown-piece where the Glasses slide in. This Crown-piece should be about twenty Feet high from the Surface of the Bark-bed or Floor, which will give a sufficient Declivity to the Sloping-glasses to carry off the Wet, and be of a reasonable Height to contain many tall Plants. The Back-roof may be slated, covered with Lead, or tiled, according to the Fancy of the Owner; but the Manner of this outside Building is better expressed by the annexed Plan, than is possible to be described in Words.

In the Front of the House there should be a Walk about twenty Inches wide, for the Conveniency of walking, next to which the Back-pit must be placed, which should be in Width proportionable to the Breadth of the House. If the House is twelve Feet wide, which is a due Proportion, the Pit may be seven Feet wide; and behind the Pit should be a Walk eighteen Inches wide, to pass, in order to water the Plants, &c. then there will be twenty-two Inches left next the Back-wall, to erect the Flues, which must be all raised above the Top of the Bark-bed: these Flues ought to be one Foot wide in the Clear, that they may not be too soon stopped with the Soot; and the lower Flue, into which the Smoke first enters from the Fire, should be two Feet deep

deep in the Clear; and this may be covered either with cast Iron-plates, or broad Tiles: over this the second Flue must be returned back again, which may be eighteen Inches deep, and covered on the Top as before; and so in like manner the Flues may be returned over each other five or six times, that the Heat may be spent before the Smoke passes off. The Thickness of the Wall in Front of these Flues need not be more than four Inches, but must be well joined with Mortar, and plastered withinside, to prevent the Smoke from getting into the House; and the Outside should be faced with Mortar, and covered with a coarse Cloth to keep the Mortar from cracking, as is practised in setting up Coppers. If this be carefully done, there will be no Danger of the Smoke entering the House, which cannot be too carefully avoided; for there is nothing more injurious to Plants than Smoke, which will cause them to drop their Leaves, and, if it continue long in the House, will intirely destroy them.

The Fire-place may be made either at one End, or in the Middle, according as there is most Convenience; for where-ever it is placed, it should have a Shed over it, and not be exposed to the open Air; because it will be impossible to make the Fire burn equally, where the Wind has full Ingress to it; and it will be troublesome to attend the Fire in wet Weather, where it is exposed to the Rain.

The Contrivance of the Furnace must be according to the Fuel which is designed to burn; but as Turf is the best Firing for Stoves, where it can be had, because it burns more moderately, and lasts longer than any other Sort of Fuel, and consequently requires less Attendance, I

shall describe a proper Sort of Furnace for that Purpose.

The whole of this Furnace should be erected within the House, which will be a great Addition to the Heat; and the Front-wall on the Outside of the Fire-place, next the Shed, should be two Bricks thick, the better to prevent the Heat from coming out that way. The Door of the Furnace, at which the Fuel is put in, must be as small as conveniently may be to admit of the Fuel; and this Door should be placed near the Upper-part of the Furnace, and made to shut as close as possible, so that there may but little of the Heat pass off thro' it. This Furnace should be about twenty Inches deep, and sixteen Inches square at Bottom, but may be sloped off on every Side, so as to be two Feet square at the Top; and under this Furnace should be a Place for the Ashes to fall into, which should be about a Foot deep, and as wide as the Bottom of the Furnace: this should also have an Iron-door to shut as close as possible; but just over the Ash-hole, above the Bars which support the Fuel, should be a square Hole about four Inches wide, to let in Air to make the Fire burn: this must also have an Iron-frame, and a Door to shut close, when the Fire is perfectly lighted; which will make the Fuel last the longer, and the Heat will be more moderate.

The Top of this Furnace should be nearly equal to the Top of the Bark-bed, that the lowest Flue may be above the Fire, so that there may be a greater Draught for the Smoke; and the Furnace should be covered with a large Iron-plate, closely cemented to the Brick-work, to prevent the Smoke from getting out; and you should be very careful, where-ever the Fire is placed,

that it be not too near the Bark-bed; for the Heat of the Fire will, by its long Continuance, dry the Bark, so that it will lose its Virtue, and be in Danger of taking Fire; to prevent which, it will be the best Method to continue a Hollow between the Brick-work of the Fire, and that of the Pit, about eight Inches wide, which will effectually prevent any Damage arising from the Heat of the Fire; and there should be no Wood-work placed any-where near the Flues, or the Fire-place, because the continual Heat of the Stove may in time dry it so much as to cause it to take Fire, which ought to be very carefully guarded against.

The Entrance into this Stove should be either from a Green-house, the dry Stove, or else through the Shed where the Fire is made, because in cold Weather the Front-glasses must not be opened. The Inside of the House should be clean white-washed, because the whiter the Back-part of the House is, the better it will reflect the Light, which is of great Consequence to Plants, especially in Winter, when the Stove is obliged to be shut up close.

Over the Top Sliding-glasses there should be either wooden Shutters, or Tarpawlines, to roll down over them in bad Weather, to prevent the Wet from getting through the Glasses, and to secure them from being broken by Storms of Hail; and these Outer-coverings will be very serviceable to keep out the Frost; and if, in very severe Cold, there is a Tarpawlin hung before the upright Glasses in the Front, it will be of great Service to the Stove, and a much less Fire will preserve an Heat in the House.

In the warmest of these Houses or Divisions should be placed the

most tender Exotic Trees and Plants, a List of which is as followeth:

Acajou or *Cashew*,
Alligator Pear,
All-spice or *Pimento*,
Arrow-root,
Bananas,
Bastard Cedar of Barbados,
Bastard Locust of Barbados;
Bully-tree,
Burton-wood of Barbados,
Cabbage-tree,
Cocoa-tree,
Callibash-tree,
Cassada,
Cassia Fistula,
Cedar-tree of Barbados,
Cherry-tree of Barbados;
Cocoa-nut-tree,
Cortex Winteranus,
Custard-apple,
Date-tree,
Dumb-cane,
Fiddle-wood,
Fig-tree, the *Arched Indian*,
Flower-fence of Barbados,
Fustic-tree,
Ginger,
Guaiacum,
Guaiava-tree,
Logwood,
Macaw-tree,
Mamee-tree,
Manchineel-tree,
Mimosa or *Sensitive Plants*,
Nickar-tree or *Bouduc*,
Palm-trees of several Sorts,
Papaw-tree,
Plantain-tree,
Plum-tree of Jamaica,
Sapotilla-tree,
Soap-berry-tree,
Sour-jop,
Sugar-apple,
Sweet-jop,
Tamarind-tree.

These, with most other Sorts of Trees, Shrubs, and herbaceous Plants, from

from very hot Countries, should be plunged in the Bark-bed, for the Reasons already assigned; and upon the Top of the Flues may be set the Melon-thistle, the tender Sort of Cereus's and Euphorbiums, with other very tender succulent Plants, which require to be kept dry in Winter.

As in this Stove are placed the Plants of the hottest Parts of the *East* and *West-Indies*, so the Heat should be kept up equal to that marked *Anana* upon Mr. *Fowler's* Thermometers, and should never be suffered to be above eight or ten Degrees cooler at most, nor should the Spirit be raised above ten Degrees higher in the Thermometer; both which Extremes will be equally injurious to the Plants in the Winter-season.

But, in order to judge more exactly of the Temper of the Air in the Stove, the Thermometer should be hung up at a good Distance from the Fire, nor should the Tube be exposed to the Sun; but, on the contrary, the Back hung thereto, because whenever the Sun shines upon the Ball of the Thermometer but one single Hour, it will raise the Liquor in the Tube considerably, when perhaps the Air of the House is not near so warm; which many times deceives those who are not aware of this.

In the Management of the Plants placed in the Bark-bed, there must be a particular Regard had to the Temper of the Bark, and the Air of the House, that neither be too violent; as also to water them frequently, because, when they are in a continual Warmth, which will cause them to perspire freely, if they have not a constant Supply to answer their Discharge, their Leaves will decay, and soon fall off. As

to the farther Directions concerning the Culture of the particular Plants, the Reader is desired to turn to their several Articles, where they are distinctly treated of.

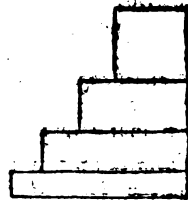
The other Sort of Stove, which is commonly called the *dry Stove* (as was before said), may be either built with upright and sloping Glasses at the Top, in the same manner, and after the same Model, as at the Bark-stove; or else the Front-glasses, which should run from the Floor to the Ceiling, may be laid sloping to an Angle of forty-five Degrees, the better to admit the Rays of the Sun in Spring and Autumn. The latter Method has been chiefly followed by most Persons who have built these Sort of Stoves; but were I to have the Contrivance of a Stove of this Kind, I would have it built after the Model of the Bark-stove, with upright Glasses in Front, and sloping Glasses over them, because this will more easily admit the Sun at all the different Seasons; for in Summer, when the Sun is high, the Top-glasses will admit the Rays to shine almost all over the House; and, in Winter, when the Sun is low, the Front-glasses will admit its Rays; whereas, when the Glasses are laid to any Declivity in one Direction, the Rays of the Sun will not fall directly thereon above a Fortnight in Autumn, and about the same time in Spring, and during the other Parts of the Year they will fall obliquely thereon; and in Summer, when the Sun is high, the Rays will not reach above five or six Feet from the Glasses: besides, the Plants placed toward the Back-part of the House will not thrive in the Summer-season, for want of Air; whereas when there are sloping Glasses at the Top, which run within three Feet of the Back of the House,

these, by being drawn down in hot Weather, will let in perpendicular Air to all the Plants; and of how much Service this is to all Sorts of Plants, every one who has had Opportunity of observing the Growth of Plants in a Stove, will easily judge; for when Plants are placed under Cover of a Ceiling, they always turn themselves toward the Air and Light, and thereby grow crooked; and if, in order to preserve them strait, they are turned every Week, they will nevertheless grow weak, and look pale and sickly, like a Person shut up in a Dungeon; for which Reasons, I am sure, whoever has made Trial of both Sorts of Stoves, will readily join with me to recommend the Model of the Bark-stove for every Purpose.

As to the farther Contrivance of this Stove, it will be necessary to observe the Temper of the Place, whether the Situation be dry or wet; if it be dry, then the Floor need not be raised above two Feet above the Level of the Ground; but if it be wet, it will be proper to raise it three Feet, especially where these Flues are to be carried under the Floor; so, when they are made under, or close upon the Surface of the Ground, they will raise a Damp, nor will the Flues draw so well as when they are more elevated. The Furnace of this Stove may be either placed at one End of the House, or at the Back-part thereof, according to the Conveniency of the Building. This must be made according to the Fuel intended to burn, which, if for Coals or Wood, may be made according to the common Method for Coppers, but only much larger, because, as the Fire is to be continued in the Night chiefly, so, if there is not Room to contain a great Quan-

tity of Fuel, it will occasion a great deal of Trouble in tending upon the Fire in the Night, which should be avoided as much as possible, because whenever the Trouble is made very great or difficult, and the Person who is intrusted with the Care of it has not a very great Affection for the Thing, and is withal not very careful, there will be great Hazard of the Fire being neglected, which, in a little time, would be of dangerous Consequence to the Plants; but if the Fuel intended be Turf, then the Contrivance of the Furnace may be the same as for the Bark-stove already mentioned.

In this Stove there should be a Stand or Scaffold erected, for placing Shelves above each other, in the manner annexed, that the Plants may



be disposed above each other so as to make a handsome Appearance in the House; but these Shelves should be made moveable, so as to be raised or sunk, according to the various Height of the Plants, otherwise it will be very troublesome to raise or sink every particular Part according to their Heights, every Year as they advance.

This Stand or Scaffold should be placed in the Middle of the House, leaving a Passage about two Feet and an half in the Front, and another of the same Width in the Back, for the more conveniently passing round the Plants to water them, and

and that the Air may freely circulate about them. In disposing the Plants, the tallest should be placed backward, and the smallest in Front, so that there will not be Occasion for more than five or six Shelves in Height at most; but the Scaffold should be so contrived, that there may be two Shelves in Breadth laid upon every Rise, whenever there may be Occasion for it; which will save a deal of Trouble in disposing of the Plants.

In the Erection of these Stoves, it will be of great Service to join them all together, with only Glass Partitions between them, as was before observed; and, where several of these Stoves and Green-houses are required in one Garden, then it will be very proper to have the Green-house in the Middle, and the Stoves at each End, either in the manner directed in the Plan of the Green-house exhibited in that Article, or carried on in one strait Front: and in the Contrivance of these it may be so ordered, that, upon opening an iron Regulator placed at the End of the Flue of the Stove, and stopping another placed at the Entrance of the back Flue, the Smoke may be made to pass through the Green-house in extreme hard Frost, which will be sufficient to prevent its ever freezing in the House; for want of which Contrivance, it is hardly possible to keep out the Frost in very severe Winters.

By this Contrivance in the Structure of these Houses, a Person may pass from one to the other of them, without going into the open Air; which, besides the Pleasure to the Owner, is also of great Use, because there will be no Occasion of making a Back-way into each of them, which otherwise must be, because the Front-glasses of the

Stoves should not be opened in cold Weather, if it can possibly be avoided on any account, because the cold Air, rushing in, will greatly prejudice the very tender Plants.

But, besides the Stoves here described, and the Green-house, it will be very necessary to have a Glass-case or two, where-ever there are great Collections of Plants. These may be built exactly in the manner already described for the Stoves, with upright Glasses in Front, and sloping Glasses over the Top of them, which should run within four Feet of the Back of the House. The Height, Depth, and other Dimensions, should be conformable to that of the Stoves, which will make a Regularity in the Building. These may be placed at the End of the Range on each Hand beyond the Stoves; and, if there be a Flue carried along under the Floor of each, which may be opened in severe Frost, in the manner already directed for that under the Green-house, and the Smoke of the adjoining Stove made to pass off through these, it will save a great deal of Labour, and prevent the Frost from ever entering the House, be the Winter ever so severe: but the upper Glasses of these Houses should have either Shutters to cover them, or else Tarpawlines to let down over them in frosty Weather; and, if there is a Contrivance to cover the upright Glasses in Frost, either with Mats, Shutters, or Tarpawlines, it will be of great Use in Winter; otherwise the Flue must be opened when the Frost comes on, which should not be done but upon extraordinary Occasions; because the Design of these Houses is, to keep such Plants as require only to be preserved from Frost, and need no additional Warmth; but at the same time require more Air than
can

can conveniently be given them in a Green-house. In one of these Houses may be placed all the Sorts of Ficoides's, *African* Sedums, Cotyledons, Senecios, and other succulent Plants from *The Cape of Good Hope*. In the other may be placed the several Kinds of Anemonospermos's, Jacobæa's, Doria's, Alaternoides's, and other woody or herbaceous Plants from the same Country, or any other in the same Latitude.

Thus by contriving the Green-house in the Middle, and two Stoves and a Glass-case at each End, there will be Conveniency to keep Plants from all the different Parts of the World, which can be no otherwise maintained but by placing them in different Degrees of Heat, according to the Places of their native Growth.

Since the Publication of the former Method of contriving Stoves, there hath been a great Number of Stoves built in *England*; and these have been projected in different Manners, according to the several Plants which they were designed to contain: so that there have been very great Improvements made in these Contrivances, but especially in the Stoves for the Ananas or Pine-apple, which Fruit is now pretty commonly cultivated in the *English* Gardens, and the Method of cultivating them more generally known; so that the Expence of maintaining them is greatly diminished. But, notwithstanding what has been by some affirmed, viz. that they may be propagated in Hot-beds without any Stoves; yet, from a Number of Trials, I am convinced, that is a more expensive Method, and attended with a much greater Uncertainty, than when they are kept in Stoves; for in those Hot-beds, when foggy cloudy Weather

happens, which is too frequent in the Winter-season in this Country, there must be an extraordinary Care taken to prevent the Damp (which will at such times be very great in the Beds) from rotting the Plants; and in very cold Weather, these Beds must be lined round the Sides with hot Dung, to keep a Warmth in the Bed; and this must be repeated three or four times in a Winter, according to the Cold of the Season, without which the Plants will not thrive: so that the Trouble of doing this is very great, and, where Dung is scarce, is also expensive; and in this Method there is no Certainty of having any Quantity of Fruit: for I have observed, where the Plants have been thus managed, few of them have produced Fruit, and some Years they have intirely miscarried; whereas those in Stoves seldom fail, when the Plants are of a proper Size for Bearing: and, after the first Expence of building the Stove, the Charge is not very great to maintain the Plants; for a small Quantity of Fuel will be sufficient to warm a Stove which is capable of containing fourscore or an hundred Plants; and a less Quantity of Tan will be required for them, than when they are kept in Frames. In a Stove of twenty-four Feet long, and, about eight Feet broad (exclusive of the Flues), may be planted about one hundred Plants to bear Fruit, provided they are planted in the Tan, which is found to be the best Method, and of which I shall give a particular Account hereafter. This Stove may be kept warm during the Winter-season, with two Chaldron and an half, or at most three Chaldron, of Coals, or with any other sort of Fuel in proportion: but, where Coal can be had at an easy Expence, it is much the best Fuel, because the Smoke

of this will warm much sooner than of any other Fuel; consequently will heat the Flues much more, and it will make much less Soot, than Turf, or any such Fuel; which is an Advantage, because the Flues will not require to be so often cleaned.

I shall now proceed to give a Description of two sorts of Stoves, which have been of late invented for the Ananas, in both which they are found to succeed equally. The first of these Stoves has but one Slope of Glasses, from the Top to the Plate, which is raised about a Root above the Level of the Ground (provided the Soil is dry; otherwise it must be advanced higher, so as that the Bark-pit may not descend so low as to be ever troubled with Water, which would cool the Tan, and spoil the Bed). The other sort of Stove has upright Glasses in Front, about Four Feet high; and, from the upper Part of these, are sloping Glasses, which run up to the Top. The Design of these upright Glasses in Front is, to admit of a small Walk between the Bark-pit and the Glasses, for the more convenient passing round the Plants to water them, &c. which in the other Stoves cannot be done; so that the Glasses must be opened to come at the front Row of the Plants, whenever they want to have any thing done to them: tho', as to the watering of the Plants, that may be very well performed, from the Walk on the Back of the Tan-bed, with a long-spouted Watering-pot; so that there will be no Necessity of opening the Glasses, but on particular Occasions. These small Stoves, with one Slope of Glasses, are contrived to save Expence, and where Persons are confined for Room; and, as they contain a much less Quantity of Air than the other Stoves, a smaller

Quantity of Fuel will keep them warm; but the other, being the more commodious, is by many People preferred to these. However, I shall give as plain Directions as possible for the building both these kinds of Stoves; which, with the annexed Plates, will be sufficient Instructions for any Person, who is the least skilled in Buildings, to make either of the Stoves.

The first Plate contains a Plan of the small Stove, with one Slope of Glasses, with a Section of the Flues, a Plan of the Tan-bed, and of the Furnace, with the Sloping-glasses. The Length from out-to-out of this Stove is twenty-four Feet; and the Width eleven Feet. The Walls in Front, and at one End, are one Brick and an half in Thickness, and the Back-wall must be two Bricks thick, in order to throw the Heat into the House, because to this Wall the Flues are built. The Pit, which contains the Tan, is the whole Length of the Building, and six Feet wide; but the Depth need not be more than two Feet and an half, which will hold a sufficient Quantity of Tan, to contain a moderate Warmth so long as is necessary. This Pit should be brick'd at bottom, to prevent the Earth mixing with the Tan; the Wall in Front of the Stove, as also those at each End, to encompass this Pit three ways, must be one Brick and an half thick; and there must be a nine-inch Wall carried up on the Back-side, to which the Wall which sustains the Flues, will almost join; for in carrying up the Back-wall of the Stove, it will be proper to make the Foundation so broad, as to include the Width of the Flues (which must be two Feet nine Inches), that the Work may settle equally. From this Foundation, to the Side of the Bark-pit, there

there will be two Feet, including the nine Inch Wall of the Pit ; so that the other fifteen Inches may be filled up with Rubbish, to save the Expence of Bricks, since it is only to support the Pavement of the Walk. In carrying up the back Wall of the Stove, the Flues should also be carried up with it, that the Covering of each Flue may be joined into the solid Brick-work of the Wall. The lower Part of the bottom Flue should be level with the Pavement of the Walk, that the Heat may be intirely above Ground. The Depth of the first Flue should be two Feet, because in this the greatest Quantity of Soot will lodge; and the Width must be as much as a Foot-tile may reach to cover, which may be about ten Inches; for if the Tiles have an Inch on each Side bearing, it will be sufficient, since they are not to support any Weight; but where the Flues are covered with flat Stones, which will admit of their being made wider, it will be proper to make them one Foot wide, which will give better Room to cleanse them. The Wall in Front of the Flues, within-side of the House, should not be above four Inches thick, that the Smoke, in passing thro' the Flues, may send the Heat more easily into the Stove. The other three Flues should be eighteen Inches deep, and all of them the same Width of the lower one; which will be large enough for a Chimney-sweeper to go thro' them, to cleanse them of the Soot, whenever they are foul. These Flues turning four times (as in the annexed Plan) will rise almost to the Top of the Stove; for, as the Use of these Stoves is to contain Ananas, which are low Plants, so if there is but Height enough for a Man to walk upright on the Walk at the Back-side of the House, be-

tween the Pit and the Flues, it will be sufficient; for the lower the Stoves are built, the less Quantity of Fewel will keep it warm in Winter: but as it will be necessary to build the Back-wall six Feet and an half high to contain the Flues, so by raising it one Foot higher, there will be upward of six Feet in Height, notwithstanding the Slope of the Front. The Flues should be well plaistered with Loam and Dung within-side, which should be laid as smooth as possible, that the Smoke may not be the least obstructed in its passing thro' them; and when they are carried quite up, the Whole should be plaistered on the Side within the Stove, with Lime and Hair, and covered closely with Hop-bags, or other coarse Cloth, after the manner Coppers are usually done; which will prevent the Smoke from getting thro' into the Stove, and fasten the whole Work together.

In the Front-slope, the Glasses need not be carried to the Top of the Building; but the upper Part may be boarded, and covered either with Slates or Lead, about three Feet and an half below the Top, which will cover the Flues and the Walk; so that the Glasses, which must run up just under this Covering, will extend over the Bark-bed, and the Plants will enjoy the full Advantage of the Sun and Light.

On the Back-side of the Stove, at one End, must be built a small Shed, in which the Furnace must be placed, which should be sunk so low, as that the Top of the Oven may be ten Inches, or a Foot, below the first Flue, which will occasion a good Draught to the Smoke. This Oven need not be very large for these small Stoves; about sixteen Inches wide, and twenty Inches long within-side, will be sufficient. To this

this Oven there must be an Iron-door, somewhat like those for Cop-pers; and under the Oven there must be an Ash-hole, to which there should also be another Door, that when the Fire is thoroughly light-ed, may be shut, to prevent the Fewel from burning away too fast. This Oven should be built with the best Materials, otherwise it will often want Repairing, which is what should be avoided as much as possible; for the Trouble of doing it is pretty great: besides, the often pulling down of the Oven will impair the other Brick-work into which it is joined.

At the other End of the Stove should be a Door, which should open outward, for the Conveniency of getting into the Stove, which must be made of double Deal, and contrived to shut as close as possible, to prevent the Air from getting into the Stove to cool it. This Door is also of Use to open, to give Air to the Plants in Summer, at such times, when it may be improper to open any of the Glasses. For the better understanding of the whole Contrivance, the annexed Plate, it is hoped, will be sufficient: wherefore I shall proceed to describe the other Sort of Stove, with upright Glasses in Front

The Stoves which are built with upright Glasses in Front, are more convenient than the others, as they admit of a small Walk in the Front of the Bark-bed; so that the Plants may be easier watered, and whenever there is any thing to be done to the Plants, it may be performed better, as there will be a Passage quite round the Tan-bed. The Length of these Stoves may be in proportion to the Number of Fruit desired; but they should not exceed forty Feet, unless there are two Ovens contrived for Fire to warm them; for one Fire-

place will not warm a greater Length of Stove, to such a Degree of Heat as is necessary to keep the Ananas in good Health; therefore I have chosen to make the annexed Plan of this Length. The Width of this Stove is twelve Feet from out-to-out, the Bark-pit is seven Feet over, and the Walk between the Bark-bed and the Front-glasses, as also at the two Ends, is one Foot six Inches broad; which will afford sufficient Room to pass round the Bed, to water, or do what is necessary to the Plants. The Walk on the Back of the Stove, between the Bark-bed and the Flues, is two Feet broad; which will be commodious enough for any Purposes, since, in these Buildings, their Use is chiefly consulted; for when they are too wide, there requires more Fewel to warm them, and there will be a greater Quantity of Glafs-work, which is not only an Expence in the first Building, but will be an annual Charge to keep in Repair.

The upright Glasses in the Front of the Stove are five Feet high; and being raised at the Bottom, about six Inches above the Walk, will be high enough to admit a Person to pass round to water the Plants; for if these Glasses are taller, it will be more difficult to reach the upper Glasses to draw them down to admit the Air to the Plants in hot Weather. The sloping Glasses, which run up to the Top of the Stove, being near twelve Feet in Length, are divided into two Ranges, which will render them more handy to move, and they will be much stronger than if they were only in one Range. From the upper Part of these Glasses there is a Penthouse, which slopes to the Back of the Stove, and projects so forward as to cover the Flues and the back Walk
of

of the Stove; so that the Glasses will reach as far as the Width of the Tan-bed, to admit Air and Sun to the Plants.

The Oven for this Stove should be two Feet square in the Clear, to contain a larger Quantity of Fewel than those of the small Stoves, because the Stove being larger, will require a greater Fire to warm it. The Contrivance of the Oven, and the Flues, being the same as in the small Stove, need not be repeated here.

Where a Person is desirous to have a large Quantity of Fruit of the Ananas every Year, the best way to effect it will be to have one of each of these Stoves, the largest of them to fruit the Plants; which, if made of the Dimension here described, will contain about two hundred Plants when full grown; and, in the small Stove, the young Plants may be brought on to supply the large Stove; which is a much surer and less troublesome Method, than to keep the young Plants under Frames without Fire in Winter, as is by some practised.

But those Persons who may think the Expence too great to build two Stoves, may contrive a Frame to raise the young Plants in; which, if made of Brick-work, may have two Flues carried in the Back-wall above the Tan-bed, which may be heated, in Winter, with a small Quantity of Fewel; for, as the Frame need not be more than three Feet high above the Tan-bed on the Back-side, the Quantity of Air contained in such a Frame may be warmed at a small Expence; and as the Glasses may be covered with Mats in cold Weather, the Frost will not cool the Air so much as where the Glasses have no Covering. If these Frames are built on dry Ground, the Bark-pit may be

sunk below the Surface of the Ground, which need not be more than two Feet and an half, and the Wall in Front must be about sixteen Inches above the Ground; but the Back-wall must be three Feet and an half high, which will make a Declivity sufficient to carry off the Rain. Upon the Walls must be fixed a Plate of Timber, about six Inches thick, into which the Gutters on which the Glasses are to slide, must be fixed; so that the Glasses will be raised on the Back-side, about three Feet and an half above the Surface of the Bark-bed, and about twenty-two Inches in Front, where the smallest Plants should be plunged; and the largest Plants must be plunged backward; whereby they will fall in a regular Slope, proportionable to the Glasses; so that the Plants in every Part of the Bed may be nearly at an equal Distance from the Glasses.

At one End of this Frame must be the Oven to make the Fire, which should be sunk intirely below the Surface of the Ground, that there may be a Draught for the Smoke; but this must be shedded over, to exclude the Rain, and inclosed so as to keep out the Wind; for if the Fire is exposed to the open Air, it cannot be kept regular. Therefore the best Method is to carry up the Shed with Brick-work, nearly the Height of the Back-wall, which may be covered with Tiles, and have a small Door to it, just sufficient for a Man to enter to put on the Fewel. This Shed need not be above four Feet square; for the Oven should not be more than fourteen Inches square in the Clear, which will contain as much Fewel as is necessary to warm this Frame. But this Oven must be intirely built in the Shed, and a Cavity carried up from the Bottom;

between

between the Oven and the Bark-bed; otherwise the Fire will dry the Tan, and it will be in great Danger of taking Fire, when the Bricks are thoroughly heated.

The Length of the Frame should not be more than twenty-four Feet, and the Width six Feet, which will hold a sufficient Number of young Plants to fill the large Stove, when they are fully grown, and one Fire-place will be sufficient to warm the Air contained herein. The two Flues of this Frame must be carried one over the other, in the same manner as in the Stove: the lower Part of the first Flue should be raised just above the Surface of the Bark-bed, to prevent the Heat from drying the Tan. This Flue should be eighteen Inches deep, and ten Inches in Width; and the upper Flue may be fourteen Inches deep, and of the same Width. But the better to inform the Reader, I have annexed a Plate of this Frame, by which it will be easily comprehended.

Where the Ground is wet, the Bark-pit must not be sunk below Ground; for if the Water should rise to the Tan in Winter, it will cool the Bed, and render it unfit to keep the Plants; therefore, in such Situations the whole Pit must be raised above the Surface of the Ground, which will occasion the Back-wall to be five Feet and an half high, and the Front-wall three Feet ten Inches high; so that it will be more troublesome to water the Plants, as also to shift the Tan in these Frames, than in those which are low; which is an Advantage always to be taken, whenever the Situation and Soil will admit of it: for the lower the Beds are, the less they will be exposed to Weather, and the more handy will it be to manage the Plants therein.

The Bottom of the Bark-pit in this Frame should be paved with Bricks, or a Foundation of Rubbish laid at Bottom, which should be made level, and pressed down hard; to prevent the Earth from mixing with the Tan, which it is very apt to do where this is not observed; besides, if the Persons who take out the old Tan, when the Bed requires to be renewed, are not very careful, they will dig into the Ground, and loosen the Earth in the Foundation; so that there will always be an Inequality therein.

The Stoves and Frame here described are chiefly intended for the Ananas, or may be used for any other tender Exotic Plants of low Growth; but whoever is willing to cultivate the larger Sorts of Exotic Plants and Trees, must build Stoves much higher than either of these, otherwise the Plants cannot be contained therein; for the Musas, which are now pretty common in *England*, will rise in the Space of fourteen or fifteen Months. to the Height of twenty Feet, or more, provided they are not cramp'd in their Roots; so that, in order to see these Plants in Perfection, the Stoves should be at least twenty-five Feet high, and proportionable in Width.

The most magnificent Stoves which have yet been built in *Europe*, are those of the Right Honourable Lord *Petre*, at *Thorndon-hall* in *Essex*, some of which are upwards of thirty Feet high, and above twenty Feet broad. The Bark-beds in these Stoves are twelve Feet broad; so that there is Room for large Plants to grow in the Borders which are made in the Middle of these Beds, and a spacious Walk round the Bed. On the Back-side of the Stove next to the Flues, is a broad Border, in which the several Sorts of climb-

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ing Plants, which are Natives of the warmest Countries, are planted, and an Espalier built to the Top of the House, for these to climb against; so that the Wall is intirely covered with Plants on the Inside of the House, which make a fine Appearance, because, as these are not confined in their Roots, they grow as luxuriantly as in their native Soil, and produce their Flowers and Fruit in great Plenty.

In the Building of these large Stoves, the same Method should be followed as for the Stove in the second Plate, with no other Alteration but that of enlarging the Dimensions; which should be in this Proportion, viz. for a Stove of twenty-five Feet high, the upright Front-glasses should be twelve Feet high, which will allow a good Share of Room for tall Plants near the Front of the Stove; and from the upper Part of these Glasses, the two Ranges of Sloping-glasses are to run to the Top, which will allow a sufficient Declivity to throw off the Water that may fall on them.

But as these Stoves are so much longer and broader than those before described, there should be two Ovens or Fire-places to each; for these Stoves being designed to contain the tenderest Plants, the Air must be kept above the temperate Heat, as marked on the Botanical Thermometers. The Length of these Stoves should be fifty Feet, and the Width about eighteen. The two Ovens (or Fire-places) may be built at each End, and so the Flues carried to meet in the Middle: but they should have no Communication with each other; for that will prevent their Drawing, so that the Smoke will not pass thro' them freely. The Flues may be carried over each other eight times; and if the lower Flue is made two

Feet and an half deep in the Clear, and the other Flues are each twenty Inches deep, it will raise the whole Range about fifteen Feet and an half high, including the Covering of each, which will be sufficient to heat the Air contained in the House; for when the Smoke has passed through eight of these Flues, there will be no Heat left in it; wherefore it is not of any Service to carry a greater Number of them than can be useful. These Flues should discharge their Smoke at each End; for if their Vents are joined together, it often prevents their drawing well.

STRAMONIUM, Thorn-apple.

The Characters are;

The Flower consists of one Leaf, shaped like a Funnel, and cut into several Segments; out of the Flower-cup rises the Pointal, which, when the Flower decays, becomes a roundish Fruit, armed, for the most part, with sharp Thorns, and divided into four Cells, formed by a Partition disposed in the Figure of a Cross, furnished with four Placentas, or nutritive Membranes, to which several kidney-shaped Seeds adhere.

The Species are;

1. STRAMONIUM fructu spinoso rotundo, flore albo simplici, Tournef. Thorn-apple with a round prickly Fruit, and a single white Flower.

2. STRAMONIUM fructu spinoso oblongo, caule & flore violaceo. Boerb. Ind. Thorn-apple with a longish prickly Fruit, and violet-coloured Stalks and Flowers.

3. STRAMONIUM ferox. Bacon. Thorn-apple with very long sharp Prickles.

4. STRAMONIUM Americanum minus, alkekengi folio, Tournef. Lesser American Thorn-apple, with a Winter-cherry-leaf.

5. STRAMONIUM Malabaricum, fructu glabro, flore simplici violaceo. Tournef.

Tourn. Malabar Thorn-apple, with a smooth Fruit, and a single violet-coloured Flower.

6. STRAMONIUM *fructu spinoso rotundo, flore violaceo duplici vel triplici.* *Tourn.* Thorn-apple, with a round prickly Fruit, and violet-coloured Flowers, which are two or three times double.

There are some other *Species* of this Plant, which are preserved in some curious Botanic Gardens; but as they have little Beauty or Use, I shall not enumerate them in this Place. The first Sort is used to make a cooling Ointment, which is by many Persons greatly esteemed. This, tho' not a Native of this Country, yet is now become so common upon Dunghills, and other rich Grounds, as not to be easily eradicated. The Seeds falling, will continue all the Winter in the Ground, and in Spring the Plants will come up, and, if suffered to stand, will spread over the whole Spot of Ground, and produce such Quantities of Seeds as to leave a Stock to furnish the Ground for some Years.

The second Sort is not as yet quite so common as the former, tho' it is equally hardy; and, where the Seeds are permitted to fall, the Plants will come up in great Plenty the following Summer. This Sort will grow much larger than the former. I have measured one of these Plants, which grew upon a rich Soil upward of six Feet high, and divided into many strong Branches, which spread almost eight Feet Diameter; so that it is unfit to stand in small Pleasure-gardens, and only to have a Place in some outward Part of a Garden, or Yard, because it takes up too much room.

The third Sort is somewhat like the former, in the Appearance of

the Plant; but the Fruit is smaller, and beset with very long fierce Thorns; for which Variety it is preserved in the Gardens of those who are curious in Botany.

This *Species* is by some supposed to be the *Dutro* of the *Persians*, with the Seeds of which they use to intoxicate Persons on whom they have any Designs.

This Sort is not quite so hardy as the two former; therefore must be sown on a moderate Hot-bed, in the Spring: and when the Plants are come up, they should be transplanted on a new Hot-bed, to bring the Plants forward; but you must be careful not to draw them too much, by keeping the Glasses close, which will render them very weak, and unfit to stand abroad: wherefore, after they have taken Root, they should have Plenty of fresh Air when the Weather is warm; and in *May* they should be enured to the open Air, by degrees, into which they may be transplanted in *June*, observing to raise the Plants with a large Ball of Earth, and plant them in a rich Soil, giving them Water until they have taken Root. In *July* these Plants will flower, and their Seeds will ripen in *August*.

The fourth Sort will grow larger than the last-mentioned. This is preserved more for the sake of its long tubulous white Flowers, than any other Beauty in the Plant. It is somewhat tender, and should be sowed on a Hot-bed in the Spring, and managed as the former; otherwise, if the Season proves cold, the Seeds will not ripen; tho' I have sometimes had Plants of this Kind, which came up from Seeds that scattered in Autumn, and ripened their Seeds well; so that I believe,

in a few Years, it may be enured to this Climate, so as to thrive with little Care.

The fifth and sixth Sorts produce very beautiful Flowers, which afford an agreeable Scent at some Distance, but if smelt to very close, are offensive to the Head. The Flowers of these Kinds are violet-coloured on the Outside, but are white on the Inside; and those of the sixth Sort have two or three Flowers within each other, in the manner of the Primrose, which is called *Hose in Hose*. These two Sorts are much more tender than either of the former, and must be sown early in the Spring on a Hot-bed; and when the Plants are come up, they must be transplanted into a fresh Hot-bed, to bring them forward; and, as the Heat of this Bed declines, there should be a fresh one prepared, in which should be plunged Pots filled with light rich Earth, into which the Plants should be placed, observing to water and shade them until they have taken Root; after which they should have Air given to them, in proportion to the Heat of the Season, and must be often watered, being very thirsty Plants.

Thus they must be pushed on by Heat, in the manner directed for *Amaranths*; to which the Reader is desired to turn, for their farther Culture. In *July*, if the Season be warm, they may be removed into the open Air, placing them in a warm Situation, where they will produce their Flowers plentifully; and if the Autumn be warm, their Seeds will ripen very well; but it will be a sure Method to preserve one Plant of each Kind under Glasses, lest those in the open Air should not perfect their Seeds.

STRAWBERRY; *vide* *Fragaria*.

STRAWBERRY-TREE; *vide* *Arbutus*.

STYRAX, The Storax-tree.

The Characters are;

The Flower consists of one Leaf, shaped like a Funnel, and cut into several Segments; out of whose Flower-cup rises the Pointal, which is fixed like a Nail in the Fore-part of the Flower: this afterward becomes a roundish fleshy Fruit, including one or two Seeds, in hard Shells.

We have but one Species of this Plant; *viz.*

STYRAX folio mali cotonei. C. B. P. Storax-tree, with a Quince-tree-leaf.

This Plant grows plentifully in several Parts of *Asia*; from whence it hath been brought into many curious Gardens in *Europe*, though at present it is very rare in *England*.

It may be propagated by sowing the Seeds in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed: this should be done as soon as possible, when the Seeds are procured; for if they are sown the Latter-end of Summer, and the Pots kept in a moderate Hot-bed of Tanners' Bark all the Winter, the Plants will come up the succeeding Spring; whereas those sown in the Spring do often remain in the Ground a whole Year before the Plants come up.

When the Plants are up, they should be each transplanted into a separate small Pot, filled with light fresh Earth, and plunged into a very moderate Hot-bed, observing to water and shade them until they have taken Root; after which they should be enured to the open Air by degrees, into which they must be removed in *June*, placing them in a warm Situation, in which Place they may remain till the Beginning of

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of *October*; at which time they should be removed into the Green-house, placing them where they may enjoy the Benefit of fresh Air when the Weather is mild, because these Plants are tolerably hardy, and only require to be sheltered from severe Frost; for in *Italy* they grow extremely well in the open Air, and produce Fruit in great Plenty; from whence I received a Parcel of the Seeds: but, as the Plants grow very slowly with us, it would be a good Method to procure some from *Italy*, which might be brought over in the Spring, packed up in Cases with Moss, as is practised in bringing over Orange-trees, Jasmynes, &c. and these Plants, being well-grown before they are brought over, will be more hardy than those raised from Seeds here, and will be more likely to produce Fruit.

The Resin of this Tree is brought over for Medicinal Use.

I shall beg Leave to add another Tree in this Place, which, although very different in its Characters from the foregoing, yet, as it hath not been settled to any particular Genus by the Botanists, and having long passed under the Name of *Storax*, I shall continue it by that Name in this Place, having the Authority of Mr. Ray for so doing.

STYRAX arbor Virginiana, aceris folio. Raii Hist. The *Virginian Storax-tree*, with a Maple-leaf, commonly called, *Liquid-amber*.

This Tree grows very plentifully in *America*, from whence the Seeds have been brought into *England*, where there has been a great Number of Plants raised therefrom, which are found to be hardy enough to endure the Cold of our ordinary Winters in the open Air: and it is very probable, as the Trees grow larger, and more woody, so they

will the better resist the Cold; but while they are young, the tender Branches are very subject to perish with severe Frost.

This Plant may be propagated by sowing the Seeds in the Spring in Pots filled with fresh light Earth, which should be plunged into a moderate Hot-bed, and duly watered: when the Plants are come up (which sometimes happens in six Weeks after sowing, though often they remain in the Ground until the second Year; in which Case, the Earth of the Pots should not be disturbed, until you see whether the Plants will come up or not) they should be carefully kept clear from Weeds, and watered frequently; and in *June* they should be removed into the open Air, placing them in a warm Situation, where they may remain until *October*; at which time they should be placed in a common Hot-bed Frame, where they will be protected from severe Frost: but the Glasses being kept off in mild Weather, they may enjoy the free Air.

Towards the Latter-end of *March*, or the Beginning of *April*, these Plants may be taken out of the Pots, and planted into the full Ground: in order to which, a Bed or two of light fresh Earth should be prepared in a warm Situation, into which the Plants may be planted at about a Foot asunder each way, which will be full room enough for them to grow two Years; and being placed so close, they may be much easier covered, if the Winter should prove very severe.

When they are planted, the Surface of the Ground must be covered with Mulch, to prevent the Wind and Sun from drying the Ground too fast; and if the Season proves dry, it will be proper to water them

now-and-then, until they have taken Root; after which they will require no farther Care, but to keep them constantly clear from Weeds, until *November* following, when it will be proper to lay a little fresh Mulch upon the Surface of the Ground, to keep out the Frost; and if the Winter should be very severe, the Plants must have a little Peas-haulm, or some Mats thrown over them, to protect them from the Frost.

In these Beds the Plants may remain two Years; after which they should be removed in the Spring to the Places where they are to remain, or else into a Nursery, where they must be planted at a greater Distance, so as to have room to grow two or three Years longer. These Trees will grow very vigorously after they have stood two or three Years; so that, when their Roots have acquired Strength, they will make great Progress in their Growth: with us they will grow to be upward of twenty Feet high; therefore should be placed amongst Trees of the same Growth, and in a warm Situation.

The Leaves of this Tree sweat out a liquid Resin in hot Weather, which, when rubbed between the Fingers, emits a fragrant Scent; but I have not seen any Flowers produced in *England* as yet.

SUBER, The Cork-tree.

The Characters are;

It is in all respects like the *Ilex*, excepting the Bark of the Tree, which in this is thick, spongy, and soft.

The Species are;

1. SUBER *latifolium*, *perpetuo vivens*. C. B. P. The broad-leaved ever-green Cork-tree.

2. SUBER *angustifolium*, *non ferratum*. C. B. P. The narrow-leaved Cork-tree, with smooth Edges.

There are several other Species of this Tree mentioned in some of the *Italian Catalogues* of Plants; but the two Sorts here mentioned are all I have observed in the *English Gardens*.

These Trees may be propagated by sowing their Acorns in the Spring, in the manner directed for the *Ilex*, to which these exactly agree in Culture; therefore, to avoid Repetition, the Reader is desired to turn to that Article for farther Instruction.

SUCCORY; *vide* Cichorium

SUMACH; *vide* Rhus.

SURIANA.

The Characters are;

It hath a rose-shaped Flower, consisting of several Petals, which are placed in a circular Order; from whose Empalement arises the Pointal, which afterward becomes the Fruit, which generally consists of four Capsules, in which are included four roundish Seeds.

We know but one Species of this Plant; *viz.*

SURIANA *foliis portulacæ angustis*. Plum. *Nov. Gen.* Suriana with narrow Purslain-leaves.

This Plant was so named by Father Plumier, who discovered it in the *French Settlements* in *America*, in Honour to Dr. *Joseph Surian* of *Marseilles*, who was a very curious Botanist.

The Seeds of this Plant were brought from the *Havanna* by the late Dr. *William Houstoun*, who found the Plants growing there in great Plenty on the Shore, in moist Places, where the Salt-water usually flows. It also grows plentifully in some Parts of the *Island of Jamaica*.

It is propagated by Seeds, which must be sown on a Hot-bed early in the Spring; and when the Plants are
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come up, they must be carefully cleaned from Weeds, and frequently refreshed with Water. In warm Weather the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants, to prevent their Drawing up too weak. When the Plants are fit to transplant, they should be taken up carefully, and each planted in a separate small Pot, filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; after which time they must be duly watered every Evening in hot Weather, and have fresh Air admitted to them every Day, in proportion to the Warmth of the Season. In this Hot-bed the Plants may remain till the Autumn, when the Nights begin to be cold; at which time they should be removed into the Stove, and plunged into the Bark-bed. During the Winter-season these Plants must be kept warm, especially while they are young, otherwise they will not live thro' the Winter in this Country; they must also be frequently refreshed with Water, but it must not be given to them in large Quantities in cold Weather; for too much Moisture in Winter will soon destroy them. These Plants make but slow Progress the first Year, tho' afterward they will grow pretty freely, if they are not stinted in Winter. They must constantly be kept in the Stove in this Country; and if they are plunged into the Bark-bed, they will make the greater Progress. In Summer they must have a large Share of Air, by opening the Glasses of the Stoves; and if their Leaves are covered with Filth (which the Plants in Stoves do often contract), they should be carefully washed with a Sponge, otherwise the Plants will not only appear unsightly, but their Growth will be retarded.

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These Plants usually grow about seven or eight Feet high, and as they retain their Leaves throughout the Year, afford an agreeable Variety amongst other Plants in the Stove.

SYCOMORE; *vide* Acer majus.
SYMPHYTUM, Comfrey.

The Characters are;

The Flower consists of one Leaf, shaped like a Funnel, having an oblong Tube, but shaped at the Top like a Pitcher: out of the Flower-cup, which is deeply cut into five long narrow Segments, rises the Pointal, attended with four Embryoes, which afterward become so many Seeds, in Form somewhat like the Head of a Viper, and ripen in the Flower-cup,

The Species are;

1. SYMPHYTUM *consolida major* *fœmina*, flore albo, vel pallide luteo. C. B. P. The greater Female Comfrey, with a white or pale-yellow Flower.

2. SYMPHYTUM *consolida major* *mas*, flore purpureo. C. B. P. The greater Male Comfrey, with a purple Flower.

3. SYMPHYTUM *majus, tuberosa radice*. C. B. P. Greater Comfrey, with a tuberose Root.

4. SYMPHYTUM *minus, tuberosa radice*. C. B. P. Small tuberoserooted Comfrey.

5. SYMPHYTUM *ebii folio ampliore, radice rubra, flore luteo*. Inst. R. H. Comfrey with a broad Vipers-bugloss-leaf, a red Root, and a yellow Flower.

6. SYMPHYTUM *ebii folio ampliore, radice rubra, flore exalbido*. Inst. R. H. Comfrey with a broad Vipers-bugloss-leaf, a red Root, and a whitish Flower.

7. SYMPHYTUM *ebii folio angustiore, radice rubra, flore luteo*. Inst. R. H. Comfrey with a narrow Vipers-bugloss-leaf, a red Root, and a yellow Flower.

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8. *SYMPHYTUM Creticum, ecbii folio angustiore, longissimis villis horrido, flore croceo.* Tourn. Cor. Candy Comfrey, with a narrow Vipers-buglofs-leaf, covered with very long Hairs, and a saffron-coloured Flower.

9. *SYMPHYTUM orientale, ecbii folio ampliore, longissimis villis horrido, flore croceo.* Tourn. Cor. Eastern Comfrey, with a broad Vipers-buglofs-leaf, covered with long Hairs, and a saffron-coloured Flower.

10. *SYMPHYTUM orientale, ecbii folio, flore albo tenuissimo.* Tourn. Cor. Eastern Comfrey, with a Vipers-buglofs-leaf, and a very narrow white Flower.

11. *SYMPHYTUM orientale, ecbii folio minore, flore nunc albo, nunc flavescente.* Tourn. Cor. Eastern Comfrey, with a smaller Vipers-buglofs-leaf, and a Flower sometimes white, and at other times of a yellow Colour.

12. *SYMPHYTUM orientale, oleæ folio argenteo, flore flavescente.* Tourn. Cor. Eastern Comfrey, with a silvery Olive-leaf, and a yellow Flower.

13. *SYMPHYTUM orientale angustifolium, flore cæruleo.* Tourn. Cor. Eastern Comfrey, with a narrow Leaf, and a blue Flower.

14. *SYMPHYTUM Constantinopolitanum, borraginis folio & facie, flore albo.* Tourn. Cor. Constantinople Comfrey, with the Leaf and Face of Borrage, and a white Flower.

15. *SYMPHYTUM orientale, folio subrotundo aspero, flore cæruleo.* Tourn. Cor. Eastern Comfrey, with a rough roundish Leaf, and a blue Flower.

16. *SYMPHYTUM orientale, folio subrotundo aspero, flore cæruleo odoratissimo.* Tourn. Cor. Eastern Comfrey, with a rough roundish Leaf, and a very sweet blue Flower.

The first Sort grows wild upon the Sides of Banks and Rivers in divers Parts of England, where it is commonly gathered to supply the Markets for Medicinal Use. The second Sort is sometimes found wild in England; but is less common than the former: in Holland it is the only Sort I observed wild, where it grows in great plenty on the Sides of the Canals almost everywhere.

The third Sort I never yet observed growing wild; but it is preferred in many Gardens, for Variety.

The fourth Sort is pretty common in several English Gardens, where it is preferred for the sake of Variety: this increases pretty fast by its Roots; wherefore it is seldom propagated by Seeds. The fifth, sixth, and seventh Sorts, grow wild in Spain and Portugal, from whence their Seeds may be obtained: these have red Roots, somewhat resembling those of the Alkanet; and are by some Botanists ranged amongst the Alkanets.

The other Sorts were discovered by Dr. Tournefort in the Levant, from whence he sent their Seeds to the Royal Garden at Paris. These being all of them pretty hardy Plants, may be propagated by sowing their Seeds on a Bed of fresh undunged Earth, in the Spring of the Year; and when the Plants are come up, they should be carefully cleared from Weeds; and where they are too close, they must be thinned, so as to allow them four or five Inches Distance from each other; and the following Michaelmas, they may be transplanted where they are designed to continue; which should be in fresh undunged Earth, at about two Feet Distance from each other, where they

they may remain to flower and seed.

All these Plants may be cultivated, either by sowing their Seeds in the Spring, or by parting their Roots; the latter way being the most expeditious, is chiefly practised for those Sorts which are perennial Plants, where they are planted for Use. The best Season for parting their Roots is in Autumn, at which time almost every Piece of a Root will grow; they should be planted about eighteen Inches asunder, that they may have room to spread, and will require no farther Care but to keep them clear from Weeds; for they are extreme hardy, and will grow upon almost any Soil, or in any Situation.

SYRINGA, The Mock-orange; *culgo.*

The Characters are;

The Flower, for the most part, consists of five Leaves, which are placed circularly, and expand in form of a Rose; from whose Flower-cup rises the Pointal, which afterward becomes a roundish Fruit, adhering to the Flower-cup, divided into four Cells, which are full of small Seeds.

The Species are;

1. SYRINGA *alba*, sive *Philadelphus Athenæi*. C. B. P. The common white Syringa, or Mock-orange.

2. SYRINGA *flore albo pleno*. C. B. P. The double white Syringa.

3. SYRINGA *flore albo simplici, foliis ex luteo variegatis*. The striped-leaved Syringa.

4. SYRINGA *nana, nunquam florens*. The dwarf Syringa.

The first Sort is very common in most English Gardens; but the second is not quite so frequent, tho', indeed, it is a Variety scarce worth observing, since the Flowers are always single where they are pro-

duced in Bunches; and where they are produced singly, they are double; but this is so rare, that many times upon a large Shrub there cannot be found six double Flowers.

The variegated Sort is preserved in the Gardens of such as are curious in striped Plants, tho' there is no great Beauty in it, because, when the Plants are vigorous, the Stripes in the Leaves scarcely appear.

The dwarf Sort is not worth a Place in a Garden, unless for the sake of Variety, since it never produces any Flowers.

All these Plants may be easily propagated, by taking off their Suckers in Autumn, which they produce very plentifully, and planting them out in a Nursery at three Feet Distance Row from Row, and a Foot asunder in the Rows, observing to keep the Ground between them constantly clear from Weeds, as also to dig it up every Spring to loosen it, that the Roots of the Plants may more readily extend themselves. In this Nursery they may remain two Years, by which time they will be fit to transplant out where they are to remain; which may be into small Wilderness-quarters, or amongst flowering Shrubs in Clumps, observing to place them with other Sorts of Shrubs of the same Growth; for these seldom grow above six or seven Feet high in England, and the dwarf Sort not more than three or four.

They are extreme hardy, and may be planted in almost any Soil or Situation, and will require no farther Culture but to take off the Suckers every Year, and cut out the dead Wood, as also to keep them clear from Weeds in Summer, and dig the Ground about their Roots every Winter, which will make them thrive

thrive and flower very plentifully. The Season of their Flowering is in *May*, and in cool Seasons they continue in Beauty the first Part of *June*: their Flowers have a Scent somewhat like those of the Orange-tree, from whence it had the Name of Mock-orange: but if these are placed in a close Room, or are too closely smelt to, they have a strong disagreeable Scent, and too powerful for the Ladies; but when they are in the open Air, the Scent is not so affecting.



TABERNÆMONTANA.

The Characters are;

It hath a tubulous Flower, consisting of one Leaf, which is spread open toward the Top, and divided into several Parts; from the Bottom of the Flower arises the Pointal, which afterward becomes the Fruit, composed of two Capsules which open lengthways, and are filled with oblong Seeds, surrounded with a thin Pulp.

The Species are;

1. TABERNÆMONTANA *laetescens, citrii foliis undulatis. Plum. Nov. Gen.* Milky Tabernæmontana, with a waved Citron-leaf.

2. TABERNÆMONTANA *laetescens, lauri folio, flore albo, siliquis rotundioribus. Houst.* Milky Tabernæmontana, with a Bay-leaf, a white Flower, and rounder Pods.

The first of these Sorts is common in the Island of *Jamaica*, and in several other Places in the warm Parts of *America*; where it rises to the Height of fifteen or sixteen Feet, having a smooth strait Trunk, covered with a whitish Bark; at the Top

of the Trunk come out the Branches, which are irregular, and beset with shining green Leaves; from the Foot-stalks of these Leaves are produced the Flowers, which are yellow, and extremely sweet-scented: these Flowers are succeeded by two forked Pods, in which the Seeds are contained. This Genus of Plants is very near of kin to the Nerium or Oleander, and has been by some Botanical Writers ranged under that Head; but the Seeds of this Genus having no Down adhering to them, as have those of the Oleander, and being included in a soft pulpy Substance, Father *Plumier* has constituted this Genus, in Honour to *Dr. James Theodore*, who was called *Tabernæmontanus* from a little Village in *Germany*, where he was born. He was one of the most knowing Botanists of his Age, and published at *Frankfort* a Folio, in a long Form, in the Year 1590, in which are the Figures of two thousand two hundred and fifty Plants.

The second Sort was discovered at *La Vera Cruz*, by the late *Dr. William Houstoun*, who sent the Seeds into *England*, from whence several of the Plants have been raised.

Both these Plants, being very impatient of Cold, will not live in this Country, unless they are placed in a warm Stove: they may be propagated by Seeds, which should be sown early in the Spring, on an Hot-bed; and when the Plants are come up, they must be carefully transplanted into small Pots filled with light rich Earth, and then plunged into an Hot-bed of Tanners Bark, being careful to shade them in the Heat of the Day, until they have taken new Root; after which time they must have free Air admitted to them every Day when the Weather is warm; but if the Nights should prove

prove cold, the Glasses of the Hot-bed should be covered with Mats every Evening, soon after the Sun goes off from the Bed. These Plants must be often refreshed with Water, but it must not be given to them in large Quantities, especially while they are young; for as they are full of a milky Juice, they are very subject to rot with much Moisture.

The Plants may remain during the Summer Season in the Hot-bed, provided the Tan is stirred up to renew the Heat when it wants, and a little new Tan added; but at Michaelmas, when the Nights begin to be cold, the Plants should be removed, and plunged into the Bark-bed in the Stove, where, during the Winter-season, they must be kept in a moderate Degree of Warmth; and in cold Weather they should have but a little Water given to them, lest it should rot them. As these Plants are too tender to live in the open Air in this Country, they should constantly remain in the Stove; where, in warm Weather, they may have free Air admitted to them, by opening the Glasses of the Stove; but in cold Weather they must be kept warm: with this Management the Plants will thrive, and produce their Flowers; and being always green, will make a pleasant Diversity amongst other tender Exotic Plants in the Stove.

These Sorts may also be propagated by Cuttings, during the Summer-season; which should be cut off from the old Plants, and laid to dry in the Stove five or six Days before they are planted, that the wounded Parts may heal, otherwise they will rot. These Cuttings should be planted in Pots filled with fresh light Earth, and plunged into the Hot-bed of Tanners Bark, observing to shade them from the Sun in the

middle of the Day in hot Weather, as also to refresh them now-and-then with a little Water. When the Cuttings have taken Root, they may be transplanted into separate Pots, and treated in the same manner as those which are raised from Seeds.

TAGETES, *African or French Marigold.*

The Characters are;

The Flower is radiated, consisting of divers Florets, which are plain, and cut into several Segments; but the Disk of the Flower consists of half Florets, which stand upon the Embryoes; the Flower-cup consists of one Leaf, is tubulous, and incloses the Embryoes, which afterward become angular Seeds, with a Leaf upon the Head of each.

The Species are;

1. TAGETES *maximus rectus, flore simplici ex luteo pallido.* J. B. Greatest upright African Marigold, with a single pale-yellow Flower.

2. TAGETES *maximus rectus, flore maximo multiplicato.* J. B. Greatest upright African Marigold, with a large double Flower.

3. TAGETES *maximus rectus, flore maximo multiplicato, aurantis coloris.* Greatest upright African Marigold, with a very large double orange-coloured Flower.

4. TAGETES *maximus rectus, flore maximo multiplicato, sulphurei coloris.* Greatest upright African Marigold, with a very large double brimstone-coloured Flower.

5. TAGETES *maximus rectus, flore maximo multiplicato, pallide luteo, odorato.* Greatest upright African Marigold, with a very large double Flower, of a pale-yellow Colour, and a sweet Scent.

6. TAGETES *maximus rectus, flore maximo multiplicato, pallide luteo, fistuloso.* Greatest upright African Marigold, with a large double pale-yellow

yellow and piped Flower, commonly called, *The quilled African*.

7. TAGETES *Indicus medius, flore simplici luteo-pallido*. J. B. Indian middle French Marigold, with a single pale-yellow Flower.

8. TAGETES *Indicus medius, flore luteo multiplicato*. H. L. The middle French Marigold, with a double yellow Flower.

9. TAGETES *Indicus minor, simplici flore, sive Caryophyllus Indicus, sive Flos Africanus*. J. B. Lesser or Common French Marigold, with a single Flower, called Indian Clove-gilliflower.

10. TAGETES *Indicus minor, multiplicato flore*. J. B. Double French Marigold; *vulgo*.

11. TAGETES *Indicus, flore simplici fistuloso*. H. L. Single French Marigold, with a piped Flower.

12. TAGETES *Indicus, flore fistuloso duplicato*. H. L. Double French Marigold, with a piped Flower.

13. TAGETES *Indicus minimus, flore sericea hirsutis obtuso*. H. L. The least French Marigold, with a soft hairy Flower.

All these Plants, being annual, must be propagated from Seeds every Spring, which may be sown upon a moderate Hot-bed in *March*; and when the Plants are come up, they should have Plenty of fresh Air; for if they are drawn too much, they will not afterward become handsome, notwithstanding they have all possible Care taken of them. When they are about three Inches high, they should be transplanted on a fresh Hot-bed, which may be arched over with Hoops, and covered with Mats; for these Plants are hardy enough to be brought up without Glasses: in this Bed they should be planted about six Inches asunder each Way, observing to water and shade them

until they have taken Root; but as the Plants acquire Strength, they should be inured to bear the open Air by degrees; and about the Beginning of *May*, they should be taken up, with a Ball of Earth to the Root of each Plant, and placed in a Nursery in a warm Situation, about eighteen Inches asunder, observing to water and shade them until they have taken Root; and in very dry Weather the Waterings should be repeated: in this Nursery they may remain until their Flowers appear, so as to distinguish those with double Flowers: which may be taken up with a Ball of Earth to each Plant, and planted into the Borders of the Parterre-garden, or into Pots, for furnishing the Courts, &c. where the several Varieties, being intermixed with other annual Plants, afford an agreeable Variety.

Those with single Flowers should be pulled up, and thrown away as good for little, because the Seeds raised from them will rarely produce double Flowers; therefore great Care should be taken to save only the Seeds of those whose Flowers are very double of every Kind, from which there will always be a good Quantity of double ones produced, though from the very best Seeds there will always be many single Flowers; but the small Sorts always produce a greater Number of double Flowers than the large, which are more apt to degenerate.

These Plants have a strong disagreeable Scent, especially when handled; for which Reason they are not so greatly esteemed for planting near Habitations; but the Flowers of the sweet-scented Sort, being more agreeable, are mostly coveted to plant in small Gardens. All these Sorts begin to flower in *May*, and continue all the latter Part of the

the Year, until the Frost prevents their Flowering: for which, together with the little Trouble required in their Culture, they have greatly obtained in most *English* Gardens.

TAMARINDUS, The Tamarind-tree.

The Characters are;

The Flower consists of several Leaves, which are so placed as to resemble a papilionaceous one in some measure; but these expand circularly: from whose many-leaved Flower-cup rises the Pointal, which after-ward becomes a flat Pod, containing many flat angular Seeds, surrounded with an acid blackish Pulp.

We have but one Species of this Tree; viz.

TAMARINDUS. Raii Hist. The Tamarind-tree.

There are some who imagine the Tamarind-tree of the *East-Indies*, and that of the *West-Indies*, to be different; but I do not remember to have seen them distinguished by any Botanic Author, though, indeed, from the different Appearance of the Pods, they seem very different; for the Pods which I have seen of the *East-Indian* Sort were very long, and contained six or seven Seeds in each; whereas those of the *West-Indies* rarely contain more than three or four: but from the Plants which I have raised from both Sorts of Seeds, I cannot distinguish them asunder as yet.

These Trees grow to a great Magnitude in their native Countries; but in *Europe* they are preserved as Curiosities by those who are Lovers of rare Plants.

They are easily propagated by sowing their Seeds on an Hot-bed in the Spring; and when the Plants are come up, they should be planted each into a separate small Pot filled

with light rich Earth, and plunged into an Hot-bed of Tanners Bark, to bring them forward, observing to water and shade them until they taken Root; and as the Earth in the Pots appear dry, they must be watered from time to time, and should have Air given to them in proportion to the Warmth of the Season, and the Bed in which they are placed: when the Pots in which they are planted are filled with their Roots, the Plants should be shifted into Pots of a larger Size, which must be filled up with rich light Earth, and again plunged into the Hot-bed, giving them Air, as before, according to the Warmth of the Season. But in very hot Weather the Glasses should be shaded with Mats in the Heat of the Day, otherwise the Sun will be too violent for them through the Glasses: nor will the Plants thrive, if they are exposed to the open Air, even in the warmest Season; so that they must be constantly kept in the Bark-stove both Winter and Summer, treating them as hath been directed for the Ananas, with whose Culture they will thrive exceedingly.

These Plants, if rightly managed, will grow very fast; for I have had them upwards of three Feet high in one Summer from Seed, and had one Plant which produced Flowers the same Season it was sown: but this was accidental; for I have never since had any of them flower, although I have several Plants of different Ages, one of which is several Years old, and about seven Feet high, with a large spreading Head.

TAMARISCUS, The Tamarisk-tree.

The Characters are;

The Flowers are rosaceous, consisting of several Leaves, which are placed

placed orbicularly; from whose Flower-cup rises the Pointal, which afterward becomes a Pod, somewhat like those of the Sallow, which opens into two Parts, and contains several downy Seeds.

The Species are;

1. TAMARISCUS *Narbonnensis*. Lob. Icon. The French or narrow-leaved Tamarisk-tree.

2. TAMARISCUS *Germanica*. Lob. Icon. The German Tamarisk.

These Trees are preserved in the Gardens of those who are curious in collecting the various Kinds of Trees and Shrubs; but they have not much Beauty to recommend them; for their Branches are produced in so straggling a manner, as not by any Art to be trained up regularly; and their Leaves are commonly thin upon the Branches, and fall away in Winter, so that there is nothing to recommend them but their Oddness.

They may be easily propagated, by laying down their tender Shoots in the Spring, or by planting Cuttings in an East Border at that Season; which, if supplied with Water in dry Weather, will take Root in a short time: but they should not be removed until the following Spring; at which time they may be either placed in a Nursery, to be trained up two or three Years, or else into the Quarters where they are designed to remain, observing to mulch their Roots, and water them according as the Season may require, until they have taken Root; after which the only Culture they will require, is, to prune off the straggling Shoots, and keep the Ground clean about them.

The Plants delight in a sandy Soil, not over-rich; and should be placed amongst Shrubs of a mid-

dling Growth; for they rarely grow above fifteen or sixteen Feet high in England, but are very hardy in respect to Cold.

TAMNUS, The Black-bryony.

The Characters are;

It is Male and Female in different Plants; the Flowers of the Male Plant consist of one Leaf, and are bell-shaped; but these are barren: the Embryoes are produced on the Female Plants, which afterward becomes an oval Berry, including roundish Seeds: to these Notes should be added, That these Plants have no Clasper, as the White-bryony hath.

The Species are.

1. TAMNUS *racemosa, flore minore lateo pallecente*. Tourn. The common Black-bryony.

2. TAMNUS *Cretica, trifido folio*. Tourn. Cor. Black-bryony of Crete, with a trifid Leaf.

3. TAMNUS *Americana tubifera, radice fungiformi*. Plum. American Black-bryony, with a Root resembling a Mushroom.

4. TAMNUS *Americana racemosa minor*. Plum. Smaller branching American Black-bryony.

5. TAMNUS *Americana racemosa major*. Plum. Greater branching American Black-bryony.

6. TAMNUS *Americana, amplis foliis, subtus purpureis*. Plum. American Black-bryony, with large Leaves, which are purple on their Under-side.

7. TAMNUS *Americana, angurie folio*. Plum. American Black-bryony, with a Water-melon-leaf.

The second of these Sorts was discovered by Dr. Tournefort in the Levant, from whence he sent the Seeds to the Royal Garden at Paris. This being a very hardy Plant, will thrive in the open Air in this Country. It may be propagated by Seeds, which should be sown in the Au-

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tumn (soon after they are ripe) on a Bed of fresh Earth; and when the Plants are come up, they must be kept clear from Weeds, and thinned where they are too close together; which is all the Management they will require till the Autumn following, when the Roots should be taken up as soon as the Leaves decay, and transplanted where they are designed to remain, which should be near an Hedge, on which they may climb; otherwise the Branches will trail on the Ground, and in wet Seasons will rot.

The other five Sorts were discovered by Father Plumier in America: these are very common in Jamaica, and several other Places in the West-Indies, where the Wood have not been cleared; but these being too tender to live in the open Air in England, must be preserved in Stoves, and kept in a moderate Temperature of Warmth in the Winter-season. They are propagated by Seeds, which should be sown on a moderate Hot-bed early in the Spring; and when the Plants are come up, they should be each planted into a separate small Pot, filled with fresh light Earth, and plunged into an Hot-bed of Tanners Bark; where they should remain during the Summer-season, observing to water them plentifully in hot Weather, as also to admit a large Share of Air to them, by raising the Glasses of the Hot-bed with Stones every Day. In the Autumn the Branches of these Plants will decay to the Root, at which time the Pots should be removed, and placed in the Stove, where, during the Winter-season, the Roots will remain in an unactive State; wherefore they should not have too much Moisture, lest it rot them: in the Spring they will shoot

out again, when the Pots should be placed near some Support, to which their Shoots may fasten, otherwise they will twine round whatever Plants grow near them; for in the Countries of their natural Growth they climb up the tallest Trees to a very great Height. These are Male and Female in different Plants, as is the common Sort.

This Plant is rarely cultivated in Gardens, but grows wild under Hedges in divers Parts of England, and is there gathered for Medicinal Use. It may be easily propagated by sowing the Seeds, soon after they are ripe, under the Shelter of Bushes, where, in the Spring, the Plants will come up, and spread their Branches over the Bushes, and support themselves, requiring no farther Care; and their Roots will abide many Years in the Ground, without decaying.

TANACETUM, Tanfy.

The Characters are;

It hath a flosculous Flower, consisting of many Florets divided into several Segments fitting on the Embryo, and contained in a squamous and hemispherical Empalement; the Embryo afterward becomes a Seed, not at all downy: to these Notes must be added, Thick Flowers gathered into a kind of Head.

The Species are;

1. TANACETUM *vulgare luteum*. C. B. P. Common Tanfy.
2. TANACETUM *foliis crispis*. C. B. P. Curled or Double Tanfy.
3. TANACETUM *vulgare, foliis variegatis*. Common Tanfy, with striped Leaves.
4. TANACETUM *vulgare luteum maximum*. Boerb. Ind. The largest common Tanfy.
5. TANACETUM *Africanum arborescens, foliis lavendulæ, multifido folio*.

folio. H. Am. African shrubby Tanfy, with Leaves like the multifold Lavender.

6. *TANACETUM orientale minus. Tourn. Cor.* Smaller Eastern Tanfey.

7. *TANACETUM Davuricum humilis, foliis tenuiter dissectis. Amman.* Tanfey of *Davuria*, with fine-cut Leaves.

8. *TANACETUM Africanum fruticosum multiflorum, foliis tanaceti vulgaris decuplo minoribus. Boerb. Ind.* Shrubby African Tanfey, with many Flowers, and Leaves like the common Sort, but ten times less.

The first and second Sorts are very common in *England*, being promiscuously cultivated in Gardens for the Use of the Kitchen; but the first should be propagated for Medicinal Use. The third Sort is a Variety of the first, which is by some preserved for the sake of its variegated Leaves. The fourth Sort is very like the common in Appearance; but is much larger, and has less Scent.

All these Sorts are easily propagated by their creeping Roots, which, if permitted to remain undisturbed, will in a short time overspread the Ground where they are planted; so that the Slips should be placed at least a Foot asunder, and in particular Beds, where the Paths round them may be often dug, to keep their Roots within Bounds. They may be transplanted either in Spring or Autumn, and will thrive in almost any Soil or Situation.

The common Tanfey is greatly used in the Kitchen early in the Spring, at which Season that which is in the open Ground, or especially in a cold Situation, is hardly forward enough to cut; so that where this is much wanted at that Season, it is the best way to make a gentle Hot-bed in *December*, and plant the old Roots thereon, with-

out parting them, and arch the Bed over with Hoops, to cover it with Mats in cold Weather; by which Method the Tanfey will come up in *January*, and be fit to cut in a short after.

The fifth Sort was brought from the *Cape of Good Hope*, and is preserved in the Gardens of those who are curious in collecting Exotic Plants. This may be propagated by planting Cuttings or Slips, during any of the Summer-months, upon a Bed of light rich Earth, observing to water and shade them until they have taken Root; after which they may be taken up, and planted in Pots filled with light fresh Earth, placing them in a shady Situation, until they have taken new Root; and then they may be exposed in an open Place, amongst other Exotic Plants, until the Beginning of *October*, when they must be removed into the Green-house, observing to place them in the coolest Part thereof, and as near the Windows as possible, that they may enjoy the free Air in mild Weather; otherwise they will draw up weak, and be liable to grow mouldy, and decay.

They must also be frequently watered; but in very cold Weather they must not have too much Water given them at each time, tho' in Summer they should have it in Plenty. With this Management (together with observing to shift them into larger Pots, as they shall require it) the Plants will grow large, and produce a great Quantity of Flowers, which commonly appear early in the Spring, and thereby greatly add to the Variety of the Green-house.

The sixth Sort was discovered by *Dr. Tournefort* in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*. The seventh Sort

Sort was sent to me from *Petersburg*, by Dr. *Amman*, who is Professor of Botany in that University. These being both very hardy Plants, may be propagated by Seeds, or parting of their Roots, in the same manner as is practised for the common Sort; but the Roots of these Kinds do not creep so much as those of the common Sort.

The eighth Sort was brought from the *Cape of Good Hope*, to some curious Gardens in *Holland*, where it has been propagated, and dispersed to several Parts of *Europe*. This Kind will rise to the Height of three or four Feet, and become shrubby, producing a great Number of Flowers at the Extremity of every Branch, early in the Spring; but seldom perfects its Seeds in this Country. It may be propagated with great Ease; for every Cutting which is planted in Summer, will take Root, provided they are shaded from the Sun, and duly watered in dry Weather. When these Cuttings are rooted, they should be transplanted into Pots filled with fresh Earth, and placed in a shady situation, until they have taken new Root; after which time they may be placed amongst other hardy Exotic Plants, in a sheltered Situation, where they may remain until *October*, when they must be removed into the Green-house, and placed where they may enjoy as large a Share of free Air as possible in mild Weather; otherwise the Shoots will draw weak, and be unsightly. In *February* these Plants will begin to flower, and will continue flowering several Months; by which means they afford an agreeable Variety amongst other Plants in the Green-house; and being hardy, in respect to Cold, and easy to propagate, are worthy of a

Place in every good Collection of Plants.

TAN, or TANNERS BARK, is the Bark of the Oak-tree, chopped and ground into coarse Powder, to be used in Tanning or Dressing of Skins; after which it is of great Use in Gardening; first, by its Fermentation (when laid in a Body), which is always moderate, and of a long Duration, which renders it of great Service to Hot-beds; and secondly, after it is well rotted, it becomes excellent Manure for all Sorts of cold stiff Land, upon which one Load of Tan is better than two of the best rotten Dung, and will continue longer in the Ground.

The Use of Tan for Hot-beds has not been very many Years known in *England*, and was brought over first from *Holland*, where it had been long used for those Purposes: I have been informed, that it was first used in *England* for raising Orange-trees, which was about the Beginning of King *William's* Reign; but it was disused long after that, and it is within thirty Years past, that it was again brought into Use, for raising the Pine-apple; since which time it has yearly grown more in Use for Hot-beds; and I doubt not but in a few Years, it will be generally used for those Purposes, where-ever it can be easily procured.

There are commonly two or three Sorts of Tan, which are ground into Powder of different Sizes, some being in very gross Pieces, and others are ground very fine: these are different in their Effects, when laid to ferment; for the small Sort will heat much sooner, but will lose its Heat in a short time; but the large Sort is often violent in its Fermentation, and continues its Heat a long time; so that

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whoever make an Hot-bed of Tan, must proportion a Mixture of each Sort, according as they would have their Beds work ; for, if they intend to have a moderate Heat, they should use but very little large Bark ; but, where a greater Heat is wanted, the Proportion of the large Bark should be increased.

This Tan should be taken in a Fortnight's time after it comes out of the Pit, and laid up in a round Heap for a Week, to drain (especially if it be in Winter, or Spring, while the Season is moist) ; after which it may be put into the Trench where the Hot-bed is designed, which should be bricked on the Sides quite round, to prevent the Earth from mixing with the Bark. These Trenches should be proportioned to the Size of the Frames which are to cover them, and the Depth in the Ground according to the Moisture of the Place where they are situated ; for, if the Ground is very wet, the Bed should be raised above the Surface of the Ground, because, if ever the Water rises into the Bark, it will cool it so much as not to be brought again to its former Heat, without taking it out of the Trench again, and fresh mixing it up.

The Thickness which the Bark should be laid in the Trench, must not be less than two and an half, or three Feet, and the Width four Feet ; for, where it is laid in a less Body, it seldom heats ; and, if it is forced, by laying hot Dung under it (as is sometimes practised), the Heat will soon decay. In laying the Bark into the Trench, you should be careful to stir up every Part of it, that it may not settle in Lumps ; as also to press it down gently ; but by no means to beat or tread it down too close, which will prevent its heating. Then the Glasses

should be placed over the Bed immediately after it is finished, which should be kept close down, in order to draw an Heat in the Bark, and to prevent Wet from falling thereon : in a Fortnight's time after, the Bark will begin to heat ; and, when it is found of a due Temper, the Plants may be removed into it.

An Hot-bed, well prepared with this Tan, will continue a moderate Heat upward of six Months ; and there being very little Steam arising from it, in comparison to Horfe-dung, renders it much better for the Growth of all Sorts of Plants ; and, when the Heat begins to decay, if the Tan be fresh stirred up, and a little new added to it, it will heat again, and continue some Months longer. The farther particular Directions for the Management of these Hot-beds being already exhibited under the Article of *Hot-beds*, the Reader is desired to turn back to that for farther Instructions.

In the foregoing Account of Tan, I have mentioned only two or three Sorts ; but, upon being more acquainted with it, I find there are several Degrees of Fineness, to which the Tanners grind their Bark ; and, in some Countries, they only chop their Bark into large Pieces before they use it, especially in the North ; so that the latter Sort is not proper for Hot-beds, because the Heat is so violent, as to scald the Roots of such Plants as are plunged therein : therefore, where the Ground-bark can be procured, it should always be preferred to that which is chopped. But, where no other Sorts can be procured, there should be a Quantity of Bran, Saw-dust, or Chaff, mixed with the Tan, which, when well mixed, will cause it to ferment moderately ; and, whenever the Heat abates, if the Tan is stirred up from
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the Bottom of the Bed, and some fresh Bran or Saw-duft added, it will renew the Heat of the Bark; for, as the Pieces are large, it will be much longer before it is consumed than the small Bark; because, so long as any Substance remains in it, there will be an Heat continued, which may be increased by fresh stirring of it, and adding a little Bark, Bran, or Saw-duft.

The best Sort of Tan for Hot-beds is, that which is ground of a middling Size, neither too small, nor too large: this will ferment moderately, and continue its Heat a long time. Before the Tan is put into the Pit where the Hot-bed is designed, it will be proper to lay it in a round Heap, until it begins to ferment, especially if it is in the Spring, or Autumn; but, in the Summer-season, there is no need of this Precaution, because, at that Season, the Sun, through the Glasses of the Hot-bed, will soon cause it to ferment; and, where there is some warm Tan left in the Pit, to mix it with the new, that will also cause it to heat soon, provided the new Tan is not too wet.

The Thickness, which I directed the Bark to be laid in the Hot-bed, was two and an half, or three Feet, and the Width at least four Feet; but it will be much better to have the Bed six or seven Feet wide, or more, where there is proper Conveynency for it; because, when the Bed is narrow, the two outside Rows of Pots will receive little Benefit from the Heat; and, where the Width is so great, two Feet and an half in Thickness will be sufficient. For the same Reason also, the Length of the Bed should be in proportion; therefore I should always prefer a Bed of twenty Feet long to those which are shorter. There are some

Persons, who make their Tan-beds much wider than what is here mentioned; but I think they should not be more than eight Feet wide; because it will be very difficult to come at those Plants, which are plunged in the Middle of the Bed, without injuring those near the Sides: but this only for Bark-pits in Stoves; for, where the Hot-bed is made in Frames, it should not exceed six Feet and an half, which is full as wide as can be well reached, to water and weed the Pots which are plunged therein.

There are some Persons, who, imagining their Beds should always be very warm, are frequently stirring them, and adding new Tan to them; and very often lay warm Horse-dung under the Tan, or round the Sides of it, to increase the Heat; which is not necessary, because, unless it be to raise very difficult Exotic Seeds, or to forward the Rooting of Plants in Spring, or Autumn, there doth not require an extraordinary Heat to the Roots of Plants, which many times is very prejudicial to them; for, from some Experiments, which were made by a Friend of mine at *Jamaica*, by placing Thermometers in the Earth at different Depths, he found the Heat nearly equal thro' the Year (excepting just at the rainy Season), at three Feet below the Surface; and this Heat was not greater than that of Tan, when in a very slow Fermentation: so that, when the Tan is too hot, it is not so proper for the Growth of Plants, as when the Warmth is moderate; which is a Proof of the Absurdity, which some People are guilty of, in supposing they can produce as good Fruit of the Ananas with Bark alone, as those who have Stoves to warm the Air of the Stove, in which the Plants are placed; for, altho' there

is no Necessity of a very great Heat to their Roots, yet the circumambient Air should be sufficiently warmed in Winter, otherwise the Plants will make no Progress; so that, instead of shewing their Fruit in *January* and *February*, which is their proper Season, they do often fruit in *May* and *June*, and sometimes later; and consequently do not ripen till the following Winter, when, the Sun having little Power of heating the Air, the Fruit is good for little. It is very common to see the Plants, which are placed in Stoves, dropping their Leaves in Winter, and pushing out new ones soon after, which seldom remain long on the Plants before they fall. This is frequently occasioned by the Bed being very warm in which they are placed, when, at the same time, the Air of the Stove is not sufficiently warmed; which is certainly a great Error: for, by the Experiments, which my Friend made with several Thermometers in *Jamaica*, he found, that, even in the coolest Seasons, the Spirit seldom fell so low as forty Degrees above the freezing Point, in the Night; and, in the Day-time at the same Seasons, the Spirit usually rose to Sixty Degrees above the freezing Point: but, in the hotter Seasons, the Spirits rose so high, as to break the Glasses of the common Thermometer, when placed intirely in the Shade.

The Hot-beds in the Stoves, which are made of good Tan, will rarely want renewing oftner than twice a Year; that is, in the Beginning of *March*, and toward the End of *September*; but at neither of these times should the Bark be intirely taken out of the Pits; for, if that, which is most consumed, is thrown out (which is generally the upper Part), and the rest mixed with the new Tan, it will

ferment again slowly, and prevent the Bed from being too hot, which is frequently the Case when the Bed is intirely made of new Tan. But this is only to be understood of such Hot-beds, which are designed to maintain tender Exotic Plants; for, where they are made for raising of Cucumbers and Melons, the Beds should be intirely made of new Tan (excepting just about the Holes, where the Plants are placed, which should have some old Tan, for the Plants to root in, after their Roots have extended through the Earth laid in the Holes); which should be laid in an Heap to ferment, at least a Fortnight, or three Weeks, before the Bed is made; and then it will be proper to wait a Week, that the Bed may be in a proper Temperature of Heat, before the Plants are placed into it. Those Persons, who have Tan in plenty, and are willing to use it for Hot-beds, to raise Cucumbers and Melons, should have their Plants in Baskets; so that they may, at any time, remove them into the Hot-bed, without injuring them: and if, after they are placed in the Hot-bed, the Heat should be too violent, they may be raised up for a few Days, until the Heat is abated, which will prevent the Heat from scorching the Roots of the Plants. The Hot-beds which are made of Tan, if they are properly managed, are much preferable to those made of Horse-dung, for these Purposes; for, as the Heat will not be so violent as is that of Horse-dung, the Plants will not be so much in Danger of being scorched; and the Heat continuing longer in these Hot-beds, the Fruit will be brought forward much sooner, and the Plants will extend their Roots quite thro' the Tan, which will occasion

caſion their growing; ſo that the Fruit will be large, and well nourished.

When the Tan, which is conſumed in the Hot-beds, is thrown out, it is a very proper Manure for ſtiff cold Land; but, if it is laid on hot dry Ground, it ſhould be ſpread very thin, otherwiſe, inſtead of mending the Land, it will increaſe its Heat, and render it too light. There are ſome Perſons, who prepare their Flower-beds with rotten Tan, which, from many Experiments, I have found, has proved very pernicious to them, eſpecially to Ranunculufes and Anemonies; for, in Beds thus prepared, I have loſt more than half the Roots, and thoſe, which have lived, produced very weak Flowers; and, upon taking up their Roots the following Summer, I have found them ſmaller than when they were planted; whereas, in ſome adjoining Beds, which were prepared with rotten Neats-dung, the Roots have very few of them died, and have flowered very ſtrong, and made a large Increaſe, tho' they were planted at the ſame Seaſon, in the ſame Situation, and had equal Management. I have alſo found, that rotten Tan is very prejudicial to Orange-trees; therefore it ſhould never be mixed with the Earth, which is deſigned for them, nor for any other Plants, which require a cool loamy Soil; for nothing is more prejudicial to them than this Manure.

But altho' this rotten Tan is improper for Flowers, Orange-trees, and many other Plants in Gardens, yet it is an excellent Manure for ſtrong, cold Corn-land; and I have often been ſurpriſed to ſee, in ſome Countries, great Heaps of Tan lie neglected in Tanners Yards, when the neighbouring Farmers have fetched much worſe Manure ten or

fifteen Miles from their Land; whereas, if they were once to try this, they would prefer it to moſt other Manures yet known.

TAPIA, The Garlick Pear-tree.

The Characters are;

It hath an anomalous Flower, conſiſting of four Petals or Leaves, which ſtand erect, the lower Part being occupied by a Number of Chives: the Pointal, which is fixed on a long Foot-ſtalk, riſes from the Centre of the Empalement, and afterward becomes a globular fiſhy Fruit, in the Centre of which are included many Seeds, which are ſhaped almoſt like Kidneys.

We have but one Species of this Plant; viz.

TAPIA arborea triphylla. Plum. Nov. Gen. The Garlick Pear-tree, vulgo.

The Name *Tapia* is what the Americans call this Tree; wherefore Father Plumier has conſtituted it as a new Genus by the ſame Name. The Engliſh Inhabitants of America call it *Garlick-pear*, from the Fruit having a very ſtrong Scent of Garlick.

This Tree is pretty common in *Jamaica*, and ſeveral other Places in the warmer Parts of America, where it uſually riſes to the Height of thirty or forty Feet, and ſpreads into many Branches. During the dry Seaſons, theſe Trees are uſually deſtitute of Leaves; but, when the Rains begin, they thruſt out their Flowers at the Extremitie of their Branches; and ſoon after the Leaves come out, which are of a dark-green Colour, and are always three together on the ſame Foot-ſtalk. When the Flowers fall off, the Pointal becomes a round Fruit, about the Size of a Tennis-ball; which, when ripe, has a rough browniſh Rind, and a mealy ſweetiſh Pulp, ſomewhat like ſome of the European Pears; but has a ſtrong Scent of Garlick. This

Fruit is often eaten by the Inhabitants of *America*, by way of Dessert, though they are not very tempting. The Swine, which are sometimes fattened with this Fruit, have the strong Scent of Garlick communicated to their Flesh. These Trees generally grow in low, moist Land, in several Parts of *America*.

In *Europe* this Tree is preserved by some curious Persons, who cultivate tender Exotic Plants. It is propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and, when the Plants are come up, they should be each transplanted into a separate small Pot, filled with rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing to shade them from the Sun every Day, until they have taken new Root; after which time, they must be treated in the same manner as hath been directed for the Guanabanus; with which Management this Plant will thrive, and make a Variety in the Stove, amongst other tender Exotic Plants.

TARRAGON; *vide* Draco Herba.

TAXUS, The Yew-tree.

The Characters are;

It hath armentaceous Flowers, which consist of many Apices, for the most part shaped like a Mushroom, and are barren; but the Embryoes (which are produced at remote Distances on the same Tree) do afterwards become hollow bell-shaped Berries, which are full of Juice, and include Seeds somewhat like Acorns; having, as it were, a little Cup to each.

The Species are;

1. TAXUS. J. B. The common Yew-tree.

2. TAXUS folio latiori, magisque foliis. Burch. Ind. Yew-tree

with a broader and more shining Leaf.

3. TAXUS foliis variegatis. H. R. Par. The Yew-tree with striped Leaves.

The two first Sorts are often promiscuously cultivated in Gardens, without Distinction; but the third is preserved by some for the sake of its variegated Leaves; though there is very little Beauty in them: for, during the Summer-Season, when the Plants are in Vigour, the Stripes in the Leaves are hardly to be perceived; but, in Winter, they are more obvious. However, the Stripe being rather a Blemish, than any real Beauty, it is hardly worth preserving.

There is hardly any Sort of ever-green Tree which has been so generally cultivated in the *English* Gardens, upon the account of its being so tonsile, as to be, with Ease, reduced into any Shape the Owner pleases; and it may be too often seen, especially in old Gardens, what a wretched Taste of Gardening did generally prevail, from the monstrous Figures of Beasts, &c. we find these Trees reduced into; but of late this Taste has been justly exploded by many Persons of superior Judgment: for what could be more absurd than the former Methods of planting Gardens? where, in the Part next the Habitation, were crowded a large Quantity of these and other Sorts of ever-green Trees, all of which were sheared into some trite Figure or other; which, besides the obtruding the Prospect from the House, occasioned an annual Expence to render the Trees disagreeable: for there never was a Person, who had considered the Beauty of a Tree in its natural Growth, with all its Branches diffused on every

every Side, but must acknowledge such a Tree infinitely more beautiful, than any of those shorn Figures, so much studied by Persons of a groveling Imagination.

The only Use I would recommend this Tree for in Gardens is, to form Hedges for the Defence of Exotic Plants; for which Purpose it is the most proper of any Tree in Being: the Leaves being small, the Branches are produced very closely together; and, if carefully shorn, they may be rendered so close, as to break the Winds better than any other Sort of Fence whatever, because they will not be reverberated, as against Walls, Pales, and other close Fences, and so consequently are much to be preferred for such Purposes.

The Trees may be easily propagated by sowing their Berries in Autumn, as soon as they are ripe (without clearing them from the Pulp which surrounds them, as hath been frequently directed), upon a Bed of fresh undunged Soil, covering them over about half an Inch thick with the same Earth.

In the Spring the Bed must be carefully cleared from Weeds, and, if the Season prove dry, it will be proper to refresh the Bed with Water now and then, which will promote the Growth of the Seeds, many of which will come up the same Spring; but others will remain in the Ground until the Autumn or Spring following; but where the Seeds are preserved above-ground till Spring before they are sown, the Plants will never come up till the Year after; so that, by sowing the Seeds as soon as they are ripe, there is many times a whole Year saved.

These Plants, when they come up, should be constantly cleared from Weeds, which, if permitted to grow

amongst them, would cause their Bottoms to be naked, and many times destroy the Plants, when they continue long undisturbed.

In this Bed the Plants may remain two Years; after which, in the Spring of the Year, there should be a Spot of fresh undunged Soil prepared, into which the Plants should be removed in the Beginning of *April*, placing them in Beds about four or five Feet wide, planting them in Rows about a Foot asunder, and six Inches Distance from each other in the Rows; observing to lay a little Mulch upon the Surface of the Ground about their Roots, as also to water them in dry Weather, until they have taken Root; after which, they will require no farther Care, but to keep them clear from Weeds in Summer, and to trim them according to the Purpose for which they are designed.

In these Beds they may remain two or three Years, according as they have grown; when they should be again removed into a Nursery, placing them in Rows at three Feet Distance, and the Plants eighteen Inches asunder in the Rows, observing to do it in the Spring, as was before directed, and continue to trim them in the Summer-Season, according to the Design for which they are intended; and, after they have continued three or four Years in this Nursery, they may be transplanted where they are to remain; always observing to remove them in the Spring.

These Trees are very slow in growing; but yet there are many very large Trees upon some barren cold Soils in divers Parts of *England*. The Timber of these Trees is greatly esteemed for many Uses.

TELEPHIODES, Bastard Opine.

The Characters are;

It hath a rose-shaped Flower, consisting of several Petals, which are constantly placed in a circular Order; from whose Empalement arises the Pointal, which afterward becomes a roundish Fruit, divided into six Cells, each containing a single Seed, of the same Form with the Cell.

The Species are;

1. TELEPHIOIDES *Græcum humifusum*, flore albo. Tourn. Cor. Low trailing Greek Bastard Orpine, with a white Flower.

2. TELEPHIOIDES *Americanum erectum*, folio ovali subtus glauco, flore herbaceo. Upright American Bastard Orpine, with an oval Leaf, which is of a Sea-green underneath, and an herbaceous Flower.

3. TELEPHIOIDES *Americanum arborescens*, fructu parvo, foliis acuminatis. Houst. Tree-like American Bastard Orpine, with a small Fruit, and pointed Leaves.

4. TELEPHIOIDES *Americanum arborescens*, foliis latis subrotundis, & subtus incanis, fructu maximo. Houst. Tree-like American Bastard Orpine, with broad, roundish Leaves, which are hoary underneath, and the largest Fruit.

5. TELEPHIOIDES *Americanum arborescens*, foliis latioribus subrotundis, fructu majore, ex longo pediculo pendulo. Houst. American tree-like Bastard Orpine, with broader roundish Leaves, and a larger Fruit, hanging on long Foot-stalks.

The first Sort was discovered by Dr. Tournefort in Greece; who constituted this Genus, giving it this Name, from the Similitude there is between this Plant and the true Orpine of *Imperatus*. This is a low, trailing Plant, which seldom continues more than two Years. It is propagated by Seeds, which should be sown in the Spring, on a Bed of

fresh Earth, where they are designed to remain; and, when the Plants are come up, they should be thinned, where they are too close, leaving them about six Inches asunder; after this, they must constantly be kept clear from Weeds. In July, the Plants will begin to flower, which are always produced behind the Leaves; and, toward the latter end of August, the Seeds will begin to ripen; and, if they are not gathered as soon as ripe, the Pods will open, and scatter them on the Ground; so that, if they are not looked after two or three times a Week, most of the Seeds will be dropped; but the Plants will come up from these self-sown Seeds; and, if they are kept clear from Weeds, they will require no other Culture.

The second Sort grows plentifully in Barbados, Jamaica, and several other Places in the West-Indies, where the Seeds scatter themselves in such Plenty, that, in the Earth which is brought from thence, the Plants frequently come up, especially if it be put into an Hot-bed, by which Method this Plant was first brought into Europe. This Sort grows erect, about two Feet high, and the Stem appears woody; but it seldom continues thro' the Winter, especially if it has produced Seeds; so that I believe it to be annual; for the Plants, which arise in the Spring, flower about Midsummer, and the Seeds soon after ripen; insomuch that, if they are not frequently looked after, they are soon scattered; but the Seeds, which fall into the Pots which are near the Plants, will come up the following Spring; so that, when once the Plant is obtained, and permitted to shed its Seeds, there will be little Danger of losing it, provided it is allowed a Place in the Hot-bed, or the Stove; for it is too tender to thrive

thrive in the open Air in this Country.

The third Sort was discovered by the late Dr. *Houffoux* at *La Vera Cruz*, from whence he sent the Seeds to *England*. This Sort rises to the Height of eight or ten Feet, having a woody Stem. The Leaves are branched into many Wings; and the Flowers, which are small, and of a whitish-green Colour, grow on the Under-side of the Leaves, and are succeeded by small Fruit, which hath not as yet ripened in *England*. The Leaves of this Plant fall off in Winter, and new ones come out the following Spring; so that, for near four Months, the Plants are intirely destitute of Leaves.

The fourth and fifth Sorts were discovered by the late Dr. *Houffoun* at *Campechy*, where they grow to the Height of twelve or fourteen Feet. The Leaves of these Kinds are broad, and come out alternately on the Branches. The Fruit of the fifth Sort is about the same Size with a small Nut, and is produced on the Under-side of the Leaves, hanging on very long Foot-stalks. The Fruit of the fourth Sort is as large as Walnuts, and hath hard woody Coverings or Shells. There are but few of these Seeds which come to Maturity in the Countries of their Growth; for I have examined many of the Fruit of both Kinds, and have not found one in forty of them, which had perfect Seeds in them; so that whoever collects their Seeds abroad, should throw them into Water, and take such of them only, as sink to the Bottom; for those, which swim on the Surface of the Water, seldom have any Kernels in them.

These three Sorts are propagated by Seeds (which must be procured from the Countries of their natural Growth; for they do not produce

any Seeds in *England*), which should be sown on an Hot-bed early in the Spring; and, when the Plants are come up, they should be each transplanted into separate small Pots, filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark; being careful to shade them from the Sun every Day, until they have taken new Root; after which time, they should have fresh Air admitted to them every Day, by raising the Glasses of the Hot-bed in proportion to the Warmth of the Season; and they must be frequently watered in hot Weather. In this Bed the Plants may remain till *Michaelmas*, when the Nights begin to be cold, at which time they should be removed into the Stove, and plunged into the Bark-bed, where, during the Winter-Season, they must be kept very warm, otherwise they will not live in this Country. When the third Sort drops its Leaves, it should be watered sparingly; for, if it hath too much Moisture during the Time it is destitute of Leaves, it very often perishes. The fourth and fifth Kinds keep their Leaves throughout the Year; and therefore will require to be frequently refreshed with Water, especially if the Air of the Stove is kept warm. As these Plants are too tender to thrive in the open Air in this Country, even in the warmest Season of the Year, they should be constantly kept in the Stove; and, if they are continued in the Bark-bed, it will greatly promote their Growth. But, in Summer, when the Weather is warm, they should have a large Share of fresh Air admitted to them, by opening the Glasses of the Stove; and, if their Leaves should contract any Filth, they must be washed, otherwise it will retard the Growth of the Plants. When the Plants have

filled the small Pots with their Roots, they should be shifted into Pots a little larger, which should be filled with fresh light Earth; observing, whenever the Plants are shifted, to trim their Roots: and, if their Leaves should flag after being removed, it will be proper to shade them from the Sun for a few Days, until they have taken new Root. With this Management, the Plants will thrive very fast, and, in three Years, will produce their Flowers, when they will afford an agreeable Variety, being mixed with other tender Exotic Plants.

TELEPHIUM, Orpine, or Live-long.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves placed orbicularly; out of whose many-leaved Empalement rises the Pointal, which afterward becomes a three-cornered Fruit, consisting of one Cell, which is filled with roundish Seeds. To these Notes should be added, That the Leaves are placed alternately on the Branches.

The Species are;

1. TELEPHIUM *Dioscoridis*. Imper. The true Orpine of *Dioscorides*, according to *Imperatus*.

2. TELEPHIUM *Americanum*, *porulacæ folio*. *Inst. R. H.* American Orpine, with a Purslain-leaf.

3. TELEPHIUM *maritimum*, *sedi folio*, *stare rubello*. *Inst. R. H.* Maritime Orpine, with an Houseleek-leaf, and a red Flower.

4. TELEPHIUM *maritimum*, *sedi folio*, *stare albo*. *Inst. R. H.* Maritime Orpine, with an Houseleek-leaf, and a white Flower.

The first Sort is a Native of *Italy*, *Spain*, and the Southern Parts of *France*, from whence the Seeds have been procured by some Persons, who are curious in Botany; who preserve it in their Gardens, for the sake of

Variety. It is a low Plant, whose Branches trail on the Ground; the Leaves are small and roundish, of a glaucous Colour, and of a pretty thick Consistence. The Flowers are small, and of a whitish-green Colour; so that the whole Plant makes but an ordinary Appearance.

This Sort may be propagated by Seeds, which should be sown early in the Spring, on a Bed of fresh light Earth, in an open Situation; and, when the Plants are come up, they should be thinned, so as to leave them six or eight Inches asunder; and they must constantly be kept clear from Weeds; for, if these are permitted to grow, they will soon overbear the Plants, and destroy them. In *June* they will begin to flower, and their Seeds will ripen in *August*; when they must be carefully watched to gather the Seeds, otherwise they will soon be scattered abroad; and, if the Ground is not disturbed, the Plants will come up in plenty, and require no other Care, than to keep them clear from Weeds.

The second Sort is a Native of *America*, from whence the Seeds have been brought to several curious Gardens in *Europe*. This being a tender Plant, the Seeds should be sown on an Hot-bed early in the Spring; and, when the Plants are come up, they should be each transplanted into a separate small Pot, filled with light, fresh, undunged Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing to shade them from the Sun in the Middle of the Day for a little time, if the Weather should prove hot, until they have taken new Root; after which time they should have free Air admitted to them every Day, in proportion to the Warmth of the Season; and, in hot Weather, they must be frequently refreshed with

with Water; but, as the Leaves and Branches are succulent, they should not have too much Moisture, lest it rot them. In *July* the Plants will begin to flower, and in *September* the Seeds will ripen; and the Plants will perish soon after, for they are annual; so that, if the Plants are not brought forward early enough in the Spring, they will not produce good Seeds in this Country.

The third Sort was brought from the *Cape of Good Hope*, where it grows in great Plenty near the Seaside. The fourth Sort is a Variety of the third, only differing in the Colour of its Flower. These Sorts may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and, when the Plants are come up, they may be transplanted on another moderate Hot-bed, to forward their Growth; and, when they are pretty strong, they should be each planted into a separate Pot filled with fresh Earth, and placed on a gentle Hot-bed, to forward their making new Roots; and in *June* they should be inured to bear the open Air by degrees, into which they may be removed, and placed in a warm Situation, amongst Ficoidefes, and other succulent Plants, which are Natives of the same Country; where they may remain till *October*, when they should be removed into an airy Glass-case, where they may be treated in the same manner as hath been directed for the Ficoidefes; with which Management these Plants will thrive very well. They may also be propagated by Cuttings, which may be taken from the old Plants during any of the Summer Months, and should be laid to dry for a few Days, before they are planted, in the same manner as is practised for other succulent Plants; then they may be planted in

a Bed of light Earth, where they will soon take Root, and may be planted afterwards in Pots, and treated as the feeding Plants.

TEREBINTHUS, The Turpentine-tree.

The Characters are;

It is Male and Female in different Plants; the Flowers of the Male have no Petals, but consist of a Number of Stamina with Chives; the Embroes, which are produced on the Female Trees, afterward become an oval Fruit with a hard Shell, inclosing one or two oblong Kernels. To these Notes must be added, The Leaves are pinnated, or winged, which are produced by Pairs opposite, and end in a single Lobe.

The Species are;

1. **TEREBINTHUS vulgaris**. C. B. P. The common Turpentine-tree.
2. **TEREBINTHUS Indica Theophrasti, Pistachia Dioscoridis**. Lob. Adv. The Pistachia-tree, vulgo.
3. **TEREBINTHUS peregrina, fructu majore, pistacii simile, eduli**. C. B. P. Foreign Turpentine-tree, with a larger eatable Fruit, like the Pistachia-nut.
4. **TEREBINTHUS peregrina, fructu minore & caeruleo, eduli**. C. B. P. Foreign Turpentine-tree, with a smaller blue eatable Fruit.
5. **TEREBINTHUS, seu pistachia trifolia**. Inst. R. H. The three-leaved Turpentine, or Pistachia-tree.
6. **TEREBINTHUS Cappadocica**. H. R. Par. The Turpentine-tree of Cappadocia.
7. **TEREBINTHUS Americana, pistachiae fructu non eduli**. Plum. American Turpentine-tree, with a Fruit like the Pistachia-nut, which is not eatable.
8. **TEREBINTHUS major, betulæ cortice, fructu triangulari**. Sloan. Cat. The greater Turpentine-tree, with a Bark like the Birch-tree, and

a triangular Fruit, commonly called in the *West-Indies* the Birch-tree.

The two first Trees are very common in several Islands of the *Archipelago*, from whence there are annually great Quantities of the *Pistachia* Nuts brought into *England*, which easily rise, if sown on a Hot-bed in the Spring; so that the Trees of this Kind are much more common in *England* than are those of the first Sort, whose Fruit are rarely brought over fresh: besides, the Shell of these Nuts is much harder than those of the *Pistachia*; so that many times the Plants do not come up until the second Year, which may also have contributed to the present Scarcity of the Plants in *England*.

The Seeds (or Nuts) of both these Trees should be sown in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed, observing to refresh the Earth with Water frequently, as it may have Occasion; and when the Plants are come up (which those of the *Pistachia* will do in six Weeks after sowing), they should be enured to bear the open Air by degrees, into which they must be removed the Beginning of *June*, placing them where they may be screened from the Violence of the Winds; in which Situation they may remain until *October*, when they should be removed either into a common Hot-bed Frame, or else into a Green-house, where they may be defended from hard Frost; but should have as much free Air as possible in mild Weather, and must be frequently refreshed with Water.

In *March* following, these Plants should be removed, and each planted in a separate Pot, filled with fresh light Earth; and as the Spring advances, they should be again removed into the open Air, and placed

amongst other Exotic Plants, observing to water them frequently in dry Weather; and when their Roots are confined by the Smallness of the Pots, they must be shifted, being careful not to break the Earth off from their Roots, which will greatly injure them, unless it be done before the Plants begin to shoot in the Spring; for at that Season they may be transplanted with as much Safety as any other deciduous Trees

In this manner these Plants should be treated for three or four Years, while young; after which time the *Pistachias* may be planted into the full Ground, observing to place them in a warm Situation, and dry Soil, where they will indure the Cold of our ordinary Winters very well, as may be seen by a very large Tree of this Kind, now growing in the Gardens of the Earl of *Peterborough*, at *Parsons-green*, near *Fulham*, which produces abundance of Fruit, without any manner of Care, Nor do I believe but that the common Turpentine-tree would endure the Cold of our Climate, if, after the Plants have acquired Strength, they were planted against a good Wall upon a dry Soil; for much Wet about the Roots of these Trees in Winter, is very often the Occasion of their rotting, whereby the Trees are destroyed.

The third, fourth, and fifth Sorts, grow in the Eastern Countries, where their Fruit is eaten; but they are at present very rare in *Europe*. The sixth Sort was originally brought from *Cappadocia*: the Fruit of this Sort is not eatable. These Trees may be propagated in the same manner as hath been directed for the two Sorts which are first enumerated, and should be treated in the same manner as those afterwards; for being equally hardy, they will thrive in the open

open Air, if they are planted in a warm Situation. I saw young Plants of all these Kinds in the Garden of the late Dr. *Boerhaave*, near *Leyden*, which were growing in the full Ground, and had resisted the Winter's Cold very well.

The seventh and eighth Sorts grow plentifully in the Island of *Jamaica*, and in several other Places in the *West-Indies*; where the seventh Sort is called the Hog-doctor of Bear-tree, and the eighth Sort is called the Birch-tree. These Trees grow to the Height of thirty or forty Feet, in the Places of their natural Growth, and have very large Trunks. The seventh Sort produces small purple Flowers, at the Extremity of the Branches, which generally appear before the Leaves come out; for the Trees are destitute of their Leaves a considerable time. From the Trunk and Branches of this Tree there issues out a Balsam of the Consistence and Smell of Turpentine, which is greatly used by the Inhabitants to heal green Wounds.

The eighth Sort produces small purple Flowers at the Extremity of the Branches, which generally precede the Leaves, like the other Sort; for the Leaves of this Tree fall off in *November*, and in *February* they put out new ones. The Trunk and Branches of this Tree being wounded, there flows out a liquid Balsam, which the Inhabitants call *Hoggum*, and make use of it to vomit or purge in chronical Diseases; the usual Dose is a Quarter of an Ounce for a strong Man, which is given in a Glass of Water, and will certainly operate in a Quarter of an Hour after taking, without making the Person sick, or causing any Uneasiness. The Inhabitants of *Jamaica* confidently affirm, that when the wild Hogs are wounded, they

will repair to these Trees, and rub against the Trunks till the Balsam flows out; when they rub their wounded Part on the Balsam, which cures them, and occasioned their calling it the *Hog-doctor-tree*.

These Trees may be propagated either by Seeds or Cuttings; but the Seeds will not retain their growing Quality long: therefore they should be put into a Box of Earth soon after they are ripe, and when the Plants are come up, and have obtained Strength, they may be brought to *England*; but there should be great Care taken of them in their Passage, that they are not injured by salt Water; nor should they have much fresh Water given to them, especially as they come into a cooler Climate; for too much Moisture will soon destroy them. In like manner also should the Cuttings of these Trees be managed; for they should be planted in Tubs of Earth, and kept in the Country until they are well rooted; because if they are sent over before they have taken good Root, they seldom come good to *England*. When these arrive, they should be each transplanted into separate Pots, filled with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark; observing, if the Season is very warm, to shade them from the Sun in the Heat of the Day, and refresh them every other Day with Water; but do not give it to them in great Quantities, lest it rot their tender Roots. When the Plants have taken good Root, and recovered the Injuries they received in their Passage, they may be treated in the same manner as is practised for other tender Exotic Plants, keeping them constantly in the Bark-stove; for they are too tender to live in the open Air in this Country. During the Winter-Season, when

when they are destitute of Leaves; they should have but little Water; but, in Summer, when the Weather is warm, they must have frequent Refreshings, and a good Share of Air should be admitted to them at that Season. With this Management the Plants will thrive, and afford an agreeable Variety in the Stove, amongst other Plants of the same Country.

TERNATEA.

The Characters are;

It hath a papilionaceous (or Pea-bloom) Flower, whose Standard almost hides the Keel and the Wings; the Pointal afterward becomes a Pod, which opens two ways, and is filled with kidney-shaped Seeds. To these Notes should be added, That the Leaves are winged, and are terminated by an odd Lobe.

The Species are;

1. *TERNATEA flore simplici cœruleo.* Acad. Reg. Scien. Ternatea with a single blue Flower.
2. *TERNATEA flore pleno cœrulea.* Acad. Reg. Scien. Ternatea with a double blue Flower.
3. *TERNATEA flore simplici albid.* Acad. Reg. Scien. Ternatea with a single white Flower.
4. *TERNATEA Americana perennis, flore cœruleo.* Houff. American perennial Ternatea, with a blue Flower.

The Name which Dr. Tournefort has given to this Genus of Plants, is from the Place whence these Plants were first brought, which is one of the Molucca Islands, called Ternate.

The three first-mentioned Sorts are annual Plants, which perish soon after they have perfected their Seeds. But the fourth Sort will abide several Years, provided the Plants are placed in a warm Stove. They are all of them tender Plants; wherefore their Seeds should be sown on an Hot-bed

early in the Spring; and, when the Plants are come up, they should be each transplanted into a separate small Pot, filled with fresh light Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing to shade them from the Sun, until they have taken new Root, and often refresh them with Water. As these Plants have very slender Branches, they twist round whatever Plants grow near them; therefore they should have Sticks thrust into the Pots for them to twine round, that they may be supported from trailing on the Ground. In warm Weather, these Plants should have a large Share of free Air admitted to them, otherwise they will draw up too weak; and, when they are grown so tall as to reach the Glasses of the Hot-bed, they should be taken out, and (after having shifted them into larger Pots) they should be plunged into the Bark-bed in the Stove, where they should remain to flower, and perfect their Seeds.

The Flowers of the first and second Sorts are of a very deep-blue Colour, and, if put in Water, and macerated, will dye the Water almost as blue as Indico. The Second Sort, having very double Flowers, makes a fine Appearance, when it is in Flower, and is worthy of a Place in every good Garden, where there is Conveniency for bringing them to Perfection. For, as they are very tender, so, if they are not brought forward early in the Spring, and carefully treated afterward, they will not perfect their Seeds in this Country.

The third Sort differs from the first, only in the Colour of the Flower; wherefore it may be admitted for the sake of Variety, tho' the Flowers are not near so beautiful.

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The fourth Sort was discovered by the late Dr *William Houfown* in *Jamaica*, from whence he sent the Seeds to *England*. This is an abiding Plant, which rarely produces any Flowers in this Country; for, from several of these Plants, which have been raised in the Physic-garden, there has but one of them produced any Flowers as yet, and that not more than three Flowers, though it has remained several Years.

TETRAGONOCARPOS.

The Characters are;

It hath an apetalous Flower, whose Emplacement is divided into four Parts. In the Middle of the Flower rises the Pointal, which afterward becomes a Fruit, having four Wings or Corners, and four Cells; in each of which is contained one Seed.

The Species are;

1. TETRAGONOCARPOS *Africana fruticans, foliis longis & angustis. H. Amst.* African shrubby Tetragonocarpos, with long narrow Leaves.

2. TETRAGONOCARPOS *Africana, folio portulacæ longo, flore herbaceo. Boerb. Ind. alt.* African Tetragonocarpos, with a long Purslain-leaf, and an herbaceous Flower.

The first of these Plants is pretty common in the *English* Gardens, where there are Collections of rare Plants. This may be propagated by Cuttings, which should be cut off from the Plant a few Days before they are planted, that the Part where they are cut may be healed, otherwise they will rot; for the Leaves and Stalks of this Plant are very full of Moisture. The best Time to plant these Cuttings is in *July*, that they may have Time to make good Roots before Winter. These Cuttings may be planted on a Bed of fresh Earth; and, if the Cuttings are shaded from the Sun in the Heat of the Day, it will be of Ser-

vice to them. They should be frequently refreshed with Water; but they must not have it in too great Plenty, for that will rot them. In about six Weeks after planting, the Cuttings will be sufficiently rooted to transplant; therefore they should be taken up, and planted into Pots filled with light fresh undunged Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be placed with other hardy Exotic Plants, in a sheltered Situation, where they may remain till the Middle or Latter-end of *October*; at which time they should be removed into the Greenhouse, and placed where they may enjoy as much free Air as possible in mild Weather; for they only require to be protected from the Frost, being pretty hardy with respect to Cold; but they should not have too much Moisture in Winter. If these Plants are planted in the full Ground in the Summer-Season, they will grow prodigiously rank and large, as they also will, if they are permitted to root into the Ground thro' the Holes at the Bottom of the Pots: therefore the Pots should be frequently removed to prevent it; for, when they grow too freely, their Leaves will be very full of Moisture, which, together with the Weight of the Fruit, which are always produced at the Extremity of the Branches, will weigh the Branches upon the Ground, and render the Plants very unsteady. The Plants of this Kind commonly grow very straggling; therefore, the more their Roots are confined in the Pots, the more close and stunted will be the Heads of the Plants; which is what they should always be kept to, in order to render them steady. The Flowers of this Plant have no great Beauty; but, as the whole Appearance of the Plant

is peculiar, it may be allowed a Place in every Collection of Plants, for the sake of Variety, since it requires no great Trouble to cultivate it.

This Plant may also be propagated by Seeds, which should be sown on a warm Border of light fresh Earth, where sometimes they will remain a whole Year before the Plants come up; therefore, when they do not come up the first Season, the Borders should not be disturbed, but kept constantly clear from Weeds; and, when the Plants are come up about four Inches high, they should be taken up, and planted in Pots (and treated in the same manner as hath been directed for the Cuttings); for, if they are suffered to grow in the Border till they are large, they will not transplant so well, nor will they make so handsome Plants.

The second Sort is less common in the *English* Gardens than the former; but, in some of the Gardens in *Holland*, it is in great Plenty. This may be treated as the first Sort, and is equally hardy.

TEUCRIUM, Tree-germandar.

The Characters are;

The Flower-cup is divided into five Parts at the Top, but is of the bell-shaped kind; the Flower has no Galea or Crest; but, instead thereof, the Stamina occupy the Upper-part; the Beard, or Lower-lip, is cut into five Parts; the middle Segment, being larger, is hollowed like a Spoon; in the Centre of the Flower rises the Pointal, attended by four Embryoes, which after-ward become so many Seeds, shut up in an Husk, which was before the Flower-cup. To these Notes should be added, The Flowers are produced from the Wings of the Leaves.

The Species are;

1. TEUCRIUM *multis.* J. B. Common Tree-germander.

2. TEUCRIUM *Bæticum.* Claf. Hist. Spanish Tree-germander.

3. TEUCRIUM *Bæticum, calyce campanulato, folio eleganter variegato.* Boerb. Ind. Spanish Tree-germander, with a striped Leaf.

4. TEUCRIUM *Hispanicum, latiore folio.* Inst. R. H. Spanish Tree-germander, with a broader Leaf.

5. TEUCRIUM *supinum perenne, foliis laciniatis.* Inst. R. H. Low perennial Germander, with jagged Leaves.

6. TEUCRIUM *supinum annum Lusitanicum, foliis laciniatis.* Inst. R. H. Low annual Portugal Germander, with jagged Leaves.

7. TEUCRIUM *frutescens, stachadis Arabicæ folio & facie.* Tourn. Cor. Shrubby Germander, with the Leaf and Face of Arabian Stechas.

8. TEUCRIUM *orientale latifolium laciniatum, flore parvo.* Tourn. Cor. Broad jagged-leaved Eastern Germander, with a small Flower.

9. TEUCRIUM *orientale angustifolium laciniatum, flore magno suaverrubente.* Tourn. Cor. Narrow jagged-leaved Eastern Germander, with a large soft red Flower.

10. TEUCRIUM *orientale angustifolium laciniatum, flore magno subcæruleo.* Tourn. Cor. Narrow jagged-leav'd Eastern Germander, with a large blue Flower.

11. TEUCRIUM *Hispanicum supinum humilius, verbenæ tenuifoliæ foliis.* Jessieu. Low trailing Spanish Germander, with Leaves like the narrow-leaved Vervain.

12. TEUCRIUM *Creticum odoratum, flore purpureo.* H. R. Par. Sweet Germander of Crete, with a purple Flower.

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13. *TEUCRIUM Americanum, baccabos & alopecuroides. Plum. Cat. American Tree-germander*, like the Winter Cherry and Fox-tail.

14. *TEUCRIUM Americanum, chamaedryos folio, flore albo. Houß. American Tree germander*, with a common Germander-leaf, and a white Flower.

The first Sort here mentioned was formerly preserved in Green-houses with great Care; but of late Years it hath been planted out into the open Air, and is found hardy enough to endure the Cold of our severest Winters without Shelter, provided it be planted on a dry Soil.

This may be propagated by planting Cuttings in the Spring, on a Bed of fresh light Earth, observing to shade and water them until they have taken Root; after which they will require no further Care, but to keep them clear from Weeds until the following Spring, when they may be transplanted out into the Places where they are to remain, being careful, in removing them, not to shake off all the Earth from their Roots, as also to water them until they have taken fresh Root; after which the only Care they require, is to keep the Ground clean about them, and to prune off such Shoots as are ill situated, whereby their Heads will appear more regular.

The *Spanish* Sort is tenderer than the former, though that will endure the Cold of our ordinary Winters, if planted on a dry Soil, and in a warm Situation; but in a severe hard Frost it is often destroyed; for which Reason the Plants are generally preserved in Pots, and removed into the Green-house in Winter. This is propagated in the same manner as the former.

The Sort with striped Leaves is less common than the plain; and is valued by those that delight in variegated Plants. This is somewhat tenderer than the plain Sort; but may be propagated and preserved in the same manner, only observing to place it in a warmer Part of the Green-house in Winter.

The fourth Sort here mentioned, is very like to the *Batic* Tree-germander, which is before-mentioned; from which it differs in the Leaves being broader, the Shoots stronger, and the young Shoots being whiter. This Sort may be propagated by Cuttings, which may be planted during any of the Summer Months, in a Bed of fresh Earth; observing to shade them from the Sun until they have taken Root, as also to refresh them frequently with Water. When the Cuttings are well rooted, they should be carefully transplanted, some of them into Pots, that they may be sheltered in Winter, and others on a warm dry Border, where they will indure the Cold of our ordinary Winters very well, without any Covering. These Plants which are designed to live in the open Air, must be planted on a dry rubbishy Soil, in which they will grow more stunted, and resist the Frost much better, than when they grow in a rich Soil, which causes them to be more luxuriant. Those Plants which are planted in Pots, should be sheltered under an Hot-bed Frame in Winter, where they may have a greater Share of Air than in a Green-house; for the Glasses should not be put over them in mild Weather, these Plants only requiring to be protected from severe Frost.

The seventh and twelfth Sorts are also shrubby Plants, which may be propagated and treated in the same

man-

manner as hath been directed for the fourth; with which Management these will thrive very well, and may be allowed to have a Place in the Garden, for the sake of Variety.

The fifth Sort is a low trailing Plant, which puts out Roots from the Joints of the Stalks, whereby it may easily be propagated, as also from the Seeds, which require no farther Care, than to sow them on a Bed of fresh Earth, in an open Situation; and when the Plants are come up, they must be kept clear from Weeds; and where they are too close, some of them should be drawn out to give room for the others to grow. This Sort will ripen Seeds very well in this Country; and, if planted in a warm Situation, will indure the Cold of our ordinary Winters very well.

The sixth, eighth, ninth, tenth, and eleventh Sorts, are annual Plants, of humble Growth. These are propagated by Seeds, which should be sown on a Bed of fresh Earth in *March*; and when the Plants are come up, they must be thinned where they are too close, and kept clear from Weeds, which is all the Culture they require; for as they are Plants which make no great Figure in a Garden, they are not cultivated in great Plenty; a few Plants of each Sort, for the sake of Variety, are as many as any curious Person commonly keeps. These Plants will drop their Seeds, and the Plants will come up from the self-sown Seeds, full as well, if not better, than when they are sown by Hand; and may be easily maintained.

The thirteenth Sort was discovered by Father *Plumier*, in the *French* Settlements in *America*; and the fourteenth was discovered by the late *Dr. Houshoun*, at the *Hawannah*; from whence he brought the Seeds

to *England*. These are both very tender Plants, and must be preserved in a Stove, otherwise they will not live through the Winter in this Country. They may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be each transplanted into a separate small Pot, filled with fresh light Earth, and then plunged into a moderate Hot-bed of *Tanners Bark*, and shaded from the Sun in the Heat of the Day, until the Plants have taken new Root; after which time they should have a large Share of free Air admitted to them in warm Weather, and must be plentifully watered. When these Plants are brought forward early in the Spring, some of them will produce their Flowers the same Season, but they rarely produce ripe Seeds the first Year; wherefore the Plants should be removed into the Stove at *Michaelmas*, and during the Winter Season should have a moderate Share of Heat, and will require to be frequently refreshed with Water; but it must not be given to them in large Quantities, when the Weather is cold; for that will often occasion their Leaves falling off. Those Plants, which are preserved through the Winter, will flower early the following Spring, and produce good Seeds; and the old Plants may be preserved three or four Years, if they are constantly kept in a Stove.

There is no very great Beauty in these Plants; but they are preserved for the sake of Variety, by those who are curious in collecting the various Kinds of Exotic Plants.

THALICTRUM, Meadow-rue.

The Characters are;
The Flower consists of several Leaves, placed orbicularly, which expand

expand in form of a Rose, in the Middle of which arise numerous Clusters of Chives, encompassing the Pointal, which afterward becomes a Fruit, in which are collected, as in a little Head, the Capsules, which are sometimes winged, and sometimes without Wings, and containing one Seed, for the most part oblong.

The Species are ;

1. *THALICTRUM Alpinum, aquilegiæ foliis, florum staminibus purpurascensibus.* Tourn. Alpine Meadow-rue, with Columbine-leaves, and the Chives of the Flower of a purplish Colour, commonly called, *The feathered Columbine.*

2. *THALICTRUM Alpinum majus, aquilegiæ foliis, florum staminibus albis, caule viridi.* Tourn. Greater Alpine Meadow-rue, with Columbine-leaves, white Chives to the Flowers, and a green Stalk.

3. *THALICTRUM Canadense, caule purpurascens, aquilegiæ foliis, florum staminibus albis.* Tourn. Canada Meadow-rue, with a purplish Stalk, Columbine-leaves, and white Chives to the Flower.

4. *THALICTRUM Americanum minus.* Park. Theat. Lesser American Meadow-rue.

5. *THALICTRUM majus, siliqua angulosa aut striata.* C.B.P. Greater Meadow-rue, with an angular furrowed Pod.

6. *THALICTRUM pratense majus Monspelienfium, foliis rugosis.* H. R. Par. Greater-Montpelier Meadow-rue, with rough Leaves.

7. *THALICTRUM majus non striatum.* C. B. P. Greater smooth Meadow-rue.

8. *THALICTRUM majus flavum, staminibus luteis, vel glauco folio.* C. B. P. Greater yellow Meadow-rue, with yellow Chives, and a fea-green Leaf.

9. *THALICTRUM magnum, flore luteo odorato.* Vir. Lusit. Great Meadow-rue, with a yellow sweet Flower.

10. *THALICTRUM minus, asphodeli radice, parvo flore.* Inst. R. H. Smaller Meadow-rue, with an Asphodel-root, and a small Flower.

11. *THALICTRUM minus, asphodeli radice, magno flore.* Inst. R. H. Smaller Meadow-rue, with an Asphodel-root, and a large Flower.

12. *THALICTRUM minus.* C. B. P. Smaller Meadow rue.

13. *THALICTRUM pratense, angustifolium.* C. B. P. Narrow-leaved Meadow-rue.

14. *THALICTRUM pratense, angustissimo folio.* C. B. P. The narrowest-leaved Meadow-rue.

15. *THALICTRUM minus alterum Parisensium, foliis crassioribus & lucidis.* H. R. Par. Another small Meadow-rue of Paris, with thicker shining Leaves.

16. *THALICTRUM minimum fetidissimum.* C. B. P. The least and most stinking Meadow-rue.

17. *THALICTRUM montanum minus, foliis latioribus.* Raii Syn. Small mountain Meadow-rue, with broader Leaves.

18. *THALICTRUM minimum montanum, atro-rubens, foliis splendidibus.* Raii Syn. Smallest mountain Meadow-rue, with blackish-red shining Leaves.

These Sorts are commonly known by the Name of *feathered* or *Spanish Columbine* among the Gardeners ; which Names, I suppose, they received from the Similitude that the Leaves of these Plants bear to those of Columbine, though their Flowers are very different therefrom.

The fifth Sort here mentioned grows plentifully in moist Meadows, in divers Parts of England. The

Sixth Sort is found growing wild about *Newmarket*, and on chalky Grounds in several other Parts of *England*. The seventeenth and eighteenth Sorts grow wild in the rocky Mountains of *Wales*, from whence they have been transplanted into some curious Gardens, where they are preserved for the sake of Variety.

The other Sorts are not Natives of *England*, yet, being equally hardy with the former, they will thrive in the open Air very well. Most of these Plants have creeping Roots, by which they spread very far, and may be easily propagated; but they should not be planted amongst other better Plants, because these will overbear and destroy them. These Plants should be planted in a moist Soil, otherwise they will not flower very strong. The best Time to transplant them, is about *Michaelmas*, that they may be well rooted before the dry Weather come on in the Spring.

The fifth, sixth, seventh, eighth, ninth, tenth, eleventh, thirteenth, and fourteenth Sorts, being tall Plants, may be placed amongst other Plants of the same Growth, which delight in a moist Soil, in some obscure Part of the Garden, where better Things will not thrive; in which Places these will thrive and flower, and maintain themselves without requiring any other Care, but to keep them clear from very large Weeds, which would overbear and destroy them.

The other Sorts are of humble Growth, some of them seldom rising above six Inches high, and the others not more than a Foot; wherefore these may be planted in shady Borders with other hardy Plants, where they will thrive very well, provided they are watered in dry Weather, and will abide several Years. All these Sorts flower in *May* and *June*, and

their Seeds are ripe toward the End of *August*. But, as these propagate so fast by their Roots, they are rarely raised from Seeds, which is a more tedious Method; for it is commonly three Years before the seedling Plants produce their Flowers so strong as the old ones.

These Plants are propagated by parting their Roots; the best Time for this Work is in *September*, when their Leaves begin to decay, that they may take fresh Root before the Frost comes on to prevent them. They should also be planted in a fresh light Soil, and have a shady Situation, in which they will thrive exceedingly, though they may be planted in almost any Soil or Situation, provided it be not too hot and dry. These Roots should not be parted or removed oftener than every other Year; but, if they are permitted to stand three Years, they will flower much stronger for it.

They may also be propagated by sowing their Seeds on an East Border, soon after they are ripe, observing to keep the Ground clear from Weeds; and the following Spring the Plants will come up, when they should be frequently refreshed with Water, and constantly kept clear from Weeds; the Autumn following they may be planted out into Nursery-beds, about five or six Inches asunder, where they may remain until they have Strength enough to flower; when they should be removed into the Borders of the Flower-garden, placing them in the middle Line, among Plants of large Growth, allowing them room, otherwise they will spread over whatever Plants are near them.

These Plants flower the Beginning of *June*; and, if the Season be moderate, they will continue in Beauty a long time: this, together

ther with their being hardy Plants, which require little Culture, renders them worthy of a Place in every good Flower-garden; and their Flowers are very proper to intermix with others, for Basons to adorn Halls, Chimneys, &c. in the Summer-time.

THAPSIA, The scorching or deadly Carrot.

The Characters are;

It hath an umbellated rose-shaped Flower, consisting of five Petals, which are placed in a circular Order, and rest on the Empalement, which afterward becomes a Fruit, composed of two long furrowed Seeds, which have a large leafy Border.

The Species are;

1. **THAPSIA maxima, latissimo folio.** C. B. P. The greatest Scorching-fenel, with a very broad Leaf.

2. **THAPSIA latifolia villosa.** C. B. P. Broad-leaved hairy Scorching-fenel.

3. **THAPSIA foliis libanotidis, fetidissima.** C. B. P. The most stinking Scorching-fenel, with Herb-frankincense leaves.

4. **THAPSIA aptii folio, Lusitanica fetidissima, flore albo.** Inst. R. H. The most stinking Portugal Scorching-fenel, with a Smallage-leaf, and a white Flower.

5. **THAPSIA tenuiore folio, Apula.** Inst. R. H. Apulian Scorching-fenel, with a narrow Leaf.

6. **THAPSIA, sive Turbith Garganicum, semine latissimo.** J. B. Scorching-fenel with very broad Seeds, whose Roots were supposed to be the Turbith.

7. **THAPSIA Alpina lucida, thalictri aut carota folio, flore albo.** Bocc. Mus. Shining Scorching-fenel of the Alps, with a Meadow-rue or Carrot-leaf, and a white Flower.

8. **THAPSIA thalictri folio, Lusitanica villosa.** Inst. R. H. Hairy

Portugal Scorching-fenel, with a Meadow-rue-leaf.

9. **THAPSIA orientalis, anethi folio, semine elegantius crenato.** Tournef. Cor. Eastern Scorching-fenel, with a Dill-leaf, and Seeds beautifully notched.

10. **THAPSIA orientalis aquatica, angelica folio.** Tourn. Cor. Eastern water Scorching fenel, with an Angelica-leaf.

11. **THAPSIA Cretica, thalictri folio, villosa, seminum alis purpuro-violaceis.** Tourn. Cor. Hairy Scorching-fenel of Crete, with a Meadow-rue-leaf, and Seeds with purple violet Borders.

12. **THAPSIA carota folio.** C. B. P. Scorching-fenel with a Carrot-leaf.

The first Sort grows plentifully in several Parts of Spain, and on the Pyrenees, where the Inhabitants sometimes use the Roots in Medicine; but it purges upwards and downwards with so much Violence, that it frequently puts those who take it in great Hazard of their Lives.

The sixth Sort, whose Root have by some Botanists been supposed to be the Turbith of the Shops, grows on the Coast of Africa; from whence the Seeds have been brought into several curious Gardens in Europe, where the Plant is preserved by those who delight in Botany.

The twelfth Sort is mentioned in the Catalogue of Plants inserted in the College Dispensatory; but is rarely used in Medicine; for it is of such an acrid burning Quality, that it is very dangerous to take inwardly; but outwardly applied, it takes off Blemishes and Scabs from the Skin.

All these Plants, being very hardy in respect to Cold, will thrive in the open Air in this Country; but they

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should have a loamy Soil, and in dry Weather should be watered; otherwise their Flowers will fall off, without producing good Seeds. These Plants are only propagated by Seed, which should be sown in Autumn; for, if they are kept out of the Ground till Spring, they often miscarry; or, if they do grow, they commonly lie in the Earth a whole Year before the Plants come up; whereas those Seeds which are sown in Autumn, generally grow the following Spring. These should be sown in Drills, in the Place where they are designed to remain; the Drills should be at least two Feet asunder, because the Plants spread the Leaves very wide. When the Plants come up in the Spring, they must be carefully cleared from Weeds; and, where they are too close together, some of them should be drawn out, to give room for the others to grow; but at this time they need not be left more than two or three Inches apart. For the first Year the Plants arise from Seeds, they make but slow Progress; wherefore the next Autumn, the remaining Part of the Plants may be taken up, leaving those which are designed to continue, about eighteen Inches asunder; and those which are taken up, may be transplanted into another Bed, if they are wanted. After the first Year, these Plants will require no further Care, but to keep them clear from Weeds; and every Spring, just before the Plants begin to push out new Leaves, the Ground should be carefully dug between the Plants to loosen it; but the Roots must not be injured, lest it should cause them to decay. The Plants, being thus managed, will continue several Years, and produce Flowers and Seeds annually, from which new Plants may be raised.

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THLASPI, Mithridate-mustard.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross; out of whose Cup rises the Pointal, which afterward becomes a smooth roundish Fruit, having commonly a leafy Border, and slit on the Upper-side, divided into two Cells by an intermediate Partition, placed obliquely with respect to the Valves, and furnished with smooth roundish Seeds: to these Marks must be added, The undivided Leaves, which distinguish it from Cresses.

The Species are;

1. *THLASPI arvense, siliquis latis.* C. B. P. Field Mithridate-mustard, with broad Pods.
2. *THLASPI montanum semper-virens.* C. B. P. Mountain ever-green Mithridate-mustard.
3. *THLASPI Creticum quibusdam, flore rubente & albo.* J. B. Candy Mithridate-mustard, with a reddish and white Flower, commonly called, Candy-tuft.
4. *THLASPI umbellatum arvense amarum.* J. B. The bitter field umbellated Mithridate-mustard.
5. *THLASPI rosa de Hierico dictum.* Mor. Hist. Mithridate-mustard, called The Rose of Jericho.
6. *THLASPI arvense, vaccariæ incano folio.* C. B. P. Common Mithridate-mustard.
7. *THLASPI vaccariæ incano folio, minus.* C. B. P. Small hoary-leaved Mithridate-mustard.
8. *THLASPI capsulis hirsutis.* J. B. Mithridate-mustard with hairy Pods.
8. *THLASPI capsula cordata, peregrinum.* J. B. Foreign Mithridate-mustard, with an heart-shaped Pod.
10. *THLASPI allium redolens.* Mor. Hist. Mithridate-mustard, smelling like Garlick.

11. *THLASPI*

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11. *THLASPI arvense perfoliatum majus*. C. B. P. Greater field Mithridate-mustard, with thorough-wax-Leaves.

12. *THLASPI perfoliatum minus*. C. B. P. Smaller thorough-wax-leaved Mithridate-mustard.

13. *THLASPI parvum saxatile, flore rubente*. C. B. B. Small rock Mithridate-mustard, with a reddish Flower.

14. *THLASPI Alpinum, folio rotundiore carnosio, flore purpurascente*. *Inst.* R. H. Mithridate-mustard of the Alps, with a rounder fleshy Leaf, and a purplish Flower.

15. *THLASPI minimum Lusitanicum, cochleariæ folio*. *Inst.* R. H. The least Portugal Mithridate-mustard, with a Scurvygrafs-leaf.

16. *THLASPI Alpinum minimum, foliis crassis & angustis*. *Inst.* R. H. The least Mithridate-mustard of the Alps, with narrow fleshy Leaves.

17. *THLASPI Lusitanicum umbellatum, gramineo folio, flore purpurascente & albo*. *Inst.* R. H. Portugal Mithridate-mustard, with a Grafs-leaf, and purplish or white Flowers, growing in an Umbel.

18. *THLASPI orientale saxatile, flore rubente, foliis polygalæ, petalis florum æqualibus*. *Tourn. Cor.* Eastern Rock Mithridate-mustard, with Milkwort-leaves, and reddish Flowers, whose Petals are equal.

19. *THLASPI orientale tenuifolium canescens, flore albo*. *Tourn. Cor.* Eastern Mithridate-mustard, with narrow Leaves, which are hoary, and a white Flower.

20. *THLASPI orientale glabrum, samoli foliis*. *Tourn. Cor.* Smooth Eastern Mithridate-mustard, with Samolus-leaves.

21. *THLASPI orientale, folio cynocrambes, flore minimo*. *Tourn. Cor.* Eastern Mithridate-mustard, with a

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Dogs-mercury-leaf, and a very small Flower.

22. *THLASPI Virginianum, foliis iberidis amplioribus & serratis*. *Inst.* R. H. Virginia Mithridate-mustard, with Leaves like the Sciatica-crefs, which are broader, and sawed on their Edges.

23. *THLASPI montanum semper-virens*. C. B. P. Ever-green mountain Mithridate-mustard.

24. *THLASPI orientale fruticosum, scammonii Montpelienfis folio*. *Tourn. Cor.* Shrubby Eastern Mithridate-mustard, with the Leaf of Montpellier Scammony.

25. *THLASPI foliis globulariæ*. *J. B.* Treacle-mustard with Leaves like Globularia.

The first Sort is sometimes found wild in *England*, but not near *London*. This is the Sort of which the College of Physicians have ordered the Seeds to be used in some of the grand Medicines of the Snops; tho' the Seeds of several other Plants are commonly substituted instead of it, because the Seeds of this Sort are not very common in *London*; but the Plants might be easily cultivated in such Plenty, as to furnish the Town with the right Sort, the Plant being extreme hardy, and requires no other Culture but to sow the Seeds in *February* upon an open Spot of Ground; and when the Plants are come up, they must be constantly cleared from Weeds; in *June* they will flower, and the Seeds will ripen soon after; when the Plants always perish, being annual.

The sixth Sort grows plentifully wild amongst the Corn, and by the Sides of Hedges, in most Parts of *England*. The Seeds of this Sort are generally sold by the Druggists in *London*, for the true Mithridate-mustard; but the first Sort, is what

the College of Physicians have directed to be used in the *Theriaca*.

The seventh, eighth, twelfth, and twenty-fifth Sorts, do also grow wild in some Parts of *Great Britain*; but are not so common as the former Sort, especially the twenty-fifth; which is found in the mountainous Pastures in *Yorkshire*, and some other Places in the North; but is not to be met with in the South, unless in some curious Botanic Gardens, where it is preserved for the sake of Variety.

The sixth and sixteen following Sorts are all of them annual Plants, which if permitted to shed their Seeds on the Ground, will succeed much better than when sown by Hand, especially if they are sown in Autumn; for when the Seeds are sown in the Spring, if the Season should prove dry, they many times do not grow; and if they do come up, the Plants will be very small, and produce but little Seed; whereas those Plants which come up in Autumn, will abide the Winter's Cold very well, and the following Spring will get Strength before the hot Weather comes in; by which means they will flower, and produce plenty of Seeds.

Some of these Sorts bear pretty Flowers growing in Clusters, which renders them worthy of a Place in large Gardens, where there is room for Variety, especially as they require very little Trouble to cultivate them. For none of these Sorts should be transplanted, but sown where they are designed to remain; and if they are kept clear from Weeds, it is all the Culture they require. Many of these Plants will grow on the Top of old Walls, or other Buildings; where they will shed their Seeds, and maintain themselves without Care; and growing

very low and stunted, will produce a great Number of Flowers; which will make a pretty Appearance in the Spring, when they are in Flower.

The twenty-third Sort is an abiding Plant, which continues always green, and flowers a long time. The Flowers of this Kind grow in Umbels at the Extremity of the Shoots, which resemble those of the Candy-tuft Tree, but are smaller. The Leaves of this Sort are narrow and pointed; and the whole Plant seldom rises above six Inches high. This Sort seldom produces good Seeds in *England*, but may be propagated by Cuttings, which should be planted in a shady Border, during any of the Summer-months; and in dry Weather they must be frequently watered. When these are well rooted, they may be transplanted where they are designed to remain, which should be on a dry rubbishy Border; where they will thrive and flower much better than in a rich Soil. This Plant is hardy enough to endure the Cold of our ordinary Winters very well in the open Air; but in very severe Frosts they are sometimes destroyed; for which Reason it will be proper to have a few Plants in Pots, which may be sheltered in Winter, in order to preserve the Kind.

The twenty-fourth Sort was discovered by Dr. *Tournefort*, in the *Levant*: this Plant grows to the Height of two Feet or more, and becomes shrubby. The Flowers of this Kind, being small, do not make a very good Appearance; but the Plant is preserved by some curious Persons, for the sake of Variety. This Sort may be propagated by Cuttings during any of the Summer Months, in like manner as the last-mentioned, but is somewhat tender-

er : wherefore these, when they are rooted, should be planted in Pots, and sheltered in Winter, in the same manner as is directed for the Candy-tuft-tree in the next Article.

The other Sorts are commonly cultivated in Flower-gardens, where formerly they were sown for Summer Edgings to Borders ; but as they are apt to grow too rank for that Purpose, the better way is to sow the Seeds in small Patches in the Middle of the Borders between the taller Flowers ; and when the Plants are come up, they should be thinned, and kept clear from Weeds, which will cause them to flower much stronger, than if they are drawn up weak.

These Plants flower in *June* and *July*, and their Seeds ripen soon after : but in order to have a succession of these and other small annual Flowers, many Persons sow them at two or three different Seasons ; viz. in *March*, *April*, and *May* ; by which means they continue them until the Frost comes in Autumn ; but those Seeds which are sown late in the Spring, should be carefully watered in dry Weather, otherwise they seldom grow.

The red and white Candy-tufts vary so as not to be kept separate, the Seeds of the Red producing some with white Flowers, and those of the White some with red ones ; but of late, the bitter umbellated Sort has been cultivated in Gardens, and the Seeds sold in the Shops, by the Name of *White Candy-tuft*, though, in reality, it is a different Plant : however, as this Sort produces beautiful white Flowers, it should have a Place in the Borders of the Flower-garden for the sake of Variety.

The Rose of *Jericho*, being a Plant of no great Beauty or Use, is seldom cultivated except in Botanic

Gardens. This requires the same Culture as the former Sorts, and is also an annual Plant.

THLASPIDIUM, Bastard Mithridate-mustard.

The Characters are ;

The Flower consists of four Leaves, which are placed in form of a Cross, out of whose Cup rises the Pointal, which afterward becomes a double smooth Fruit, composed of two Parts, that are separated by an intermediate Partition, each of which swells with a red Seed, which is generally flat and oblong.

The Species are ;

1. THLASPIDIUM fruticosum, leucocoi folio, semper florens. Tourne. Shrubby Thlaspidium, with a Wall-flower-leaf, and always flowering, commonly called, *The Candy-tuft-tree*.

2. THLASPIDIUM fruticosum, leucocoi folio variegato, semper florens. Tourne. The striped Candy-tuft-tree ; vulgo.

3. THLASPIDIUM Montpeliense, hieracii folio hirsuto. Infr. R. H. Montpellier Thlaspidium, with a hairy Hawk-weed-leaf.

4. THLASPIDIUM hirsutum, calyce floris auriculato. Infr. R. H. Hairy Thlaspidium, with an eared Flower-cup.

5. THLASPIDIUM annuum, flore pallide luteo. Infr. R. H. Annual Thlaspidium, with a pale-yellow Flower.

6. THLASPIDIUM raphani folio. Infr. R. H. Radish-leav'd Thlaspidium,

7. THLASPIDIUM anabuse folio. Infr. R. H. Alkanet-leav'd Thlaspidium.

8. THLASPIDIUM Apulum spicatum. Infr. R. H. Spiked Thlaspidium of Apulia.

9. THLASPIDIUM montanum angustifolium glabrum. Infr. R. H.

Smooth narrow-leav'd mountain Thlaspidium.

10. THLASPIDIUM *Alpinum pumilum asperum*. *Inst. R. H.* Low rough Thlaspidium of the Alps.

11. THLASPIDIUM *Apulum incanum, floribus ex albo purpurascens*. *Inst. R. H.* Hoary Thlaspidium of *Apulia*, with white purplish Flowers.

12. THLASPIDIUM *Hispanicum, ampliore flore, folio crasso dentato*. *Hort. Elth. Spanisſo* Thlaspidium, with a large Flower, and a thick indented Leaf.

The first of these Plants here mentioned is pretty common in the Gardens near *London*, where it is preserved in Green-houses with other Exotic Plants for the Beauty of its Flowers, which are commonly continued throughout the whole Year, making a very beautiful Figure in the Green-house at such Seasons when few other Plants are in Flower.

This Plant may be propagated by planting either Cuttings or Slips during any of the Summer-months, in Pots filled with fresh light Earth, and placed under a Frame, observing to water and shade them until they have taken Root; after which they may be exposed to the open Air, and, when they have gotten strong Roots, they may be each transplanted into a separate Pot filled with light fresh Earth, and may be placed amongst other hardy Exotic Plants in the open Air in Summer; but in Winter they must be screened from severe Frost, though in mild Weather they should have as much free Air as possible.

But altho' these Plants are generally preserved in Pots, and placed in a Green-house in Winter; yet after they have acquired Strength, they may be planted in warm dry

Borders; where, if the Soil be fresh, and not too rich, they will endure the Cold of our ordinary Winters very well, without any Covering: and the Plants thus treated will flower much better than those kept in Pots.

The striped Sort is propagated as the plain, and must be treated in the same manner; but being somewhat tenderer, must be constantly sheltered in Winter, otherwise it will be destroyed in a small Frost.

The third Sort here mentioned is a biennial Plant of humble Growth, seldom rising above six Inches high. This is very common in the South of *France, Italy, Sicily, and Spain*, where it usually flowers in *May and June*; and the Seeds are ripe in *July*. In *England* this Plant is preserved by some curious Persons, for the sake of Variety; though there is no great Beauty in its Flowers. They are hardy enough to endure the Cold of our Winters in the open Air, provided they are sown on a dry rubbishy Soil; for if they are sown on a rich moist Soil, they grow so rank in Summer, that the first Frost in Autumn usually destroys them. These Plants do not bear transplanting very well; but should be sown where they are designed to remain, and thinned where they come up too close, leaving the Plants about six or eight Inches asunder; and then, if they are kept clear from Weeds, it is the only Culture they require. Some of these Plants will flower the same Season they are sown; but unless the Autumn proves dry and warm, they seldom produce good Seeds; therefore the surest Method is to sow the Seeds in Autumn, when the Plants will come up, and abide the Winter, flowering early the following Summer, when the Seeds will come to Perfection.

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The fourth Sort will sometimes live two Years, if it grows on a lean dry Soil; but if this is sown in Autumn, as the former Sort, it will flower, and produce good Seeds.

The fifth, sixth, seventh, eighth, ninth, tenth, and eleventh Sorts are all of them annual Plants; these should be also sown about the middle of August, on a dry poor Soil, in a warm Situation, where the Plants will abide the Cold of our Winters very well, and will flower early the following Spring, so that good Seeds may be obtained from them. These Seeds, if they are permitted to scatter, will come up and thrive without any farther Care, but to keep them from being over-run with Weeds; therefore may be allowed a Place on dry rubbishy Borders, or on old Walls or Ruins, where they will flower, and make an agreeable Variety.

The twelfth Sort produces large fair Flowers, which continue a long time in Beauty; and is therefore worthy a Place in every good Garden. This Sort is at present very rare in the English Gardens; but as it may be easily propagated by Cuttings in the same manner as the Candy-tuft-tree, it may be treated as hath been directed for that Sort; with which Management these Plants will thrive and flower extremely well.

THISTLE; *vide* Carduus.

THORN-APPLE; *vide* Stramonium.

THORN, The *Glastenbury*; *vide* Mespilus.

THUYA, The Arbor Vitæ; *vulgo*.

The Characters are;

The Leaves are ever-green, squamous and compressed, having small oblong squamous Cones growing upon the Back-sides, in which the Seeds are contained.

The Species are;

1. THUYA *Theophrasti*. C. B. P. The Arbor Vitæ, or Tree of Life.

2. THUYA *Theophrasti*, *folio variegato*. The striped Arbor Vitæ, or Tree of Life.

The first Sort was formerly in greater Esteem than at present in the English Gardens; it is commonly raised in the Nurseries near London, where their Heads are sheared into a conical Figure; but since that low Taste of Gardening, in crouding vast Quantities of clipped Plants into Gardens, is justly exploded, these Trees do not meet with so good Reception as formerly: but notwithstanding this, there may be some of them planted in Gardens to great Advantage, if they are placed in Wildernesses, or Clumps of ever-green Trees, where these should be planted with other Sorts, which are nearly of the same Growth; and in such Plantations the dull heavy green Colour of these Leaves will be very useful in adding to the Lustre of those which are of a more lively Green, and make a fine Variety.

The striped Sort is preserved by some who are curious in collecting such Varieties; but there is little Beauty in it.

These Trees may be propagated by laying down their tender Branches in the Spring of the Year, observing to slit them at a Joint (as is commonly practised for Carnations), as also to water them in dry Weather, and keep them constantly clear from Weeds: if these things be duly observed, the Layers will be rooted by the Spring following; at which time they may be taken off, and transplanted into a Nursery in Rows three Feet asunder, and the Plants eighteen Inches Distance in the Rows; observing to lay a little

Little Mulch upon the Surface of the Ground, about their Roots, to prevent the Wind from drying it; and in dry Weather they should be often refreshed with Water, until they have taken Root, after which they must be constantly kept clear from Weeds, and the Ground dug every Spring between the Rows, that the Roots may extend themselves on every Side. In this Nursery they may remain five or six Years, and may then be transplanted where they are to remain for good. The best Season to remove these Trees is about the Beginning of April, just before they shoot.

These Trees may also be propagated by Slips, which should be planted on a moist Soil in April; and, if shaded in very hot dry Weather, most of them will take Root; after which they must be treated as hath been directed for the Layers.

The Leaves of this Tree, being bruised between the Fingers, emit a strong Scent, somewhat like Ointment; and I have been informed, that some Persons make an Ointment thereof, which is esteemed excellent for fresh Wounds. The Wood of this Tree is greatly esteemed by the Turners, for making Bowls, Boxes, &c. but as the Tree is slow of Growth, and seldom arrives to any great Magnitude in this Country, rarely growing above twenty Feet high, it is not worth cultivating for its Timber.

THYMBRA.

The Characters are;

It hath a labiated Flower, like those of Savory, Thyme, and Calamint, from which this Plant differs, in having its Flowers growing in Whorles.

The Species are;

1. THYMBRA legitima. *Clus.*

Hist. The true Thymbra of *Clusius*.

2. THYMBRA Hispanica, *coridis folio.* *Inst. R. H. Spanish* Thymbra, with a fair Heath-pine-leaf.

3. THYMBRA Sancti Juliani, *seve Satureia vera.* *Lob. Icon.* Thymbra of Mount Saint Julian, or the true Savory of *Lobel.*

The first Sort rises about two Feet high, and hath a woody Stem, and divides into many Branches, so as to form a small Bush; the Leaves of this Plant are somewhat like those of Savory, and have a strong aromatic Scent when bruised. This Sort grows plentifully in several Islands of the *Archipelago*, from whence the Seeds were sent to several curious Persons, who cultivate it for the sake of Variety. This Kind may be propagated by Cuttings, which should be planted in the Beginning of April, on a Border, where they may have only the morning Sun; and in dry Weather they must be constantly watered, until they have taken good Root; after which time they will require no farther Care, but to keep them clear from Weeds, till *Michaelmas*, at which time the Plants should be carefully taken up and transplanted, some of them into Pots, that they may be sheltered in Winter, and the others on a dry lean Soil in a warm Situation, where they will endure the Cold of our ordinary Winters very well; but in severe Winters they are frequently destroyed: therefore it is proper to preserve two or three of these Plants in Pots under Shelter, lest those in the open Air should be killed.

The second Sort was discovered by *Dr. Tournefort* in *Castile*, where it grew plentifully on stony Ground. This is a low ever-green bushy Plant, somewhat like Thyme; but the

Leaves

Leaves are broader, and the whole Plant has a more dull and somewhat fetid Smell. This may be propagated by Seeds, or by Cuttings, as the former Sort, and should be treated in the same manner.

The third Sort grows in several Places in *Italy* and *Sicily*, commonly on stony Land, or on old Walls. This is a low Plant, seldom rising above six Inches high, sending forth many upright Branches from the Root, which have Spikes of small Flowers, growing in Whorles on their Tops. This Sort is propagated by Seeds, which should be sown on a light lean Soil; and when the Plants are strong enough to transplant, some of them should be planted in Pots to be sheltered in Winter, and the others may remain where they were sown, observing to keep them clear from Weeds, which is all the Culture they require. This Sort seldom continues longer than two or three Years; so that Seeds should be sown every other Season, to raise a Supply of young Plants.

These Plants are supposed to have the same Virtues as Savory, to which they are nearly allied.

Most of the aromatic verticillate Plants will indure the Cold of the most severe Winters in *England*, provided they grow on rocky stony dry Ground, where they will be short and stunted; and are also much stronger scented than when they are sown or planted on a richer Soil; nay, most of them will grow on old Walls and Buildings, where they will root into the Joints between the Stones or Bricks; and though they are exposed to the severest Winds, yet will they resist the Cold, when the Plants of the same Kinds, which are in the warmest Situations of the Garden, have been intirely destroyed. Of this there have been several Instances

within the Memory of some Persons now living, that all the Rosemary and many other of the like aromatic Herbs, have been destroyed in the Gardens; when some few Plants, which were growing on old Walls, have escaped; whereby their Species have been preserved in *England*.

THYMELÆA, Spurge-laurel, or Mezereon.

The Characters are;

The Flower consists of one Leaf, is, for the most part, funnel-shaped, and cut into four Segments; from whose Centre rises the Pointed, which afterwards becomes an oval Fruit, which is in some full of Juice, but in others is dry, in each of which is contained one oblong Seed.

The Species are;

1. THYMELÆA *laurifolia semper-virens, seu Laureola mas. Tourn.* The Spurge, or Dwarf-laurel.

2. THYMELÆA *laurifolia semper-virens, foliis variegatis.* The striped Spurge-laurel.

3. THYMELÆA *lauri folio deciduo, seu Laureola sermna. Tourn.* The common Mezereon.

4. THYMELÆA *lauri folio deciduo, flore albida, fructu flavescente. Tourn.* The Mezereon with white Flowers, and yellowish Fruit.

5. THYMELÆA *lauri folio deciduo, flore rubro.* The Mezereon with red Flowers.

6. THYMELÆA *lauri folio deciduo, foliis ex luteo variegatis.* The common Mezereon, with striped Leaves.

7. THYMELÆA *foliis lini. C. B. P.* Spurge-olive, or Laurel, with Flax-leaves.

8. THYMELÆA *Alpina linifolia humilior, flore purpureo odoratissimo. Inst. R. H.* Dwarf Spurge-laurel of the Alps, with a Flax-leaf, and a very sweet purple Flower.

9. THYMELÆA *Alpina linifolia humilior, flore albo odoratissimo. Inst.*

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R. H. Dwarf Spurge-laurel of the Alps, with a Flax-leaf, and a very sweet white Flower.

10. THYMELÆA *villosa minor Lusitanica, polygoni folio.* Inst. R. H. Smaller hairy Portugal Spurge-laurel, with a Knot-grass-leaf.

11. THYMELÆA *linariæ folio, vulgaris.* Inst. R. H. Common Spurge-laurel, with a Toad-flax-leaf.

12. THYMELÆA *linariæ folio, Hispanica.* Inst. R. H. Spanish Spurge-laurel, with a Toad-flax-leaf.

13. THYMELÆA *latifolia Hispanica, oleæ foliis.* Inst. R. H. Broad-leaved Spanish Spurge-laurel, with Olive leaves.

14. THYMELÆA *argentea Italica, oleæ foliis.* Inst. R. H. Silvery Italian Spurge-laurel, with Olive-leaves.

15. THYMELÆA *saxatilis, oleæ folio.* Inst. R. H. Rocky Spurge-laurel, with an Olive-leaf.

16. THYMELÆA *Alpina, folio utrinque lincano, flore albo.* Inst. R. H. Alpine Spurge-laurel, with a Leaf hoary on both Sides, and a white Flower.

17. THYMELÆA *foliis polygalæ glabris.* C. B. P. Spurge-laurel, with smooth Milkwort-leaves.

18. THYMELÆA *foliis polygalæ villosis.* Inst. R. H. Spurge-laurel, with hairy Milkwort-leaves.

19. THYMELÆA *foliis chamelææ minoribus subbirjutis.* C. B. P. Spurge-laurel, with smaller Widow-wail-leaves, which are somewhat hairy.

20. THYMELÆA *Hispanica, foliis myrti incanis.* Inst. R. H. Spanish Spurge-laurel, with hoary Myrtle-leaves.

21. THYMELÆA *Pyrenaica juniperifolia, ramulis surrectis.* Inst. R. H. Pyrenean Spurge-laurel, with a Juniper-leaf, and upright Branches,

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22. THYMELÆA *foliis candicantibus, serici instar mollibus.* C. B. P. Spurge-laurel, with whitish soft Leaves resembling Silk.

23. THYMELÆA *Cretica, oleæ folio, subtus villoso.* Tourn. Cor. Spurge-laurel of Crete, with an Olive-leaf, hairy underneath.

24. THYMELÆA *Cretica, oleæ folio utrinque glabro.* Tourn. Cor. Spurge-laurel of Crete, with an Olive-leaf, smooth on both Sides.

25. THYMELÆA *Pontica, citrei foliis.* Tourn. Cor. Pantic Spurge-laurel, with Citron-leaves.

26. THYMELÆA *orientalis minima, laureolæ folio, floribus glomeratis albis.* Tourn. Cor. The least Eastern Spurge-olive, with the common Spurge-laurel-leaves, and white Flowers growing in Clusters.

27. THYMELÆA *orientalis, buxi folio subtus villoso, flore albo.* Tourn. Cor. Eastern Spurge-laurel, with a Box-leaf, hairy on the Under-side, and a white Flower.

28. THYMELÆA *orientalis, salicis folio, flore albo odoratissimo.* Tourn. Cor. Eastern Spurge-laurel, with a Willow-leaf, and a white sweet-scented Flower.

29. THYMELÆA *linifoliæ similis, Africana, floribus pallidis odoratissimis.* Prod. Par. Bat. African Spurge-laurel, like the first Sort, with pale sweet-scented Flowers.

30. THYMELÆA *linifoliæ similis, Africana, foliis lucidis, latioribus & obtusis.* Par. Bat. African Spurge-laurel, like the first Sort, with broader shining and obtuse Leaves.

31. THYMELÆA *Africana, foliis lini, floribus in capitulum congestis.* Oldenl. African Spurge-laurel, with Flax-leaves, and Flowers collected in Heads.

32. THYMELÆA *Africana, rorimarini folio angustissimo breviori.* Oldenl. African Spurge-laurel, with a

very

very narrow and shorter Rosemary-leaf.

33. *THYMELÆA Africana, rorismarini folio angustissimo longiori. Oldenl. African Spurge-laurel, with a very narrow and longer Rosemary-leaf.*

34. *THYMELÆA Africana, rorismarini folio, floribus longioribus. Oldenl. African Spurge-laurel, with a Rosemary-leaf, and longer Flowers.*

35. *THYMELÆA Africana, sanamundæ facie, ericæ foliis angustissimis. Prod. Par. Bat. African Spurge-laurel, with the Face of Sanamunda, and very narrow Heath-leaves.*

36. *THYMELÆA Africana Tartonzaire similis, floribus in capitulum congestis. Oldenl. African Spurge-laurel, like the Tartonzaire, with Flowers collected in a Head.*

37. *THYMELÆA Africana, foliis rusci. Oldenl. African Spurge-laurel, with Butchers-broom-leaves.*

38. *THYMELÆA Africana frutescens, jasmini flore, foliis polygalæ. Oldenl. African shrubby Spurge-laurel, with a Jasmine-flower, and Leaves of Milkwort.*

39. *THYMELÆA Capensis, nepæ Theophrasti foliis aculeatis, flore parvo purpureo. Pluk. Phyt. Spurge-laurel of the Cape of Good Hope, with prickly Furz-leaves, and a small purple Flower.*

40. *THYMELÆA Americana frutescens, rorismarini folio, flore albo. Plum. Shrubby American Spurge-laurel, with a Rosemary-leaf, and a white Flower.*

The first of these Plants is found wild in Woods, and other shady Places, in divers Parts of England; but is often cultivated in Gardens for Variety; where, if it is planted in Wilderesses, or shady Walks, it will thrive very well; and being an

Ever-green, and producing its Flowers in Winter, when few other Plants flower, makes it the more acceptable. The second Sort is a Variety of the first, which is preserved for the Beauty of its striped Leaves.

Both these Plants may be propagated by Suckers taken from the old Plants, or by Layers, which should be taken off in Autumn, and planted in a strong Soil, and shady Situation; where, after they have taken Root, they will require little farther Care.

The several Sorts of Mezereon are propagated by sowing their Seeds, the best Season for which is in August, soon after they are ripe, when they begin to fall from the Trees: these should be sown upon an East Border, where they may have only the morning Sun, and covered about half an Inch with fresh Earth: in the Spring the Plants will appear, when they must be carefully cleared from Weeds, and in dry Weather should be often watered, which will greatly promote their Growth. In this Border they may remain two Years, by which time they will be strong enough to transplant; when there should be a Spot of strong fresh Earth prepared for them, into which they should be planted in Autumn, in Rows three Feet Distance, and the Plants eighteen Inches asunder in the Rows, treating them afterward in the usual manner with other Kinds of Shrubs, while in this Nursery: and when they are large enough to plant out for good, they may be taken up in Autumn, with a Ball of Earth to the Root of each Plant, and placed where they are to remain, which should be in a strong moist Soil, and a shady Situation, where they will thrive and flower extremely well.

These

These Plants are great Ornaments to a Garden early in the Spring, before other Things are in Flower; for if the Season is mild they often flower in *January*, but in *February* they are always in Perfection. They seldom grow to be more than five or six Feet high in *England*; therefore should be planted among other Shrubs of the same Growth.

The Sort with striped Leaves may be propagated by budding or inarching it upon the plain Sort, because the Seeds will not produce striped Plants.

The sixteen Sorts which are next mentioned, grow wild in *Germany*, *Austria*, *Bohemia*, on the *Alps*, in *Spain*, *Portugal*, or the South of *France*, as they are particularized in their Names: these Plants will live in the open Air in *England*, provided they are planted in a warm Situation.

The twenty-third, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh, and twenty-eighth Sorts, were discovered by *Dr. Tournefort* in the *Levant*; from whence some of these Plants have been obtained, and are preserved in curious Botanic Gardens for Variety. These Sorts being also pretty hardy, will endure the Cold of our ordinary Winters very well in the open Air, provided they are placed in a sheltered Situation. All these Plants are propagated by Seeds, which should be sown in the Autumn as soon as they are ripe; for if they are kept out of the Ground till Spring, they seldom succeed; and if any of them do grow, they will remain in the Ground a whole Year, before the Plants come up. These Seeds should be sown on a shady Border, where they may only enjoy two or three Hours of the morning Sun, and the Soil should be cool and loamy; in dry Weather they must be duly

watered, and when the Plants are come up, they should be constantly kept clean from Weeds. In this Border the Plants should remain till *Michaelmas*, at which time a fresh Border of loamy Earth should be prepared to receive the Plants, which should also be in a shady Situation; then the Plants should be carefully taken up out of the Seed-bed; and planted in Rows about six or seven Inches asunder, and about four Inches Distance from each other in the Rows. When these Plants have taken new Root, they will require no farther Care, but to keep them clear from Weeds, and in dry Weather to refresh them now-and-then with Water, which will promote their Growth. If these Plants thrive well, they will be large enough to transplant by the following *Michaelmas*, into the Places where they are designed to remain; which should always be on a pretty strong loamy Soil, rather moist than dry; and if it be under Cover of Trees, provided they are not too much overhung, they will thrive better than in an open Situation, where they are exposed to the Sun.

These Plants continue green throughout the Year, which renders them worthy of a Place in good Gardens; where, if they are rightly disposed, they will afford an agreeable Variety. Most of these being low Shrubs, which seldom rise above two or three Feet high, are very proper to plant under Trees, to fill up the Vacancies, where they will have a good Effect. The Seeds of the seventh Sort are used in Medicine, so that the Plants of this Kind are preserved in Physic-gardens; but they make the meanest Appearance of all the Sorts.

The twelve Sorts which are last mentioned, are much tenderer than the

the former. All of these (except the last) grow near the *Cape of Good Hope*; from whence several of them have been brought into the *European Gardens*. These Plants may also be propagated by Seeds; but as they very rarely produce their Seeds in *England*, they are commonly propagated by laying down of their Branches; which, if rightly managed, will take Root in one Year. The best Time to lay down the Branches is in the Beginning of *April*; the Branches which are chosen to make Layers, should be of the former Year, or at most but two Years old; these should be a little twisted at the Part which is laid in the Ground, which will cause them to root the sooner: in dry Weather they must be duly watered, otherwise the Shoots will harden, which will prevent their putting out Roots. By the *April* following they will be rooted, when they may be cut off from the old Plants; and each planted into a small Pot, filled with fresh Earth; and if they are plunged into a very moderate Hot-bed, it will forward their taking new Root. These must be screened from the Sun every Day till they are rooted; after which time they must be inured to bear the open Air by degrees; and in the middle of *May*, they should be placed abroad in a sheltered Situation, where they will make an agreeable Variety amongst other Exotic Plants.

These Plants must be removed into the Green-house in Autumn, and placed where they may enjoy as much free Air as possible in mild Weather, but they must be protected from Frost. During the Winter-season they must be frequently refreshed with Water, for they are pretty thirsty Plants; but in very cold Weather it must be given to

them sparingly. In Summer they must be placed abroad with the *Geraniums*, *Alaternoides*'s, and other Plants of the same Country, and treated in the same manner as hath been directed for those; with which Management they will thrive very well. The Flowers of these Plants, being very small, do not afford any great Pleasure, but for the singular Oddness of the Leaves and Branches. These Plants deserve a Place in good Green-houses, for the sake of Variety.

The last Sort is more tender than any of the rest, this being a Native of the warmer Parts of *America*. This was discovered by Father *Plumier*, in some of the *French* Settlements in *America*; and hath been observed growing in great Plenty, at the *Havannab*, by the late *Dr. William Houstoun*, who sent the Seeds to *England*: it was also found by *Mr. Robert Miller* at *Campechy*, who also sent the Seeds to *England*; from which many Plants have been raised.

The Seeds of the Plants should be sown early in the Spring in Pots of fresh Earth, and then plunged into a moderate Hot-bed of *Tanners Bark*; observing frequently to water the Pots to keep the Earth moist, which will bring up the Plants in about six Weeks time. When these Plants are about two Inches high, they should be shaken out of the Seed-pots, and each planted in a small Pot filled with fresh loamy Earth; and then plunged into a moderate Hot-bed of *Tanners Bark*, where they must be shaded from the Heat of the Sun, until they have taken new Root; after which time they must be treated in the same manner as hath been directed for other Exotic Plants, which are the Produce of the hottest Country.

In

In this Hot-bed the Plants may remain till about *Michaelmas*, when the Nights will begin to be too cold for these Plants; therefore they should be removed into the Stove, and plunged into the Bark-bed. During the Winter-season these Plants must be kept very warm, especially while they are young, because they make but little Progress the first Year; and if they are stunted the first Winter, they do not recover it in a long time after. These Plants should constantly remain in the Stove, and should be treated in the same manner as hath been directed for the *Suriana*.

THYMUS, Thyme.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is erect, and generally split in two, and the Under-lip is divided into three Parts; out of the Flower-cup arises the Pointal, accompanied by four Embryoes, which afterward become so many Seeds, inclosed in a Husk, which before was the Flower-cup: to these Marks must be added, Hard ligneous Stalks, and the Flowers gathered into Heads.

The Species are;

1. THYMUS vulgaris, folio latiore. C. B. P. Common broad-leaved Thyme.

2. THYMUS vulgaris, folio tenuiore. C. B. P. Common narrow-leaved Thyme.

3. THYMUS vulgaris, folio latiore variegato. Broad-leaved striped Thyme.

4. THYMUS capitatus, qui Dioscoridis. C. B. P. The true Thyme of the Antients.

There are several other Species of Thyme, which are preserved in Botanic Gardens for Variety; but as they are seldom cultivated for Use, I shall not enumerate them in

this Place. The Sort with broad Leaves is the most common in *England*: this is cultivated in the Kitchen-gardens as a Soup-herb, and also for Medicinal Use. The next two Sorts are preserved in many Gardens for Variety, being equally as good as the first for Use; but the fourth Sort is less common in *England* than either of the former.

These Plants may be propagated either by Seeds, or parting their Roots: the Season for each is in *March*. If it is done by sowing the Seeds, it should be done upon a Bed of light Earth, observing not to bury the Seeds too deep, which will cause them to rot: when the Plants are come up, they should be carefully cleared from Weeds; and if the Spring should prove dry, if they are watered twice a Week, it will greatly promote their Growth; and in *June* the Plants should be thinned, leaving them about six Inches asunder each way, that they may have room to spread; and those Plants which are drawn out, may be transplanted into fresh Beds, at the same Distance, observing to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds; and in the Winter following they may be drawn up for Use.

But if these Plants are propagated by parting their Roots, the old Plants should be taken up about the Latter-end of *March*, and split into as many Parts as can be taken off with the Root; these should be transplanted into Beds of fresh light Earth, at six or eight Inches Distance, observing, if the Season is dry, to water them until they have taken Root; after which they must be duly weeded, and they will thrive, and soon be fit for Use.

In order to save Seeds of these Plants, some of the old Roots should remain unremoved in the Place where they were sown the preceding Year; these will flower in *June*, and in *July* the Seed will ripen, which must be taken as soon as it is ripe, and beat out; otherwise the first Rain will wash it all out of the Husks.

These Plants will root greatly in the Ground, and thereby draw out the Goodness of a Soil sooner than most other Plants; so that whatever is sown or planted upon a Spot of Ground whereon Thyme grew the preceding Year, will seldom thrive, unless the Ground be trenched deeper than the Thyme rooted.

THYME THE LEMON; *wide Serpyllum.*

THYME THE MASTICH; *vide Mastichina.*

TILIA, The Lime, or Linden-tree.

The Characters are;

The Flower consists of several Leaves, which are placed orbicularly, and expand in form of a Rose, having a long narrow Leaf growing to the Foot-stalk of each Cluster of Flowers, from whose Cup rises the Pointal, which afterward becomes a testiculated Fruit, consisting of one Capsule, containing an oblong Seed in each.

The Species are;

1. *TILIA fœmina, folio majore.* C. B. P. The common or broad-leaved Lime-tree.

2. *TILIA fœmina, folio minore.* C. B. P. The small-leaved Lime-tree.

3. *TILIA foliis molliter hirsutis, viminibus rubris, fructu tetragono.* Raii Syn. The red-twigged Lime-tree.

4. *TILIA Caroliniana, folio lon-*
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glus mucronato. The Carolina Lime-tree.

5. *TILIA fœmina, folio majore variegato.* The striped-leaved Lime-tree.

The three first-mentioned Trees are very common in *England*, being cultivated in most Nurseries; but the *Carolina* Sort is not at present very common; this was sent from *Carolina* by Mr. Mark Catfishy, in the Year 1726. but as yet there does not appear any considerable Difference from the common Sort. That with striped Leaves is preserved by some for the sake of Variety, but there is no great Beauty in it.

All these Trees are easily propagated by Layers, which in one Year will take good Root, and may then be taken off, and planted in a Nursery, at four Feet Distance Row from Row, and two Feet asunder in the Rows. The best Time to lay them down, and to remove them, is at *Michaelmas*, when their Leaves begin to fall, that they may take Root before the Frost comes on, tho' they may be transplanted any time from *September* to *March*, in open Weather; but if the Soil is dry, it is much the better way to remove them in Autumn, because it will save a great Expence in watering them, if the Spring should prove dry. In this Nursery they may remain four or five Years, during which time the Ground should be dug every Spring, and constantly kept clear from Weeds, and the large Side-shoots pruned off, to cause them to advance in Height; but the small Twigs must not be pruned off from the Stems, because these are absolutely necessary to detain the Sap, for the Augmentation of their Trunks, which are apt to shoot up too slender,

slender, when they are intirely divested of all their lateral Twigs. If the Soil in which they are planted be a fat Loam, they will make a prodigious Progress in their Growth, so that in five Years time they will be fit to transplant out where they are to remain.

These Trees were, a few Years since, greatly esteemed for planting Walks and Avenues near Habitations, because in a few Years they would afford a pleasant Shade, and might be removed, when grown to a large Stature, without Hazard, so that a Person might enjoy the Pleasure of them in a short time: but of late they are much less valued, on account of their Leaves decaying early in Autumn, especially if the Soil be dry in which they are planted; so that many times they are almost destitute of Leaves by the Beginning of September, whereas the Elm continues in Beauty a full Month longer, and the Wood of the latter being much preferable to that of the former, has introduced these Trees instead of Limes in most of the modern Plantations.

The Timber of the Lime-tree is used by the Carvers, it being a soft light Wood; as also by Architects for framing the Models of their Buildings: the Turners likewise use it for making light Bowls, Dishes, &c. but it is too soft for any strong Purposes.

These Trees will continue sound a great Number of Years, and if planted in a good loamy Soil, will grow to a considerable Bulk: I have measured one of these Trees, which was near ten Yards in Girt, two Feet above the Ground, and was then in a very thriving Condition: and Sir Thomas Brown mentions one of these Trees, which grew in Nor-

folk, that was sixteen Yards in Circuit a Foot and a half above-ground, in Height thirty Yards, and in the least Part of the Trunk it was eight Yards and an half.

TINUS; Laurus Tinus, vulgo.

The Characters are;

The Flowers grow in Clusters, and consist of one Leaf, which is divided into five Parts toward the Top; these are succeeded by small Fruit, shaped somewhat like an Olive, but are umbilicated, each containing one pear-shaped Seed.

The Species are;

1. TINUS prior. Clus. Hist. The Bastard shining-leaved Laurus Tinus, vulgo.

2. TINUS II. Clus. Hist. The rough-leaved Laurus Tinus, vulgo.

3. TINUS III. Clus. Hist. The small-leaved Laurus Tinus, vulgo.

4. TINUS prior Clusii, folio atroviridi splendente. The shining-leaved Laurus Tinus, vulgo.

5. TINUS prior Clusii, foliis ex albo variegatis. The striped shining-leaved Laurus Tinus.

6. TINUS II. Clusii, foliis ex luteo variegatis. The striped rough-leaved Laurus Tinus.

These Plants are greatly propagated in the Gardens near London for their Beauty, the Leaves always remaining green; and their Flowers are produced in great Plenty in the Winter-season, when few other Shrubs flower.

These Plants were a few Years since preserved in Pots and Tubs, and placed in the Green-house in Winter, with Oranges, Myrtles, and other Exotic Trees; but of late Years they have been planted in the open Ground, where they resist the Cold of our ordinary Winters very well, and are rarely injured, except in very severe Frosts; and then they are seldom destroyed, though their

their Heads may be killed (as was the Case with many of these Trees in the Year 1728): yet those which were left undisturbed, shot out fresh again the following Summer, and have since made good Plants; which should caution People from rooting out Plants too soon, when they may seem to be killed by Frost.

Their Plants may be propagated by laying down their tender Shoots in the Spring, which, if kept clear from Weeds, and duly watered in dry Weather, will take Root by the succeeding Spring; when they should be taken off, and transplanted into a mellow loamy Soil, but not too wet, at three Feet Distance Row from Row, and eighteen Inches asunder in the Rows, observing to lay some Mulch upon the Surface of the Ground about their Roots, and in dry Weather to refresh them with Water until they have taken Root.

There should be also some strait Stakes fixed down by the Side of each Plant, to which they should be fastened, in order to render their Stems strait; otherwise they will be crooked and unsightly. But it is not proper to have these Plants more than two Feet high in clear Stems, because when their Heads are advanced above Sight, the Beauty of the Plants is lost, and they are in greater Danger of being destroyed in bad Weather: therefore, when their Stems are two Feet high, their upright Shoots should be stopped, in order to force out lateral Branches, which may be so pruned in the growing Season, as to form them into regular Heads; but this should not be done with Shears, as is the common Practice, whereby their Leaves are cut, and rendered very unsightly; but rather skilfully pruned with a Knife, allowing their Branches a propor-

tionable Distance to the Breadth of their Leaves, which will be close enough to render them beautiful, and at the same time will encourage their Flowering: for when they are continually clipped, their Branches are very weak, and often decay in the Middle; and their Flowers are never so large, nor produced in so great Plenty, as when they have a greater Distance allowed to their Shoots.

In this Nursery the Plants may remain four or five Years, during which time they should be carefully cleared from Weeds, and the Ground dug every Spring; in doing of which their Roots should be carefully cut round, to cause them to produce more Fibres; whereby they may be removed with greater Safety, because the Earth will be the better supported by their Roots. The best Time to transplant them is about the Latter-end of *September*, or the Beginning of *October*, that being the Season they begin to shoot.

These Shrubs are very ornamental, when planted in the lower Part of Clumps, and other Plantations of Ever-greens, if they are mixed with other Plants of the same Growth; and in these Plantations they will not be liable to suffer by Frost, because their Stems will be defended by the neighbouring Plants.

There are some who make Hedges of these Plants; but they are by no means proper for that Purpose, because their Leaves are large, which occasions their Branches to be produced at a farther Distance; and these, when cut, appear very unsightly; besides, by the frequent cutting of them, it prevents their Flowering, so that the greatest Beauty of the Plants

is lost; for they should never be pruned after the Beginning of *May*, unless some very luxuriant Shoots are produced, which grow greatly out of Order; these may be shortened, or intirely displaced, according as the Plants may require; and this one Pruning every Spring will be sufficient to keep them constantly in Order, without injuring their Flowering, which should always be avoided.

TITHYMALOIDES, Bastard-spurge.

The Characters are;

The Flower consists of one Leaf, and is in Shape somewhat like a Slipper; whose Pointal afterward becomes a tricapsular Fruit like that of Spurge.

The Species are;

1. TITHYMALOIDES *frutescens*, folio myrti amplissima. Tourn. The American shrubby laurel-leaved Spurge, vulgo.

2. TITHYMALOIDES *frutescens*, foliis nerii. Plum. Shrubby Bastard-spurge, with an Oleander-leaf.

These Plants are very common in the warm Parts of *America*, where the first is known by the Name of *Poison-weed*, under which Appellation I received it from *Barbados*. This Sort is now pretty common in the Gardens of those who are curious in preserving tender Exotic Plants; but the second Sort is yet very rare in the *English* Gardens.

They are both propagated by Cuttings, which may be taken from the Plants during any of the Summer-months; and, after having lain in a dry Place for a Fortnight or three Weeks, until the wounded Part be healed over, they should be planted into small Pots filled with light sandy Earth, mixed with Lime-rubbish, and then plunged into an Hot-

bed of Tanners Bark, observing now and then to refresh them gently with Moisture; but they should never receive much Wet, which will rot them.

After they have taken Root, they may have a greater Share of Air, by raising the Glasses; but they must never be intirely exposed to the open Air: in this Bed they may remain until the Beginning of *October*, when they must be removed into the Stove, and placed with the Melon and Torch-thistle, in a warm dry Situation; and during the Winter-season they should have very little Water, which, if given in Plenty, seldom fails to rot them. In the Spring these Plants should be again placed into a Bark-bed, which will greatly promote their Growth, and will cause them to produce Flowers, which they seldom do when kept dry upon Shelves in the Stove, nor will they make any considerable Progress in such a Situation.

These Plants are preserved for their odd Appearance amongst other succulent Plants, their Leaves being very large, thick, and full of a milky acrid Juice.

TITHYMALUS, Spurge.

The Characters are;

The Flower consists of one Leaf, which is of the globous Bell-shape, cut into several moon-shaped Segments, and encompassed by two little Leaves, which seem to perform the Office of a Flower-cup; the Pointal, which is for the most part triangular, rises from the Bottom of the Flower, and afterward becomes a Fruit of the same Shape, divided into three seminal Cells, in each of which is contained one oblong Seed: to these Notes should be added, It has a milky Juice abounding in every Part of the Plant.

The

The Species are;

1. *TITHYMALUS latifolius*, *Catapulta dictus*, *H. L.* Broad-leaved Garden Spurge, called *Carapatia*.

2. *TITHYMALUS characias amygdaloides*, *C. B. P.* Wood Spurge, with almond-like Leaves.

3. *TITHYMALUS characias amygdaloides, foliis eleganter variegatis*. *Flor. Bat.* Wood Spurge, with beautiful striped Leaves.

4. *TITHYMALUS maritimus*. *C. B. P.* Sea Spurge.

5. *TITHYMALUS myrsinites latifolius*. *C. B. P.* Broad myrtle-leaved Spurge.

6. *TITHYMALUS palustris fruticosus*. *C. B. P.* Shrubby marsh Spurge, commonly called *The greater Esula of the Shops*.

7. *TITHYMALUS foliis pini, forte Dioscoridis Pityusa*. *C. B. P.* Pine-leaved Spurge, called *The lesser Esula of the Shops*.

8. *TITHYMALUS Indicus frutescens*. *Raii Hist.* Indian shrubby Spurge.

9. *TITHYMALUS Indicus viminalis, penitus aphyllus*. *Boerb. Ind.* Indian Spurge, with slender straggling Branches without Leaves.

10. *TITHYMALUS arboreus*. *Alpin.* Tree Spurge, with Myrtle-leaves.

11. *TITHYMALUS Creticus characias angustifolius, villosus & incanus*. *T. Cor.* Woody Spurge of *Candia*, with narrow, hairy and hoary Leaves.

12. *TITHYMALUS belloscopus*. *C. B. P.* Sun-spurge, or Wartwort.

13. *TITHYMALUS rotundis foliis non crenatis*. *H. L.* Petty-spurge.

14. *TITHYMALUS maritimus supinus annuus, pepelis dictus*. *Raii Syn. Ed. 3.* Small purple Sea-spurge.

15. *TITHYMALUS sive esula exigua*. *C. B. P.* Small dwarf annual Spurge.

16. *TITHYMALUS maritimus minor Portlandicus*. *Raii Syn. Ed. 3.* Small Sea or Portland Spurge.

17. *TITHYMALUS platyphyllus Fuchsii*. *J. B.* Broad-leav'd Spurge,

18. *TITHYMALUS frigitum longifolius*. *Cat. Cant. App.* Long-leav'd Corn-spurge.

19. *TITHYMALUS verrucosus*. *J. B.* Rough-fruited Spurge.

20. *TITHYMALUS Hibernicus*. *Mer. Pin.* Knotty rooted Spurge, commonly called *Mackinboy* by the *Irish*.

21. *TITHYMALUS characias rubens peregrinus*. *C. B. P.* Foreign red Wood-spurge.

22. *TITHYMALUS sylvaticus, lunato flore*. *C. B. P.* Wood-spurge with Flowers shaped like a Crescent.

23. *TITHYMALUS characias, radice repente*. *H. R. Monsp.* Wood-spurge with a creeping Root.

24. *TITHYMALUS characias angustifolius*. *C. B. P.* Narrow-leaved Wood-spurge.

25. *TITHYMALUS characias, folio serrato*. *C. B. P.* Wood-spurge with Leaves sawed on their Edges.

26. *TITHYMALUS characias, radice pyriformi*. *Mor. H. R. Blas.* Wood-spurge with a pear-shaped Root.

27. *TITHYMALUS characias, foliis minoris folio*. *Mor. H. R. Blas.* Wood-spurge with a smaller Willow-leaf.

28. *TITHYMALUS tuberosa pyriformi radice*. *C. B. P.* Spurge with a tuberose Root, shaped like a Pear.

29. *TITHYMALUS linariae folio, lunato flore*. *Mor. Hort. Blas.* Spurge with a Toad-flax-leaf, and a moon-shaped Flower.

30. *TITHYMALUS arboreus linifolius*. *H. R. Par.* Tree-spurge with Flax-leaves.

31. *TITHYMALUS amygdaloides angustifolius*

angustifolius. Tabern. Icon. Narrow-leaved Spurge.

32. *TITHYMALUS orientalis, latissimo folio, villosus, flore lunato*. Tourn. Cor. Eastern hairy broad-leav'd Spurge, with a moon-shaped Flower.

33. *TITHYMALUS orientalis, salicis folio, caule purpureo, flore magno*. Tourn. Cor. Eastern Spurge, with a Willow-leaf, a purple Stalk, and a large Flower.

34. *TITHYMALUS orientalis cyparissias patulus, foliis superioribus hastatis, flore minimo*. Tourn. Cor. Eastern Cypress-spurge, with spreading Branches, the upper Leaves shaped like a Spear, and a very small Flower.

35. *TITHYMALUS arboreus, humilior & patulus, latiore folio*. Tourn. Cor. Low spreading Tree-spurge, with a broader Leaf.

36. *TITHYMALUS arboreus, humilior & patulus, angustiore folio*. Tourn. Cor. Low-spreading Tree-spurge, with a narrower Leaf.

37. *TITHYMALUS Græcus, amygdali folio acutissimo & glauco, caule purpureo*. Tourn. Cor. Greek Spurge, with a sharp-pointed Almond-leaf, and a purple Stalk.

38. *TITHYMALUS Græcus helioscopius maximus, foliis eleganter crenatis*. Tourn. Cor. Greatest Sun-spurge of Greece, with Leaves elegantly notched.

39. *TITHYMALUS orientalis palustris, tuberosa radice, lathyridis facie*. Tourn. Cor. Marsh Eastern Spurge, with a tuberose Root, and the Face of Cataputia minor.

40. *TITHYMALUS orientalis, latissimo folio, villosus, flore aureo, segmentis rotundioribus*. Tourn. Cor. The broadest-leav'd hairy Eastern Spurge, with a golden Flower, having rounder Segments.

41. *TITHYMALUS orientalis, ana-*

campserotis folio, flore magno cristato. Tourn. Cor. Eastern Spurge, with an Orpine-leaf, and a large crested Flower.

42. *TITHYMALUS orientalis, anacampserotis folio, tenuissime serrato, flore minori non cristato*. Tourn. Cor. Eastern Spurge, with an Orpine-leaf finely sawed, and a smaller Flower not crested.

43. *TITHYMALUS orientalis, latissimo folio glauco & glabro*. Tourn. Cor. Eastern Spurge, with a very broad smooth sea-green Leaf.

44. *TITHYMALUS orientalis, patulus & humilior, salicis folio villosus*. Tourn. Cor. Low spreading Eastern Spurge, with an hairy Willow-leaf.

45. *TITHYMALUS orientalis, linariæ folio, humillimus*. Tourn. Cor. The lowest Eastern Spurge, with a Toad-flax-leaf.

46. *TITHYMALUS arboreus, caule corallino, folio hyperici, pericarpio barbato*. Boerb. Ind. alt. Tree-spurge with a red Stalk, a St. John's-wort-leaf, and a bearded Cover to the Fruit.

47. *TITHYMALUS arboreus altissimus, folio salicis, caulibus rubentibus*. Boerb. Ind. alt. The tallest Tree-spurge, with a Willow-leaf, and reddish Stalks.

48. *TITHYMALUS Lugdunensis, laureolæ folio*. D. Goiffon. Boerb. Ind. alt. French Spurge, with a Spurge-laurel-leaf.

49. *TITHYMALUS marinus, folio retuso, Terracinenfis*. Barr. Obs. Sea-spurge with a blunt Leaf.

50. *TITHYMALUS folio longo glauco, caule rubro, capsulis verrucosis, elatior Siculus*. Raii Hist. Taller Spurge of Sicily, with a long sea-green Leaf, a red Stalk, and warted Seed-vessels.

51. *TITHYMALUS amygdali folio angustiori, Montis Pollini*. H. Cath. Sicilian Spurge, with a narrow Almond-leaf,

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52. *TITHYMALUS amygdali filio breviori latiori hirsuto, Montis Polini. H. Cath. Sicilian Spurge, with a broader and shorter hairy Almond-leaf.*

53. *TITHYMALUS arboreus, tuberosa radice, mollioribus foliis, semine verrucoso aspero. Bocc. Mus. Tree-spurge with a knobbed Root, soft Leaves, and a rough warted Seed.*

54. *TITHYMALUS arboreus Africanus. Inf. R.H. African Tree-spurge.*

55. *TITHYMALUS arboreus Americanus, cotini folio. Hort. Amst. American Tree-spurge, with a Venice Sumach-leaf.*

56. *TITHYMALUS Americanus arboreus, cotini foliis minoribus, & verticillatim nascentibus. Plum. Cat. American Tree-spurge, with smaller Venice Sumach-leaves, growing in Whorles.*

57. *TITHYMALUS Americanus arboreus, foliis linariæ. Plum. Cat. American Tree-spurge, with Toad-flax-leaves.*

58. *TITHYMALUS qui pepelis maritima fruticosa geniculata. Sloan. Cat. Shrubby American Sea-spurge, with a jointed Stalk.*

59. *TITHYMALUS Americanus characias variegatus, flore albo, fructu villoso. Houst. American striped Spurge, with a white Flower, and an hairy Fruit.*

60. *TITHYMALUS Curassavicus, salicis & atriplicis foliis hirsutis, caulibus subrubentibus. Prod. Par. Bat. Spurge from Curasso, with hairy Leaves, like the Willow or Orach, and reddish Stalks.*

61. *TITHYMALUS Curassavicus, salicis & atrigilicis foliis glabris, caulibus viridantibus. Prod. Par. Bat. Spurge from Curasso, with smooth Willow or Orach-leaves, and greenish Stalks.*

62. *TITHYMALUS Americanus annuus erectus, caule triangulari, fo-*

lis variis. Houst. Upright annual American Spurge, with a triangular Stalk, and variable Leaves.

63. *TITHYMALUS Americanus annuus erectus latifolius, foliolis juxta flores albis. Houst. Upright annual American Spurge, with broad Leaves, and the small Leaves near the Flowers white.*

64. *TITHYMALUS maritimus, Barbadenfis & Bermudensis, seu parvulus minor Americanus ramosissimus. Pluk. Phyt. American branching Sea-spurge.*

65. *TITHYMALUS dulcis, parietariæ foliis hirsutis, floribus ad caulium nodos conglomeratis. Sloan. Cat. Sweet American Spurge, with hairy Pellitory-leaves, and Flowers growing in Clusters from the Joints of the Stalk.*

66. *TITHYMALUS erectus acris, parietariæ foliis glabris, floribus ad caulium nodos conglomeratis. Sloan. Cat. Upright acrid Spurge, with smooth Pellitory-leaves, and Flowers growing in Clusters from the Joints of the Stalk.*

67. *TITHYMALUS Americanus annuus erectus ramosissimus, ocymii caryophyllati foliis. Houst. Cat. Upright annual branching American Spurge, with Leaves like the Bush-basil.*

68. *TITHYMALUS maritimus Americanus procumbens, foliis subrotundis rarioribus, fructu majore. Houst. Trailing American Sea-spurge, with roundish Leaves, and a larger Fruit.*

69. *TITHYMALUS Americanus procumbens, foliis subrotundis, & ab altera parte auritis. Houst. Trailing American Spurge, with roundish Leaves, and in other Parts the Leaves are eared.*

70. *TITHYMALUS exiguus glaber, nummulariæ folio. Inf. R.H. Small. smooth Spurge, with a Moneywort-leaf.*

71. *TITTMALUS exiguus villosus, nummularia folio.* *Inst. R. H.*
Small hairy Spurge, with a Moneywort-leaf.

The first is a biennial Plant, which will scatter its Seeds, and the Plants will come up without any Care, which will flower and seed the following Summer, after which the Plants will die: these Plants come up much better when the Seeds fall of themselves, than if sown with great Care; nor will they bear removing, unless it be done while they are young; because they generally send forth a Tap-root, which is often broken by transplanting, and thereby the Plant destroyed. This is ordered by the College of Physicians to be used in Medicine, under the Title of *Cataputia minor*, for which Reason it is preserved in some Gardens, though there is no great Beauty in the Plant.

The second Sort is found wild in Woods, and other shady Places, in divers Parts of *England*; but is worthy of a Place in small Wilderness-quarters, or in other shady Plantations, where it will thrive very well, and in the Spring will produce great Tufts of Flowers, which, although not very beautiful, yet are of a singular Figure and Colour, and will add to the Variety of the Place. These Plants may be taken out of the Woods in Autumn, and transplanted into the Places where they are designed, in which, if they are once established, they will sow their Seeds, and thereby be continued; but if they are not placed under the Shelter and Shadow of Trees, they will not thrive so well.

The third Sort is a Variety of the second; the Leaves of this Kind are beautifully striped, so as to appear of three Colours: this may be propagated by Cuttings, which

should be planted in Pots filled with light sandy Earth, and placed in the Shade until they have taken Root; after which they may be placed amongst other curious Plants, where they may be screened from the Violence of the Sun in Summer, and in Winter they must be sheltered under a Frame from hard Frost, which will destroy them; but they must have the free Air in mild Weather, and not too much Wet in Winter.

The fourth Sort is found wild upon the Sea-coasts, in several Places in *England*, from whence it has been transplanted into several Gardens: this may be propagated by sowing the Seeds, or by Cuttings, which must be planted in the Spring, upon a gravelly poor Soil, in which this Plant will endure the Cold of our ordinary Winters very well; but in very severe Frosts it is often destroyed. This is preserved in some Gardens, more for the sake of its Variety than Beauty.

The fifth Sort may also be propagated either by sowing its Seeds, or planting Cuttings, in the same manner as the former; but must have a dry Soil, and a warm Situation, otherwise the Cold will destroy it in Winter. This Plant trails upon the Ground; therefore should be planted at a Distance from other Plants, because, if it be overhung by them, it will not thrive; and the Branches of this will many times extend themselves two Feet from the Root, so that, if it has not room, they will rot, and die away.

The sixth Sort grows wild in marshy Places in *France, Italy, and Germany*; but in *England* it is preserved in some curious Botanic Gardens, it being an officinal Plant. This may be propagated by parting the Roots, and planting Cuttings in the Spring, which must be done

in a light Soil, and an open Situation, where it will grow four or five Feet high, and become very shrubby; so that the Plants must be allowed at least two Feet room to grow, otherwise they will overbear each other, or whatever Plants stand near them. There is not much Beauty in this Sort; but as it is a Medicinal Plant, it should have a Place in Physic-gardens.

The seventh Sort is a very hardy Plant, and propagates itself by its creeping Roots; so that, if it be not confined in Pots, it will spread over the Ground where-ever it is planted, so as not to be easily kept within Bounds. This being a Medicinal Plant, should also have a Place in Physic-gardens; but there is not much Beauty in it to recommend it to the Curious.

The eighth, ninth, and tenth Sorts, are tender Plants, which come from warm Countries; and in England are preserved with great Care in Stoves, amongst other curious succulent Plants. These are propagated by Cuttings, which should be cut from the old Plants at a Joint, and laid in a dry Part of the Stove for a Fortnight, that the wounded Part may heal over; then they should be planted in small Pots, filled with light sandy Earth mixed with Lime-rubbish, and plunged into a Hot-bed of Tanners Bark, where they should remain until they have taken Root; after which they should be inured to the Air by degrees, and then be removed into the Stove, where they must constantly be kept; for they are too tender to be exposed abroad in the Heat of Summer: therefore they should be placed near the Glasses of the Stove in Summer, where they may have Air in very hot Weather; but they must not have much

Wet, being very full of Moisture, and subject to rot, if over-watered. In Winter they must be set in a warm Part of the Stove, and should have very little Wet during that Season: with this Management these Plants will thrive and grow very large; but they seldom produce Flowers in this Country.

The eleventh Sort was found by Monsieur Tournefort in the Levant, and by him brought into Europe, by the Name here given to it, though many curious Botanists are not satisfied how it differs from the *Tithymalus characias rubens peregrinus* of Caspar Baubinus. This has a great deal of the Appearance of our Wood-spurge: but the Stalks are redder, and the Flowers are much fairer: it may be propagated by Cuttings, which should be planted in Pots filled with light sandy Earth; and in Winter must be sheltered, otherwise it is apt to perish with severe Cold. In March it flowers, at which time it makes a beautiful Appearance, and is worthy of a Place in every good Garden.

The eight next-mentioned Sorts are annual Plants, which growing wild in several Parts of England, are rarely admitted into Gardens; but some of them generally come up as Weeds, in most cultivated Lands. The most common of these are the twelfth, thirteenth, and fifteenth Sorts, the others growing but in some particular Parts of England wild. These Plants abound with a milky Juice, which some People apply to Warts to get'em off; but this should be done with Discretion, otherwise there may be Danger of injuring the Part where it is applied, because it is a great Caustic. All these Sorts will come up from Seeds, whenever they are scattered; so that whoever

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hath a Desire to preserve them, need only allow them a Place; for they will require no Care to propagate them.

The twentieth Sort grows wild in several Parts of *Ireland*, where it was formerly much in Use amongst the Natives of that Country, and was the chief Physic used by them for all Distempers, till of late, that they have gotten the Knowledge of *Mercury*, which has obtained so much with them, as to put this Plant quite out of Use.

This is an abiding Plant, having thick knobbed Roots, which may be separated every other Year, to propagate the Plant, by those who desire it; though indeed it is rarely preserved but in Botanic Gardens, for the sake of Variety. It is very hardy, and will thrive in almost any Soil or Situation, and dies to the Root every Autumn, and the Spring following comes up again. This may be planted in Wilderesses, where it will thrive very well under the Drip of Trees, and will serve to fill up in such Places where few other better Plants will live.

The twenty-first Sort is supposed to grow wild in *England*; but I believe, some People have taken the common Wood-spurge for this, when it has appeared with Stalks somewhat redder than ordinary. This, and the ten following Sorts, grow wild in *France, Italy, and Germany*, from whence they have been procured by some Persons who are curious in Botany. All these are very hardy Plants, and may be propagated by Seeds, which should be sown in a Bed of fresh Earth, in the Spring; and when the Plants come up, they will require no farther Care, but to clear them from Weeds; and where they are too thick, some of them should be drawn out, to give those

Plants which are designed to remain, room to grow until *Michaelmas*, when they should be planted into Woods, and other Places covered with Trees; where they will make an agreeable Variety.

The fourteen Sorts next following were discovered by *Dr. Tournefort* in the *Levant*; from whence he sent their Seeds to the Royal Garden at *Paris*, where many of them were raised, and have since been communicated to several Persons who are curious in Botany in *England*. These, being all of them very hardy Plants, will be very proper to intermix with the Sorts before-mentioned, in Wilderess Quarters; where, if they have a dry Soil, they will thrive very well, and make an agreeable Appearance. Some of these Sorts die to the Root every Autumn, and rise again the following Spring; but they will not require any Care to preserve them; the only Culture they demand is to keep them from being overborne by very large Weeds.

The forty-sixth, forty-seventh, and forty-eighth Sorts are somewhat tenderer than either of the former: therefore some Plants of each Kind should be kept in Pots to be sheltered in Winter, for fear those which are planted abroad should be destroyed. These may be propagated by Cuttings, which should be taken off from the old Plants a Week before they are planted, and laid in a dry Place, that the wounded Part may heal, otherwise they will rot. These Cuttings may be planted in a Bed of fresh undunged Earth, and shaded with Mats until they have taken Root; after which time they will require no farther Care, but to keep them clear from Weeds till *Michaelmas*; when they should be transplanted some of them into Pots, and the

the others under Trees on a dry Soil, and in a warm Situation, where they will endure the Cold of our ordinary Winters very well; but in severe Frosts they are frequently destroyed. Those Plants in Pots should be removed into Shelter toward the End of *October*, and placed where they may have as much free Air as possible in mild Weather, otherwise their Shoots will be weak and unsightly; for if they are only protected from very hard Frosts, it is all these Plants require. These Sorts grow to the Height of six or seven Feet, and may be allowed a Place in Gardens, for the sake of Variety.

The forty-ninth Sort is a very hardy Plant, which propagates itself very fast by its creeping Roots; wherefore it should not be planted near better Plants, because it will spread so far, and intermix its Roots with them, and destroy them. This Sort may be planted in some Quarters under Trees, where the Soil is very poor, in which it will thrive and fill up better than most other Plants.

The fiftieth and fifty-third Sorts being somewhat tender, some of the Plants should be preserved in Pots, and sheltered in Winter; and the others may be planted on a dry Soil, and in a warm Situation, where they will endure the Cold of our common Winters, and will add to the Variety.

The fifty-first and fifty-second Sorts are biennial Plants, which seldom continue long after they have perfected their Seeds. These being very hardy Plants, will grow in any Situation, provided they have a dry Soil; and if their Seeds are permitted to scatter, the Plants will come up and thrive without any other Care, than to keep them from being overborn by large Weeds.

The fifty-fourth Sort, being tenderer than either of the former, must be placed in a warm Green-house in Winter, otherwise it will not live in this Country. This is propagated by Cuttings, which must lie to dry a Fortnight before they are planted; for as the whole Plant abounds with a milky Juice, so, if the wounded Parts are not well healed over before they are planted, they are very subject to rot. The best Time for planting of these Cuttings is in *July*, that they may be well rooted before Winter. These should be planted each into a separate small Pot, and if they are plunged into a very moderate Hot-bed, it will cause them to root the sooner. They should be now-and-then refreshed with Water; but it must not be given them in large Quantities, lest it rot them. When they are rooted, they must be inured to bear the open Air by Degrees, into which they should be removed, and placed in a warm Situation, where they may remain till *Michaelmas*, when they must be removed into the Green-house, and placed in the warmest Part of it. During the Winter Season these Plants must have but little Water, especially if they have no artificial Heat; for Moisture is very apt to rot them in cold Weather.

The fifty-fifth and fifty-sixth Sorts grow plentifully in the Island of *Jamaica*, and in several other Places in the *West-Indies*. These being very tender Plants, must be preserved in warm Stoves, otherwise they will not live in this Country. They may be propagated by Cuttings in the Summer Months, which must be treated in the same manner as hath been directed for the Euphorbiums; with which Management these Plants will thrive extremely

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tremely well, and will make an agreeable Variety amongst other Exotic Plants in the dry Stove.

The fifty-seventh Sort was discovered by Father Plumier in the French Settlements in America, and was found by the late Dr. Housfoun at the *Houanah*, growing in great Plenty. This Sort may be propagated by Cuttings as the former, and treated in the same manner.

The fifty-eighth Sort grows plentifully in *Jamaica*, and several other Parts of *America*. This may be propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate small Pot filled with fresh light sandy Earth, and then plunged into an Hot-bed of Tanners Bark, where they should be shaded from the Sun until they have taken Root; after which time they should have free Air admitted to them in warm Weather, and must be refreshed two or three times in a Week with Water; but as these Plants are full of Juice, they should not have too much Moisture, lest it rot them. In this Hot-bed the Plants may remain till about *Michaelmas*, when they should be removed into the dry Stove; and may afterwards be treated in the same manner as the three former Sorts.

The fifty-ninth Sort was found growing plentifully on the sandy barren Ground at *La Vera Cruz*, by the late Dr. Housfoun, who observed that all the Plants which he saw were variegated, so that he supposed they continued to come up in like manner from the Seeds. This is a very beautiful Plant, and being tender, must be treated as the Sorts last-mentioned.

The sixtieth and sixty-first Sorts

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were found in great Plenty at *Campochy*, by the late Dr. Housfoun; from whence he sent their Seeds to *England*, where several of the Plants were raised. These Plants have their lower Leaves narrow and intire; and those which are produced near the upper Part of the Shoots, are broad and indented, somewhat like those of the Garden Orach. The Flowers are produced at the Extremity of the Branches, which are of a greenish White, having little Beauty in them; and they soon fall off, so that the Plants rarely produce good Seeds in *England*.

These Plants are propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants come up, they should be each transplanted into a separate Pot filled with fresh light Earth, and then plunged into the Hot-bed again, where they should be shaded until they have taken new Root; after which time they should be treated after the same manner as the tender Sorts before-mentioned. And in Winter, if these are plunged into the Bark-bed in the Stove, the Plants may more certainly be maintained, than if placed on Shelves in the dry Stove; but then they should not have too much Water given them in Winter, lest it rot them. With this Management the Plants may be preserved two or three Years, in which time they will grow to the Height of seven or eight Feet, and produce many Branches.

The ten last-mentioned Sorts are all of them annual Plants; wherefore their Seeds should be sown early in the Spring on a moderate Hot-bed; and the Plants, when they are come up, must be planted into Pots, and plunged into an Hot-bed; for being too tender to thrive in the open Air
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in this Country, they must be continued in the Plot bed; or, when they are pretty strong, they may be removed into the Stove, where they will flower in *June* and *July*, and their Seeds will ripen soon after, which will scatter themselves as soon as they are ripe, if they are not gathered; so that when the Plants are permitted to seed their Seeds, there will be a sufficient Supply of young Plants come up; in whatever Part near them, as also in the Fall, if it be not disturbed. The first five of these Sorts grow usually about two Feet high or more; the next three seldom rise above a Foot high, and the two last trail on the Surface of the Ground, so that these make but an indifferent Appearance.

TOAD-FAX, *vide* Linaria.

TOBACCO; *vide* Nicotiana.

TORDYLIUM, Hartwort.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of five unequal heart-fashioned Petals, which are placed circularly, and rest on the Empatiment, which afterward becomes an almost-round Fruit, composed of two flat Seeds, which easily cast off their Covering, with a raised Border, which is commonly indented.

The Species are;

1. **TORDYLIUM maximum.** *Inst.*

R. H. The greatest Hartwort.

2. **TORDYLIUM Narbonense minus.**

Inst. R. H. Small Hartwort of Narbonne.

3. **TORDYLIUM Apulum minimum.**

Col. P. 4. 124. The smallest Hartwort of Apulia.

4. **TORDYLIUM minus, limbo granulato, Syriacum.** *Mer. Umb.* Small Hartwort of Syria; with a granulated Border.

5. **TORDYLIUM folio longo angusto, flore albo magno, Jemine elegantissime**

& profundissime crenato albo. *Boerb. Ind. alt.* Hartwort with a long narrow Leaf, a large white Flower, and a white Seed beautifully and deeply notched.

6. **TORDYLIUM orientale, Secacul Arabum dictum Rowolfo.** *Boerb. Ind. alt.* Eastern Hartwort, called by *Rowolf* Secacul of the Arabians.

7. **TORDYLIUM Lusitanicum, cincta folio, semine striato.** *Inst. R. H.* Portugal Hartwort, with a Hemlock-leaf, and a streaked Seed.

8. **TORDYLIUM album, facie tordyli lutei Columnæ.** *Hort. Cath.* White Hartwort, with the Appearance of Columna's yellow Hartwort.

All these are annual Plants, which perish soon after they have perfected their Seeds. The first Sort is found wild in several Parts of England, and the second Sort has been by some mentioned as an indigenotus Plant of this Country; but I believe it is nowhere found wild; unless where the Seeds have been purposely scattered. These Plants are preserved in the Gardens of some Persons who are curious in Botany; but there is little Beauty in them.

They are propagated by Seeds, which should be sown in the Autumn shortly after they are ripe; when the Plants will soon appear, and are very hardy, so that they require no farther Care, but to keep them clear from Weeds; and where they come up too close together, they should be thinned so as to leave them six Inches asunder. In *June* following the Plants will flower, and their Seeds will ripen in *August*; which, if permitted to scatter on the Ground, will produce a Supply of Plants without any Trouble. If the Seeds of these Plants are kept out of the Ground till Spring, they seldom succeed; for if any Plants are produced from

from the Seeds then sown, they commonly perish before they have perfected their Seeds; whereas those which are sown in Autumn rarely fail. These Plants will grow on any Soil or Situation; wherefore they may be put into any obscure Part of the Garden.

TORMENTILLA, Tormentil.

The Characters are;

The Flower consists of four Petals, which are placed orbicularly, and expand in form of a Rose; out of whose one-leaved Empalment (divided into several Segments, and shaped like a Bason) arises the Pointal, which afterwards becomes an almost globular Fruit, in which many Seeds are gathered into a sort of little Head, covered with the Empalment: to which Notes must be added, That there are commonly seven Leaves growing on the Top of the Foot-stalk.

The Species are;

1. TORMENTILLA *sylvestris*. C. B. P. Wild Tormentil, or Septfoil.

2. TORMENTILLA *radice repente*. Inst. R. H. Creeping rooted Tormentil.

3. TORMENTILLA *Alpina vulgaris major*. C. B. P. Greater Tormentil of the Alps.

4. TORMENTILLA *Cassubica major*. Inst. R. H. Greater Tormentil, with deep-cut Leaves.

5. TORMENTILLA *Cassubica minor*. Inst. R. H. Smaller Tormentil, with deep-cut Leaves.

The first Sort grows wild everywhere on dry Pastures, and on Commons in most Parts of England. The Roots of this Plant have been frequently used for Tanning of Leather, in Places where Oak-Bark is very scarce. This Root is also much used in Medicine, and is accounted the best Astringent in the whole Vegetable Kingdom.

The second Sort is found in some particular Parts of England growing wild: the third Sort grows on the Alps, and the fourth and fifth Sorts grow in Denmark, Sweden, and some other Northern Countries; but are rarely preserved, unless in some Botanic Gardens, for the sake of Variety. It requires no Care to propagate these Plants, since, if their Seeds are sown in almost any Soil or Situation, the Plants will come up and flourish without any other Care, but to prevent their being over-run with great Weeds.

TOXICODENDRON; Poison-tree, vulgo.

The Characters are;

The Flower consists of five Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Flower-cup rises the Pointal, which afterward becomes a roundish, dry, and, for the most part, furrowed Fruit, in which is contained one compressed Seed.

The Species are;

1. TOXICODENDRON *triphyllum glabrum*. Tourn. Three-leaved smooth Poison-tree.

2. TOXICODENDRON *triphyllum, folio sinuato pubescente*. Tourn. Three-leaved Poison-tree, with a sinuated hairy Leaf.

3. TOXICODENDRON *Carolinianum, foliis pinnatis, floribus minimis herbaceis*. Carolina Poison-ash; vulgo.

4. TOXICODENDRON *rectum, foliis minoribus glabris*. Hort. Elth. Upright Poison-tree, with smaller smooth Leaves.

5. TOXICODENDRON *rectum pentaphyllum glabrum, foliis latioribus*. Smooth five-leaved upright Poison-tree, with broader Leaves.

6. TOXICODENDRON *amplexicaule, foliis minoribus glabris*. Hort. Elth. Climbing

Climbing Poison-tree, with smaller smooth Leaves.

7. *TOXICODENDRON foliis alatis, fructu rhomboide.* Hort. Eltb. Poison-tree with winged Leaves, and a Fruit shaped like a *Rhombus*.

The two first *Species* were brought from *Virginia*, many Years since, where they grow in great Plenty, as it is probable they do in most other Northern Parts of *America*. The first Sort seldom advances in Height; but the Branches trail upon the Ground, and send forth Roots, by which they propagate in great Plenty.

The second Sort will grow upright, and make a Shrub about four or five Feet high, but rarely exceeds that in this Country. This may be propagated by Layers, and is equally as hardy as the former.

The third Sort was raised from Seeds, which were sent from *Carolina* by Mr. *Catesby*. This is somewhat tenderer than either of the former; but will endure the Cold of our ordinary Winters very well, especially if it be planted near the Shelter of other Trees.

These Plants are preserved by the Curious in Botany, for the sake of Variety; but as there is little Beauty in them, they are not much cultivated in *England*. The Wood of these Trees, when burnt, emits a noxious Fume, which will suffocate Animals, when they are shut up in a Room where it is burnt. An Instance of this is mentioned in the *Philosophical Transactions* by Dr. *William Sherard*, which was communicated to him in a Letter from *New-England* by Mr. *Moore*; in which he mentions some People who had cut some of this Wood for Fuel, which they were burning; and in a short time they lost the Use of their Limbs,

and became stupid; so that, if a Neighbour had not accidentally opened the Door, and seen them in that Condition, it is generally believed they would soon have perished. This should caution People from making use of this Wood.

The fourth Sort grows erect to the Height of five or six Feet: the Leaves of this Kind are much smaller than those of the common Poison-oak; but the Branches of this are flexible, so that it will never make a Shrub of any great Height or Strength.

The fifth Sort was found in *Maryland*, from whence the Seeds were sent to *England*. This grows more upright than the former, and, by the Appearance of the young Plants, seems to be a Shrub of much larger Growth.

The sixth Sort is a Native of *Virginia*, from whence I received the Seeds: this puts out Roots from the Branches, which fasten themselves to the Stems of Trees, or the Joints of Walls, by which the Branches are supported.

The seventh Sort is the same with the third, only differing in Sex; this being the Female, and the other, the Male Tree. All the Sorts of *Toxicodendron* differ in Sex, the Male never producing any Fruit, having small herbaceous Flowers, without any Embryoes.

All these Sorts are hardy Plants, which will thrive in the open Air in this Country; but they love a moist Soil, and should be planted under Trees in Wildernesses, where they will thrive very well, and endure the Cold better than where they have a more open Exposure. They may be propagated by Seeds, or from Suckers, which some of the Sorts send forth in Plenty, or by laying down the Branches of those
Sorts

Sorts which do not put forth Suckers; which by his Description agrees which in one Season will be sufficient; with this Species. This Sort of Poison-tree is not ly rooted to transplant; when they should be planted, where they are only a Native of America, but grows designed to remain. The best Time plentifully on the Mountains in Ja- to remove these Shrubs is in March, pan, where it is called *Fasi No Ki*, because then there will be no Danger and from this Tree they extract one of their suffering by Frost. Sort of their Vernish or Lacca, which they use for japanning their Utensils.

The Wood of these Shrubs is at- But this is not their best Kind of counted very poisonous, either by the Vernish, that being made of the the handling of it, or smelling it, when it is burning. Mr. Dudley has given an Account of the poisonous Juice of another Tree, which is also Quality of these Trees, in the *Philosophical Transactions*, where he thinks it differs only by Culture. mentions a Neighbour of his in The Juice of this Tree is milky, *New-England*, who was blind for several Days with handling the Part; but soon after it is exposed to the Wood; and another Gentleman of the Air, it turns black, and has a very strong fetid Scent, and is cor- that Country, who was sitting by rod- ing. For I have observed, on his Fire-side in Winter, in which cutting off a small Branch from one was some of the Poison-tree burning, of these Shrubs, that the Blade of the Smoke of which swelled him for several Days. But he says it has the Knife has been changed black in a Moment's time, so far as the Juice had spread over it; which I could not get off without grinding the this Effect only on particular Per- Kiufe. sons; for his own Brother would handle and chew it, without any Harm; and that by the same Fire some Persons shall be poisoned, and others not the least affected. This As this Tree is very common in *Virginia*, *Carolina*, and *New-Eng- Poison* is not mortal, but will go off land, it would be well worth the Inhabitants Trial, to make this Ver- itself in a few Days, like the Sting nish.

TRACHELIUM, Throatwort.

When a Person is poisoned by handling of this Wood, in a few Hours he feels an itching Pain, which provokes a Scratching, which is followed by an Inflammation and Swelling. Sometimes a Person has had his Legs poisoned, which have run with Water. Some of the Inhabitants of *America* affirm, they can distinguish this Wood by the Touch in the Dark, from its extreme Coldness, which is like Ice. But what he mentions of this poisonous Quality, is applicable to the seventh Sort,

The Characters are; It hath a funnel shaped Flower composed of one Leaf, and cut into several Parts at the Top; whose Empalement afterwards becomes a membranaceous Fruit often triangular, and divided into three Cells, which are full of small Seeds.

The Species are;

1. TRACHELIUM *accareum umbelliferum*. *Pon. Bald.* Blue umbelliferous Throatwort.
2. TRACHELIUM *umbelliferum violaceum, foliis serratis.* *Inst. R. H.* Throatwort with violet coloured

coloured Flowers growing in Umbels, and jagged Leaves.

3. *TRACHELIUM villosum, floribus confertim in pediculis alis natiscaulis.* *Inf. R. H.* Hairy Throatwort, with Flowers growing in Clusters from the Wings of the Leaves.

4. *TRACHELIUM parvum, floribus in capitulum congestis.* *Inf. R. H.* Rock Throatwort, with Flowers collected in Heads.

5. *TRACHELIUM minus Africanum, floribus violaceis, per caulem sparsis.* *Inf. R. H.* Smaller African Throatwort, with violet-coloured Flowers growing thinly on the Stalks.

6. *TRACHELIUM Americanum, sancti folio, flore albo longissimo.* *Plum.* American Throatwort, with a Sow-thistle leaf, and a very long white Flower.

The first Sort is preserved in many curious Gardens for the Beauty of its Flowers, which continue a long time, and are succeeded by new Umbels on the Tops of the younger Shoots, so that the Plants continue in Beauty for some Months. This Plant is supposed to be a Native of some of the Islands in the Archipelago, from whence it was first brought to Italy, and hath been since spread to many Parts of Europe. It is hardy in respect to Cold, provided it has a proper Situation, which should be in the Crevices of old Walls, where it will abide the Cold very well; when those Plants which grow on warm Borders, are frequently destroyed. This Plant has propagated itself by Seeds, on the Walls of some Gardens, where it has been planted; and those Plants which have grown on the Walls, continue, when those which were in Pots, and preserved with Care, have been entirely destroyed.

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The second Sort grows upon the Mountains of Brescia, about the Mouths of Caves, between the hardest Rocks, so that it is very difficult to get out the Roots.

The third Sort grows on the Rocks in several Places in the Levant.

All these Sorts are propagated by Seeds, which should be sown soon after they are ripe; for if they are kept out of the Ground till the Spring, they seldom grow. These Seeds should be sown in Pots filled with fresh undunged Earth, and placed in a shady Situation till the Beginning of October, when they may be removed into a more open Exposure; where they may have as much Sun as possible, but be sheltered from cold Winds. When the Cold is severe, they should be placed under an Hot-bed Frame, where they may enjoy as much free Air as possible in mild Weather; but they must be screened from hard Frosts, otherwise they are frequently destroyed.

They may also be propagated by Off-sets, or Cuttings, which may be taken off in the Spring or Summer Months; and should be planted in Pots filled with fresh undunged Soil, and placed on a shady Situation until they have taken Root, when they may be removed into a sheltered Part of the Garden; where being mixed with other hardy Exotic Plants, they will afford an agreeable Variety.

But as these Plants thrive better on old Walls (when by Accident they have arisen there from Seeds), their Seeds, when ripe, may be scattered on such Walls as are old, or where there is Earth lodged sufficient to receive the Seeds; where the Plants will resist the Cold much better, and they will continue longer, than when sown in the full Ground; and when a few of the Plants are established

established on the Walls, they will shed their Seeds, so that they will maintain themselves without any farther Care. I have observed some Plants of the first Kind, which have grown from the Joints of a Wall, where there has not been the least Earth to support them; which have resisted the Cold, tho' they have been greatly exposed to the Winds; so that these Plants are very proper to cover the Walls of Ruins, where they will have a very good Effect.

The fourth Sort grows on the Mountains in *Italy*, from between the Crevices of the Rocks, from whence it is difficult to get out the Roots. This may be treated in the same manner as the former Sorts, and will thrive better on Walls, than if sown or planted in the Earth.

The fifth Sort is an annual Plant, which was brought from the *Cape of Good Hope* to *Holland*, where it has been preserved in some of their curious Botanic Gardens. This Sort will succeed well, if the Seeds are permitted to scatter on the Pots of Earth which are near them, provided the Pots are placed in the Green-house, where the Plants will come up and flower early the following Summer, and will have time to perfect their Seeds; whereas, when the Seeds are sown in the Spring, the Plants will not flower till *August*; so that, if the Autumn should prove bad, they will not produce Seeds.

The sixth Sort grows plentifully in *Jamaica*, and several other Places in the warm Parts of *America*, where it grows in moist Places by the Sides of Rivers. This may be propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be transplanted on another Hot-bed, to bring the Plants

forward; and then they may be treated in the same manner as hath been directed for the tender Sorts of *Rapuntium*. With which Management this Plant will thrive, and produce its Flowers; and if the Seeds are permitted to scatter, or are sown as soon as they are ripe, if the Pots are kept in the Stove, the Plants will come up, and flourish much better than those sown in the Spring.

TRAGACANTHA, Goats-thorn.

The Characters are;

It hath a papilionaceous Flower, out of which Empalement arises the Pointal, which afterward becomes a bicausal Pod, filled with kidney-shaped Seeds. To these Notes must be added, The Leaves grow by Pairs on a middle Rib, which always ends in a Thorn.

The Species are;

1. TRAGACANTHA *Massiliensis*. *J. B.* Goats-thorn of *Marseilles*.
2. TRAGACANTHA *Cretica incana*, *stems parvas, lineis purpureis striato*. *T. Cor.* Hoary Goats-thorn of *Crete*, with a small Flower striped with purple Lines.
3. TRAGACANTHA *humilis Balearica*, *foliis parvis vix incanis, flore albo*. *Salvad.* Low *Balearic* Goats-thorn, with small Leaves, and a white Flower.
4. TRAGACANTHA *altera, Poterium forte Clusio*. *J. B.* Another Goats-thorn, with Leaves falling off in the Winter.
5. TRAGACANTHA *Alpina semper-virens, floribus purpurascensibus*. *Infr. R. H.* Ever-green *Alpina* Goats-thorn, with purplish Flowers.
6. TRAGACANTHA *Cretica, foliis minimis incanis, flore majori albo*. *Tourn. Cor.* Goats-thorn of *Candy*, with very small hoary Leaves, and a larger white Flower.

7. *TRAGACANTHA orientalis humillima, flore magno albo.* Tourn. Cor. A very low Eastern Goats-thorn, with a large white Flower.

8. *TRAGACANTHA orientalis humillima, barba Jovis folio.* Tourn. Cor. Eastern Goats-thorn, with a Jupiter's-beard-leaf.

9. *TRAGACANTHA orientalis humillima, foliis angustissimis argenteis.* Tourn. Cor. A very low Eastern Goats-thorn, with very narrow silver Leaves.

10. *TRAGACANTHA orientalis humillima, se spargens, floribus spicatis.* Tourn. Cor. A very low spreading Eastern Goats-thorn, with Flowers growing in Spikes.

11. *TRAGACANTHA orientalis humillima incana, flore purpurascente.* Tourn. Cor. A very low hoary Eastern Goats-thorn, with a purplish Flower.

12. *TRAGACANTHA orientalis erectior, foliis vicie glabris, & ramis tomentosis.* Tourn. Cor. A more upright Eastern Goats-thorn, with smooth Vetch-leaves, and woolly Branches.

13. *TRAGACANTHA orientalis humilis, candidissima & tomentosa, floribus in foliorum alis in capitulum densum nascentibus.* Tourn. Cor. A lower very white and woolly Eastern Goats-thorn, with Flowers growing in thick Heads, from the Wings of the Leaves.

14. *TRAGACANTHA orientalis humilis, floribus luteis dense congestis in foliorum alis.* Tourn. Cor. A low Eastern Goats thorn, with yellow Flowers thick-set in the Wings of the Leaves.

15. *TRAGACANTHA humilior, luteis floribus.* G. B. P. A lower Goats-thorn, with yellow Flowers.

16. *TRAGACANTHA orientalis, floribus luteis in capitulum longo pediculo donatum congestis.* Tourn. Cor. Eastern

Goats-thorn, with yellow Flowers gathered into an Head, on a long Foot-stalk.

17. *TRAGACANTHA orientalis vesicaria, floribus purpureis in capitulum longo pediculo donatum congestis.* Tourn. Cor. Bladder Eastern Goats-thorn, with purple Flowers gathered into an Head, and set on a long Foot-stalk.

18. *TRAGACANTHA orientalis latifolia, flore purpureo magno.* Tourn. Cor. Eastern Goats-thorn, with a large purple Flower.

19. *TRAGACANTHA orientalis, foliis angustissimis, flore purpurascente.* Tourn. Cor. Eastern Goats-thorn, with very narrow Leaves, and a purplish Flower.

20. *TRAGACANTHA orientalis, foliis oleæ, humillima, floribus in capitulum congestis.* Tourn. Cor. A very low Eastern Goats-thorn, with Olive-leaves, and Flowers gathered into an Head.

21. *TRAGACANTHA orientalis, foliis oleæ, incanis & tomentosis, caule ab imo ad summum florido.* Tourn. Cor. Eastern Goats-thorn, with hoary and woolly Olive-leaves, and Flowers growing from the Bottom to the Top of the Stalks.

22. *TRAGACANTHA orientalis, foliis incanis, caule & ramulis tomentosis.* Tourn. Cor. Eastern Goats-thorn, with hoary Leaves, and woolly Stalks and Branches.

23. *TRAGACANTHA foliis incanis minoribus, minusque villosis.* Boerb. Ind. alt. Goats-thorn with smaller hoary Leaves, which are less hairy.

Most of the Sorts here mentioned were discovered by Dr. Tournefort in the Levant, from whence he sent the Seeds of several Kinds to the Royal Garden at Paris.

All these Sorts may be propagated by Seeds, which should be sown on a Bed of fresh Earth in March; and

when the Plants come up, they should be carefully kept clear from Weeds; which, if permitted to grow amongst the Plants, would soon overbear and destroy them, while they are young. If the Season should prove very dry, it will be of great Service to water the Plants now and then; and when they are large enough to transplant, they should be carefully taken up, and some of them planted in small Pots filled with fresh Earth, placing them in the Shade until they have taken Root; after which time they may be removed into an open Situation, where they may remain till the latter End of *October*; when they should be placed under a common Frame; where they may be sheltered from severe Frost; but may have free Air in mild Weather, when the Glasses should not be put over them.

The Remainder of the Plants may be planted on a warm dry Border, where they must be shaded until they take Root; and if the Season should continue dry, they must be refreshed with Water, otherwise they will be in Danger; because, while they are so young, their Roots will not have established themselves in the Ground, sufficiently to nourish them in great Droughts.

Those Plants which were planted in Pots, may be preserved for a Year or two under Frames in Winter, until they have obtained Strength, when they may be shaken out of the Pots, and planted in a lean dry Soil, and a warm Situation, where they will endure the Cold of our ordinary Winters very well; but as they are sometimes destroyed by hard Winters, it will be proper to keep a Plant of each Kind in Pots, which may be sheltered in Winter to preserve the *Species*.

These Plants may also be propagated by Cuttings, which may be planted during the Summer Months.

The Gum-dragon, which is used in the Shops, is produced from several of these Species; tho' it was only from the second Sort, which *Dr. Tournefort* saw it taken.

At present these Plants are rarely preserved, excepting by some Persons who are curious in Botany; yet in large Gardens many of them deserve a Place, where, if they are planted on Hillocks, or the Slopes of dry Banks, they will have a very good Effect; especially as they retain their Leaves thro' the Year.

From the second Sort *Monsieur Tournefort* says, the Gum-adragant or dragon is produced in *Crete*; of which he gives the following Relation in his *Voyage to the Levant*:

“ We had (*says he*) the Satisfaction
 “ of fully observing the Gum adra-
 “ gant on mount *Ida*. I cannot
 “ understand how *Bellonius* comes
 “ to assert so positively, that there
 “ is no such thing in *Candia*: sure
 “ he had not read the first Chapter
 “ of the ninth Book of *Theophrastus*'s
 “ History of Plants. The little bald
 “ Hillocks about the Sheep-
 “ fold produce much of the *Traga-*
 “ *cantha*, and that too a very good
 “ Sort. *Bellonius* and *Prosper Al-*
 “ *pinus* were doubtless acquainted
 “ with it; tho' it is hardly possi-
 “ ble, from their Descriptions, to
 “ distinguish it from the other Kinds
 “ they make mention of. This
 “ Shrub spontaneously yields the
 “ Gum-adragant towards the End
 “ of *June*, and in the following
 “ Months; at which time the nu-
 “ tritious Juice of this Plant, thick-
 “ ened by the Heat, bursts open
 “ most of the Vessels wherein it is
 “ contained. It is not only gathered
 “ in

in the Heart of the Trunk and Branches; but also in the Inter-spaces of the Fibres, which are spread in the Figure of a Circle like Rays of the Sun. This Juice is coagulated into small Threads, which passing through the Bark, issue out by little and little, according as they are protruded by the fresh Supplies of Juice arising from the Roots. This Substance, being exposed to the Air, grows hard, and is formed either into Lumps, or slender Pieces, curled and winding in the Nature of Worms; more or less long, according as Matter offers. It seems as if the Contraction of the Fibres of this Plant contributes to the expressing of the Gum. These delicate Fibres, as fine as Flax, being uncovered, and trodden by the Feet of the Shepherds and Horses, are by the Heat shriveled up, and facilitate the Emanation of the extravasated Juices."

But, notwithstanding what *Tournefort* has said concerning the Gum-aragant being produced from that particular Species, many Authors are of Opinion, that it is taken from several other Species, but particularly that of *Marseilles*, from whence that Gum is often brought into England.

TRAGIA.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, for the most part divided into three Segments, but these are barren; for the Embryoes are placed at a Distance on the same Plane, which afterward becomes a three-lobed Fruit, composed of three Cells, each containing one spherical Seed.

The Species are;

1. *TRAGIA alia scandens, urticae folio.* Plum. Nov. Gen. Climbing Tragia, with a Nettle-leaf.

2. *TRAGIA scandens, longo betonicae folio.* Plum. Nov. Gen. Climbing Tragia, with a long Betony-leaf.

These Plants were discovered by *Father Plumier* in America, who constituted this Genus by this Name, in Honour to *Hieronymus Bock*, a famous Botanist, who was commonly called *Tragus*.

The first Sort grows plentifully in the *Savannas* in *Jamaica*, and the other warm Parts of America; where it twines round whatever Plants or Trees it grows near, and rises seven or eight Feet high, having tough woody Stems. The Leaves are like those of the common Nettle, and the whole Plant is covered with burning Spines, like those of the Nettle; which renders it very unpleasant to handle.

The second Sort was found by the late *Dr. Housoun* at *Campechy*; from whence he sent the Seeds.

As these are Plants of no Beauty, they are seldom preserved in this Country, except in some Botanic Gardens, for the sake of Variety. They are propagated by Seeds, which must be sown on a Hot-bed early in the Spring, and must afterward be transplanted into Pots, and plunged into a Hot-bed of Tanners Bark, and treated in the same manner as the *Dioscorea*; with which Management these Plants will thrive very well.

TRAGOPOGON, Goats-beard.

The Characters are;

It is a Plant with a semisoleolous Flower, consisting of many half Florets; these, with the Embryoes, are included in one common many-leaved Flower-cup, which is not scaly, as in *Scorzonera*; but the Segments are stretched out above the Florets; the Embryoes afterward become oblong Seeds inclosed in Corvex or Goats, and

*have a thick Down like a Beard ad-
hering to them.*

The Species are ;

1. TRAGOPOGON *pratense luteum
majus. C. B. P.* Greater meadow
Goats-beard, with a yellow Flower,
commonly called *Go-to-bed-at-noon.*

2. TRAGOPOGON *purpureo-cerule-
um, porri folio, quod Artifi vulgo.*
C. B. P. Goats-beard with a Leaf
like Leeks, and a purple-blue Flow-
er, commonly called *Salsfasy* or
Sassafy.

3. TRAGOPOGON *alter, gramineo
folio, suave-rubente flore. Col.* An-
other Goats-beard, with a grassy
Leaf, and soft-red Flower.

There are several other Species of
this Plant, which are preserved in
some curious Botanic Gardens for
the sake of Variety ; but as they
are not cultivated for Use, I shall
omit enumerating them in this
Place.

The first Sort here mentioned
grows wild in moist Meadows in
divers Parts of *England* ; and in
May, when the Stems begin to ad-
vance, they are by many People
gathered to boil, and are by some
preferred to *Asparagus.*

The second Sort was formerly
more in Esteem than at present :
this was brought from *Italy*, and
cultivated in Gardens for Kitchen
Use, the Roots being by some Peo-
ple greatly valued ; but of late there
is but little cultivated for the Mar-
kets, tho' several Gentlemen pre-
serve it in Gardens, to supply their
Tables.

The third Sort is by some pre-
served for the Variety of its Flow-
ers.

These Plants are propagated from
Seeds, which should be sown in the
Spring, upon an open Spot of
Ground, in Rows about nine or ten
Inches distant ; and when the Plants

are come up, they should be hoed
out, leaving them about six Inches
asunder in the Rows : the Weeds
should also be carefully hoed down
as they are produced, otherwise they
will soon overbear the Plants, and
spoil them. This is the only Cul-
ture they require ; and if the Soil
be light, and not too dry, they will
make large Plants before Winter :
at which time the *Salsfasy*, whose
Roots are the most valuable Part,
will be fit for Use, and may be
taken up any time after their Leaves
are decayed ; but when they begin
to shoot again, they will be sticky,
and not fit for Use.

The common yellow Sort, whose
Shoots are preferred, will be fit for
Use in *April* or *May*, according to
the Forwardness of the Season. The
best time to cut them is, when their
Stems are about four Inches long ;
for if they stand too long, they are
never so tender as those which are
cut while young.

Some People, in cultivating these
Plants, sow their Seeds in Beds
pretty close ; and when the Plants
come up, they transplant them out
in Rows, at the before-mentioned
Distance ; but as they always form
a Tap-root, which abounds with
a milky Juice, so, when the extreme
Part of their Roots is broken by
transplanting, they will seldom thrive
well afterward : therefore it is by
far the better way to make shallow
Drills in the Ground, and scatter
their Seeds therein, as before direct-
ed ; whereby the Rows will be at a
due Distance, and there will be no-
thing more to do, than to hoe out
the Plants when they are too thick
in the Rows ; which will be much
less Trouble than the other Method
of transplanting ; and the Plants will
be much larger and fairer.

TRAGOSELINUM, Burnet-faxifrage.

The Characters are;

It hath an umbellated rose-shaped Flower, composed of five unequal heart-shaped Petals, which are placed circularly, and rest on the Empalement; which afterward becomes a Fruit, composed of two oblong streaked Seeds.

The Species are;

1. TRAGOSELINUM *majus, umbella candida.* *Inst. R. H.* Greater Burnet-faxifrage, with a white Umbel.

2. TRAGOSELINUM *majus, umbella rubente.* *Inst. R. H.* Greater Burnet-faxifrage, with a red Umbel.

3. TRAGOSELINUM *alterum minus.* *Inst. R. H.* Lesser round-leaved Burnet-faxifrage.

4. TRAGOSELINUM *minus.* *Inst. R. H.* Small Burnet-faxifrage.

5. TRAGOSELINUM *radice nigra, Germanicum. Jescicu.* German Burnet-faxifrage, with a black Root.

6. TRAGOSELINUM *Austriacum, foliis profundissima incisus.* *Boerb.* Austrian Burnet-faxifrage, with Leaves very deeply cut.

7. TRAGOSELINUM *Creticum maximum villosum, flore albo.* *Tourn. Cor.* The greatest hairy Burnet-faxifrage of Crete, with a white Flower.

8. TRAGOSELINUM *minus saxatile fetidissimum, apii folio.* *Tourn. Cor.* The least stinking rock Burnet-faxifrage, with a Smallage-leaf.

9. TRAGOSELINUM *orientale laciniatum, umbella purpurascens.* *Tourn. Cor.* Eastern Burnet-faxifrage, with cut Leaves, and a purplish Umbel.

10. TRAGOSELINUM *orientale laciniatum, umbella alba.* *Tourn. Cor.* Eastern cut-leaved Burnet-faxifrage, with a white Umbel.

The first Sort is directed by the College of Physicians, so be used in Medicine; but many times the Herb-women in the Markets impose on ignorant Persons two Herbs for this one, viz. Burnet, and Meadow-faxifrage; which are two very different Plants, and of contrary Qualities. This Sort grows wild on the dry shady Banks in Kent, and in several other Parts of England.

The second Sort is a Variety of the first, from which it only differs in the Colour of the Flowers, which in this Sort are red, and the other are white.

The third Sort grows wild in some Parts of England, but is not so common as the fourth, which is the most ordinary Sort in the Fields near London. This fourth Sort is sometimes brought to the Markets, and may be used instead of the first: tho' it is much better to have the particular Sort ordered by the College, when it can be procured.

All the other Sorts are Strangers in this Country, but are often preserved by the curious Botanists, in their Gardens, for Variety; and are all of them as hardy as the common Sorts.

These Plants are propagated by Seeds, which should be sown on a shady Border of fresh Earth at Michaelmas; for if they are sown in the Spring, they frequently miscarry, as do many of the umbelliferous Plants. In the Spring following the Plants will appear, when they should be carefully cleared from Weeds; and as the Plants obtain Strength, they should be thinned where they grow too close; leaving them five or six Inches apart. After this they will require no other Culture, but to keep them clear from Weeds. The second Summer these

Plants will flower, and produce Seeds; but if the Roots are not disturbed, they will continue several Years, and produce Seeds annually. Therefore, where the Plants are designed to remain, the Seeds should be sown in Drills, at about sixteen Inches apart, which will allow room to dig the Ground between the Rows every Winter; whereby the Roots will be greatly encouraged, and the Woods will be better destroyed.

TRANSPORTATION of PLANTS. In sending Plants from one Country to another, great Regard should be had to the proper Season for doing it: For Example, if a Parcel of Plants are to be sent from a hot Country to a cold one, they should be sent in the Spring of the Year; that as they come towards the colder Parts, the Season may be advancing; and hereby, if they have suffered a little in their Passage, there will be time to recover them before Winter; whereas those which arrive in Autumn are often lost in Winter, because they have not time to revive, and get Root, before the Cold comes on.

On the contrary, those Plants which are sent from a cold Country to a hot one, should always be sent in Winter, that they may arrive time enough to be rooted before the great Heats come on; otherwise they will soon perish.

The best way to pack up Plants for a Voyage (if they are such as will not bear to be kept out of the Ground) is, to have some handy Boxes, with Handles to them, for the more easily removing them in bad Weather. These should have Holes bored in their Bottoms to let out the Moisture; otherwise it will rot the Roots of the Plants. Over each of these Holes should be laid

a flat Tile or Oyster-shell, to prevent the Earth from stopping them; then they should be filled up with Earth, into which the Plants should be set as close as possible to each other, in order to save room, which is absolutely necessary; otherwise they will be very troublesome in the Ship; and as the only thing intended is, to preserve them alive, and not to make any Progress while on their Passage, a small Box will contain many Plants, if rightly planted. The Plants should also be placed in the Box a Fortnight or three Weeks before they are put on board the Ship, that they may be a little settled and rooted; and during the time they are on board, they should remain, if possible, on the Deck, that they may have Air; but in bad Weather they should be covered with a Tarpawlin, to guard them against the salt Water, which will destroy them, if it comes at them in any Quantity.

The Water these Plants should have, while on board, must be proportioned to the Climate from whence they come, and to which they are going; if they come from a hot Country to a cold one, then they should have very little Moisture, after they have passed the Heats; but if they are carried from a cold Country to a hot one, they must have a greater Share of Moisture when they come into a warmer Climate; and should be shaded in the Day from the violent Heat of the Sun, to which if they are too much exposed, it will dry them up, and destroy them.

But if the Plants to be sent from one Country to another, are such as will live out of the Ground a considerable time, as all those which are full of Juice will do; as the Sedums, Ficoides's, Euphorbiums, Cereus's,

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Let then they require no other Care but to pack them up in a close Box, wrapping them up well with Moss, observing to place them so closely, that they may not be tumbled about, which will bruise them; and that those Plants which have Spines may not wound any of the others. The Box also should be placed where they may receive no Moisture, and where Rats cannot come to them; otherwise they are in Danger of being eaten by those Vermin.

If these Plants are thus carefully packed up, they will do well, tho' they should be two, three, or, some Sorts, if they are four or five Months on their Passage; and will be less liable to suffer, than if planted in Earth, because the Sailors generally kill these Plants by over-watering them.

There are also several Sorts of Trees, which may be packed up in Chests with Moss about them, which will bear to be kept out of the Ground two or three Months, provided it be at a Season when they do not grow; as may be seen by the Orange trees, Jasmynes, Capers, Olive and Pomegranate-trees, which are annually brought from Italy; and if skilfully managed, very few of them miscarry, notwithstanding they are many times kept three or four Months out of the Ground.

In sending Seeds from one Country to another, the great Care to be taken is, to secure them from Vermin, and preserve them dry, otherwise they mould and decay. The Method Mr. Catfish always observed was, to put up his Seeds dry into Papers, and then put them into a dry Gourd-shell, and seal them up; in which way he sent several large Parcels of Seeds from Carolina to England, which never miscarried.

PART

There are some Persons who have directed to put them into Glasses, and to seal them closely down, to keep out the external Air; but from several Experiments of this Kind, which I have made, I find Seeds thus closely put up will not grow, if they remain stopped up any considerable time, all Seeds requiring some Share of Air to preserve their vegetating Quality. So that where a Person has no other Convenience, they may be put up in a Bag, and hung up in a dry Part of the Ship, or put into a Trunk, where they may be safe from Vermin; in which Places they will keep very well.

N. B. It is the safest way to bring all Sorts of Seeds in their Pods or Husks, in which they grew, provided they are put up dry, because their own Covering will afford them some Nourishment, if the Seeds are not separated from the Placenta.

TRIBULUS, Caltrops.

The Characters are;

It hath a Flower composed of several Leaves, which are placed circularly, and expand in form of a Rose; out of whose Empalement rises the Pointal, which afterward becomes a turbinated Fruit, composed of several Parts, which have Thorns collected into an Head, and having Cells, in which are inclosed oblong Seeds.

The Species are;

1. *TRIBULUS terrestris, ciceris folio, fructu aculeato.* C. B. P. Land-caltrop, with a Chick-leaf, and a prickly Fruit.

2. *TRIBULUS terrestris major Carassavicus.* Prod. Par. Bat. Greater Land American Caltrops.

3. *TRIBULUS terrestris Americanus, fructu turbinato, foliis lanuginosis.* Plum. Cat. American Land-caltrops, with a turbinated Fruit, and downy Leaves.

4. *TRIBULUS terrestris India orientalis, foliis vicie subrotundis & villosis. Inst. R. H. East-India Land-caltrops, with roundish and hairy Vetch-leaves.*

The first Sort is a very common Weed in the South of *France*, in *Spain* and *Italy*, where it grows amongst Corn, and on most of the arable Land, and is very troublesome to the Feet of Cattle; for the Fruit, being armed with strong Prickles, run into the Feet of the Cattle, which walk over the Land. This is certainly the Plant which is mentioned in *Virgil's Georgics*, under the Name of *Tribulus*; tho' most of his Commentators have applied it to other Plants.

It is called in *England* *Caltrops*, from the Form of the Fruit, which resembles those Instruments of War that were cast in the Enemies Way to annoy their Horses.

This Plant is preserved in curious Gardens in *England*, for the sake of Variety. It is propagated by Seeds, which should be sown in the Autumn; for those which are kept till Spring, commonly remain in the Ground a whole Year, before the Plants come up. These Seeds should be sown on an open Bed of fresh light Earth, where they are designed to remain; for, being an annual Plant, it doth not bear transplanting very well, unless it be done when the Plants are very young. In Spring, when the Plants come up, they should be carefully cleared from Weeds; and where they come up too close, some of the Plants should be pulled out, to give room for the remaining Plants to grow. After this they will require no other Culture, but to keep them clear from Weeds. In *June* they will begin to flower, and their Seeds will ripen in *August* and *September*; which if

permitted to scatter, the Plants will come up the following Spring, and maintain their Place, if they are not overborn with larger Weeds.

The Branches of this Plant trail on the Ground, and when the Plants are vigorous, will spread to a great Distance from the Root; the Flowers come out on long Foot-stalks from the Division of the Branches, which are succeeded by the Fruit. These, when they are ripe, divide into several Parts; so that, if they are not gathered, they will soon drop off.

The other three Sorts, being Natives of hot Countries, are very tender; wherefore they must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they must be each transplanted into a separate Pot filled with rich light Earth, and then plunged into a Hot-bed of Tanners Bark, where they must be treated in the same manner as other tender Exotic Plants; being careful to bring them forward as early as possible in the Summer, otherwise they will not perfect their Seeds in this Country.

These are all of them annual Plants, whose Branches trail on the Ground, in the same manner as the common Sort; but when their Roots are pretty much confined in the Pots, they will not grow so vigorous as when planted in larger Pots; but will flower and fruit much earlier in the Season. The second Sort produces large yellow Flowers, which have an agreeable Scent.

TRICHOMANES, Maiden-hair.

There are three or four Varieties of this Plant, which grow in *Europe*; but in *America* there are a great Number of Species, which are remarkably different from each other, as also from the *European* Kinds.

These

These being of the Tribe of Ferns, are seldom preserved in Gardens, but where any Person is curious to collect them. Their Roots should be planted in moist shady Places, especially the European Sorts, which commonly grow from between the Joints of old Walls, about Wells; and in other very moist shady Situations. But those Sorts which are brought from hot Countries, must be planted in Pots filled with Rubbish, and strong Earth mixed; and in Winter they must be screened from hard Frosts, to which if they are exposed, it will destroy them.

The common Sort in England is generally sold in the Markets for the true Maiden-hair, which is a very different Plant, and not to be found in England, it being a Native of the South of France, and other warm Countries; but is rarely brought to England.

TRIFOLIUM, Trefoil.

The Characters are;

It hath a papilionaceous Flower, or resembles a papilionaceous Flower; for it consists of the Standard; the Wings and the Keel coming out of the Empalement, together with the Pointal, covered with its fringed Sheath; it becomes a Capsule hidden in the Empalement, and full of Seeds, which are, for the most part, shaped like a Kidney, adhering close to the Capsule when ripe. Some of this Genus have Flowers consisting of one Leaf, resembling a papilionaceous Flower, out of whose Empalement arises the Pointal, which afterwards becomes a membranaceous Capsule hidden in the Empalement, and filled with kidney-shaped Seeds: to these Notes must be added, Leaves growing by Threes, seldom by Fours or Fives, on a common Foot-stalk

The Species are;

1. TRIFOLIUM purpureum majus

fatiuum, pratense simile. Raii Syn. Greater purple manured Trefoil, commonly called Clover.

2. TRIFOLIUM pratense purpureum vulgare. Mor. Hist. Common meadow Trefoil, with a purple Flower, commonly called Honey-suckle Trefoil.

3. TRIFOLIUM pratense album. C. B. P. White meadow Trefoil, commonly called White Dutch Clover.

4. TRIFOLIUM arvense humile spicatum, sive Lagopus. C. B. P. Hare's-foot Trefoil.

5. TRIFOLIUM fragiferum. Ger. Emac. Strawberry Trefoil.

6. TRIFOLIUM pratense luteum, capitulo lupuli, vel agrarium. C. B. P. Hop Trefoil.

7. TRIFOLIUM bitumen redolens. C. B. P. Trefoil smelling of Bitumen.

8. TRIFOLIUM bitumen redolens, angustifolium. Boerb. Ind. Narrow-leaved Trefoil, smelling of Bitumen.

9. TRIFOLIUM Africanum fracticans, flore purpurascens. H. Amst. African shrubby Trefoil, with a purple flower.

10. TRIFOLIUM purpureum majus, foliis longioribus & angustioribus, floribus saturatoribus. Raii Syn. The greater purple Trefoil, with longer and narrower Leaves, and deeper-coloured Flowers.

11. TRIFOLIUM pratense folliculatum. C. B. P. Bladder Meadow-trefoil.

12. TRIFOLIUM luteum lupulinum minimum. Mor. Hist. The least yellow Hop-trefoil, commonly called Nonsuch.

13. TRIFOLIUM montanum, spica longissima rubente. C. B. P. Mountain-trefoil, with a very long reddish Spike.

14. TRIFOLIUM montanum angustissimum

Diffusum spicatum. C. B. P. Narrow-leaved spiked Trefoil.

15. *TRIFOLIUM stellatum. C. B. P.* Rough starry-headed Trefoil.

16. *TRIFOLIUM lagopides. hirsutum. angustifolium Hispanicum. flora ruberrima. Mor. Hist.* Hairy, narrow-leaved Hare's-foot Spanish Trefoil, with a very red Flower.

17. *TRIFOLIUM Egyptianum. floribus albeis. Belsain. Jesso. Egyptian* Trefoil, with whitish Flowers, and oblong Leaves, commonly called

Barjein.

18. *TRIFOLIUM Creticum bituminoso simile, plane inodorum, flore purpureo. Tourn. Cor.* Trefoil of Candy resembling the bituminous one, but without Smell, with a purple Flower.

19. *TRIFOLIUM Creticum elegantissimum. magno flore. Tourn. Cor.* The most beautiful Trefoil of Candy, with a large Flower.

20. *TRIFOLIUM amplissimo folio. subrotunda villosa, flore purpureo. Tourn. Cor.* Trefoil with a very large roundish hairy Leaf, and a purplish Flower.

21. *TRIFOLIUM orientale altissimum, caule fistuloso, flore albo. Tourn. Cor.* The tallest Eastern Trefoil, with a hollow Stalk, and a white Flower.

22. *TRIFOLIUM orientale majus villosissimum, squibus flavescens. Tourn. Cor.* The greater and more hairy Eastern Trefoil, with yellowish Flowers.

23. *TRIFOLIUM clypeatum argenteum. Alp. Esot.* Silvery target-shaped Trefoil.

24. *TRIFOLIUM Apulum annuum, calyce vesicario. Hort. Piff.* Annual

When these Breeders are in Flower, you should carefully examine them, to see if any of them have broken into beautiful Stripes; which

of Cattle, and is esteemed very profitable, because the great Quantity of Cattle which this Grass will maintain, very much enriches all clayey Lands, and prepares them for Corn in two or three Years, which is the Length of Time which this Crop will continue good.

In the Choice of this Seed, that which is of a bright-yellowish Colour, a little inclining to Brown, should be preferred; but that which is black, should be rejected as good for little.

Ten or twelve Pounds of this Seed will be sufficient for an Acre of Ground; for if the Plants do not come up pretty thick, it will not be worth standing. The Land in which this Seed is sown, should be well ploughed, and harrowed very fine; otherwise the Seeds will be buried too deep, and thereby lost.

The best Time to sow it is about the Beginning of August, at which time the Autumnal Rains will bring up the Plants in a short time; whereas, when the Seeds are sown in the Spring, if be done very early, they are many times burst with Wet and Cold; and if it be done late, they are in Danger of miscarrying from Drought; whereas in Autumn, when the Ground has been warmed by the Summer's Heat, the Rains then falling greatly promote the Vegetation of Seeds and Plants.

This Seed should be harrowed in with Bushes; for if it be done with a common Harrow, they will be buried too deep.

Most People have recommended the sowing of this Seed with several Sorts of Corn; but if it be sown at the Season before directed, it will be much better, if sown alone; for the Corn prevents the Growth of the Plants, until it is reaped, and taken off the Ground; so that one whole Season

Season is lost, and many times, if there be a great Crop of Corn upon the Ground, it spoils the Clover, so that it is hardly worth standing; whereas, in the way before directed, the Plants will have good Root before Winter, and in the Spring will come on much faster than that which was sown the Spring before under Corn.

About the Middle of *May* the Grass will be fit to cut, where there should be great Care taken in mixing it; for it will require a great deal more Labour and Time to dry than common Grass, and will shrink into less Compass; but if it be not too rank, it will make extraordinary rich Food for Cattle. The Time for cutting it is when it begins to flower; for if it stands much longer, the lower Part of the Stems will begin to dry; whereby it will make a less Quantity of Hay, and that not so well flavoured.

Some People cut three Crops in one Year of this Grass; but the best way is to cut but one in the Spring, and seed it the remaining Part of the Year; whereby the Land will be enriched, and the Plants will grow much stronger.

One Acre of this Grass will feed as many Cattle as four or five Acres of common Grass: but great Care should be taken of the Cattle when they are first put into it, lest it burst them. To prevent which, some turn them in for a few Hours only at first, and so stint them as to Quantity, and this by degrees, letting them at first be only one Hour in the Middle of the Day, when there is no Moisture upon the Grass; and so every Day suffer them to remain a longer time, until they are fully seasoned to it: but great Care should be had, never to turn them into this Food in wet Weather; or if they

have been for some time accustomed to this Food, it will be proper to turn them out at Night in wet Weather, and let them have Hay, which will prevent the ill Consequences of this Food: but there are some who give Straw to their Cattle while they are feeding upon this Grass, to prevent the ill Effects of it; which must not be given them in the Field, because they will not eat it where there is Plenty of better Food. There are others who sow Rye-grass amongst their Clover, which they let grow together, in order to prevent the ill Consequences of the Cattle feeding wholly on Clover: but this is not a commendable way; because the Rye-grass will greatly injure the Clover in its Growth.

Where the Seeds are designed to be sowed, the first Crop in the Spring should be permitted to stand until the Seeds are ripe, which may be known by the Stalks and Heads changing to a brown Colour; then it should be cut in a dry Time: and when it is well dried, it may be housed until Winter, when the Seeds should be threshed out; but if the Seeds are wanted for immediate sowing, it may be threshed out before it be housed or stacked; but then it must be well dried, otherwise the Seeds will not quit their Husks.

It has been a great Complaint amongst the Farmers, that they could not thresh out these Seeds without great Labour and Difficulty; which I take to be chiefly owing to their cutting the Spring-crop when it begins to flower, and to leave the second Crop for Seed, which ripens so late in Autumn; that there is not Heat enough to dry the Husks sufficiently; whereby they are tough, and the Seeds rendered difficult to get out, which may be intirely remedied by the leaving of the

the first Crop for Seed, as hath been directed.

When Cattle are fed with this Hay, the best way is to put it in Racks; otherwise they will tread a great Quantity of it down with their Feet. This Feed is much better for most other Cattle than Milch Cows, so that these should rarely have any of it, lest it prove hurtful to them; tho' when it is dry, it is not by much so injurious to any sort of Cattle, as when green.

The second Sort grows wild in Meadows amongst the Grass, and is cut with the Grass, and dried for Food. But this is rarely cultivated in *England*, because it is a Plant of much smaller Growth than the Clover.

The third Sort is pretty common in every good Pasture; and, where it is in plenty, is esteemed the sweetest Feed for Cattle; this is an abiding Plant, whose Branches trail on the Ground, and put out Roots at every Joint, whereby it spreads, and makes a very close Sward: and although it seldom grows very high, yet, by its thick Bottom, it produces a greater Crop of Hay than is often found in Pastures of ranker Grass, where this is wanting. Therefore whenever Land is to be laid down with Grass for a Continuance, it should be sowed with good Up-land Hay-Seeds, and this white Trefoil, or Dutch Clover, allowing Three Bushels of the Hay-seed, and eight Pounds of the Dutch Clover, to one Acre of Land.

The fourth Sort is an annual or biennial Plant, which perishes as soon as the Seeds are ripe. This grows wild in divers Parts of *England* amongst Corn, or upon other arable Land, and is seldom cultivated unless in Botanic Gardens, it being a Medicinal Plant.

The fifth and sixth Sorts also grow wild in *England*; but are often preserved in Botanic Gardens for Variety. The fifth Sort produces Heads very like a Strawberry, from whence it had its Name; and the sixth Sort has Heads very like Hops, for which Diversity they are sometimes cultivated in Gardens, but they are not applied to any Use.

The seventh, eighth, and ninth Sorts are also preserved in Gardens for Variety, where they are planted in Pots, and sheltered in Winter amongst other Exotic Plants; but the seventh and eighth Sorts will endure the Cold of our ordinary Winters in the open Air, provided they are planted on a dry Soil, and in a warm Situation; tho' the ninth Sort requires to be sheltered from severe Frost; but should have as much free Air as possible in mild Weather.

These Plants may be propagated either from Seeds, or by planting Cuttings of them in the Spring, upon a Bed of rich light Earth, observing to water and shade them until they have taken Root; after which they must be carefully cleared from Weeds during the Summer-season; and in *August* some of the Plants should be taken up, and planted in Pots filled with light sandy Earth, which in Winter should be placed under a common Hot-bed Frame, where they may have Air in mild Weather; but in frosty Weather may be sheltered with Glasses, &c. If they are propagated from Seeds, these should be sown towards the Latter-end of *March* upon a Bed of light Earth; and when the Plants are come up, they must be carefully cleared from Weeds, that they may not be overborn thereby; and when they are about four Inches high, they should be

be planted either into Pots, or the Borders where they are to remain, because, if they are suffered to grow very rank before they are removed, they do not bear transplanting so well. These Plants are preserved in Gardens more for the sake of Variety, than any real Beauty, especially the two first, which smell so strong of Bitumen, when bruised, as scarcely to be borne without Unpleasantness.

The tenth Sort here mentioned grows wild in Pastures in many Parts of *England*, and is cut with the Hay, as is the common Trefoil; from which it differs in having longer and narrower Leaves, and the Flowers being of deeper red Colour.

The eleventh Sort grows wild in *Italy*, *Spain*, and the South of *France*; from whence the Seeds have been procured by some Persons who are Lovers of Botany, who preserve this Plant in their Gardens for the sake of Variety. This is an annual Plant; wherefore the Seeds should be sown in Autumn, where the Plants are to remain; and in the Spring they must be kept clear from Weeds, which is all the Culture they require. In *May* the Plants will flower, and their Seeds will ripen in *July*. The Branches of this Sort trail on the Ground, and the Flowers are produced on Pedicels, from the Divisions of the small Branches, which are of a bright red Colour, and collected in small globular Heads.

The twelfth Sort is frequently found wild on barren sandy Lands, in several Parts of *England*, but not admitted into Gardens. This Sort is by some Persons cultivated for the Improvement of barren Land; but as it is a very small Plant, and only an Annual, it is not so much esteemed as the *White Dutch Clover*.

The thirteenth Sort grows wild in *Germany*, and several other Parts of *Europe*, and is not a Native of this Country. This Plant produces very long Spikes of reddish Flowers, which make a pretty Appearance, during the time they continue in Beauty. This Plant is preserved by the Curious in Botany for the sake of Variety, but is seldom cultivated in other Gardens.

The fourteenth Sort produces very narrow Leaves, and slender Spikes of Flowers, which are of a pale red Colour, and being very small, make but an indifferent Appearance. This is not a Native of this Country.

The fifteenth Sort grows wild in the South of *France*, in *Italy* and *Sicily*; from whence the Seeds have been obtained by some curious Persons. This Sort, producing starry Heads on the Tops of the Stalks, is preserved for the sake of Variety.

The sixteenth Sort produces very beautiful red Flowers, which make a fine Appearance, and may be allowed a Place in some barren Part of the Garden, where few better Things will grow; or if the Seeds of this Kind were preserved in Quantity sufficient to sow a small Field in Sight of a House, it would afford a very agreeable Prospect when in Flower; and the Grass is a proper Food for Cattle, as the common Trefoil; but this being an annual Plant, is not so proper to cultivate in common, because it requires an annual Culture.

The seventeenth Sort is cultivated in *Egypt* for feeding of their Cattle, and also in some other Eastern Countries. The Seeds of this Sort have been brought into *Europe* by some Persons who were desirous of having it cultivated here for the same Purposes; but this being an annual Plant also, is not so proper

as

as the Clover, for the Reasons before given; besides, it being a tall slender Plant, is very subject to be beaten down by hard Rains, which will greatly damage it.

The nineteenth, twentieth, twenty-second, twenty-third, and twenty-fourth Sorts, are all of them annual Plants, which are preserved in some curious Botanic Gardens, for the sake of Variety; but are not cultivated for Use. The Seeds of all these annual Trefoils should be sown in Autumn, early enough for the Plants to get Strength before the Frost comes on; for when the Seeds are sown in the Spring, they frequently fail; and those Plants which arise, seldom grow to any Magnitude, and rarely perfect their Seeds well. Some of these Sorts, which are remarkable for the Colours of their Flowers, are worth propagating in small Patches in Paddocks, where they will afford an agreeable Variety, if they are permitted to flower.

The eighteenth and twenty-first are of longer Continuance than the other Sorts; but these being unfit for Fodder, are only preserved by some curious Persons in their Gardens. These may be propagated by Seeds, in the same manner as the other Sorts, and will live abroad in Winter, if they are planted in a warm Situation, and on a dry Soil. The eighteenth may also be propagated by Cuttings, which should be placed on a shady Border, where, if they are duly watered, they will soon take Root; and they may continue in this Border till *Michaelmas*, when they should be planted where they are designed to remain.

TRIOSTEOSPERMUM,
Doctor *Tinkar's* Weed, or False *Ipecacuana*.

The Characters are;

It hath a tubulous Flower con-

sisting of one Leaf, divided into five roundish Segments, and inclosed in a five-leaved Empalement, having another Cup resting on the Embryo; which afterward becomes a roundish fleshy Fruit, inclosing three hard Seeds, which are broad at their upper Part, and narrower at Bottom.

We have but one Species of this Plant; viz.

TRIOSTEOSPERMUM latiore folio, flore rutilo. Hort. Elth. Broad-leaved *Triosteospermum*, with a reddish Flower, commonly called *Dr. Tinkar's* Weed, or false *Ipecacuana*.

This Plant is a Native of *New England, Virginia*, and some other Northern Parts of *America*, where it has been frequently used as an Emetic, and is commonly called *Ipecacuana*. One of the first Persons who brought it into Use, was *Dr. Tinkar*, from whence many of the Inhabitants call it by the Name of *Dr. Tinkar's* Weed. The Leaves of this Plant greatly resemble those of the true *Ipecacuana*, but the Roots are very different; and by the most authentic Account we have of the true Sort, it differs in Flower and Fruit from this Plant.

It grows on low marshy Grounds, near *Boston* in *New-England*, very plentifully; where the Roots are taken up every Year, and are continued in Use amongst the Inhabitants of *Boston*.

This Plant is preserved in several curious Gardens in *England*, and is hardy enough to thrive in the open Air: but it should be planted on a moist light Soil; for if it is on a dry Ground, there must be Care taken to water the Plants constantly in dry Weather, otherwise they will not thrive. It may be propagated by Seeds, which should be sown on a Border of light Earth, where the

more

morning Sun only comes on it; but if these Seeds are sown in the Spring, they will remain in the Ground a whole Year, before the Plants will come up: so that during this time the Border must be constantly kept clear from Weeds; and the following Spring, when the Plants appear, they should be duly watered in dry Weather; which will greatly promote the Growth of the Plants. They must also be constantly kept clear from Weeds, which, if permitted to grow amongst them, will soon overbear the Plants while they are young; and either quite destroy the Plants, or so much weaken them, that they will not recover it in a long time.

The Plants may remain in this Seed-border, until the Michaelmas following, when they should be carefully taken up, and transplanted where they are designed to remain. Some of them should be planted in Pots, that they may be sheltered in Winter, lest those which are in the full Ground should be destroyed by severe Frost.

This Plant may be also propagated by parting of the Roots. The best Season for this Work is in the Spring, just before the Plants begin to shoot, which is commonly about the Middle or latter End of March; but in doing of this the Roots must not be parted too small, for that will prevent their flowering strong. This Plant usually grows about two Feet high, and the Flowers come out from the Wings of the Leaves, which being small, make no great Figure in a Garden. However, a few of the Plants may be allowed a Place in some moist Wilderness-quarters, where they are not too much over-shaded by Trees; where they will thrive, and add to the Variety.

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This Plant perfects its Seeds in this Country every Year; which if sown in Autumn as soon as they are ripe, the Plants will come up the following Spring; by which a whole Year is saved. These seedling Plants will not flower until the third Year; and then they seldom grow so strong as the older Plants.

TRIPOLIUM; *vide* After.

TRITICUM; Wheat.

The Characters are;

It hath an apetalous Flower, which is disposed into Spikes; each single Flower consists of many Stamina, (or Threads) which are included in a squamose Flower-cup, which hath Awns: the Pointal also rises in the Centre, which afterward becomes an oblong Seed, which is convex on one Side, but hath a Furrow on the other; is farinaceous, and inclosed by a Coat, which before was the Flower-cup: these are produced singly, and are collected in a close Spike, being affixed to an indented Axis.

The Species are;

1. TRITICUM *hybernium*, *aristis carens*. C. B. P. White or Red Wheat, without Awns.

2. TRITICUM *spica & granis rubentibus*. Raii Syn. Red Wheat, in some Places called *Kentish Wheat*.

3. TRITICUM *spica & granis albis*. Raii Syn. White Wheat.

4. TRITICUM *aristis circumvallatum*, *granis & spica rubentibus*, *glumis lævibus & splendidibus*. Raii Syn. Red-eared bearded Wheat.

5. TRITICUM *spica villosa quadrata longiore*, *aristis maximis*. Hist. Ox. Cone Wheat.

6. TRITICUM *aristatum*, *spica maxima cinericea*, *glumis bisfutis*. Raii Syn. Grey Wheat, and in some Places, *Duckbil Wheat* and *Grey Pollard*.

7. TRITICUM *majus*, *longiore grano*, *glumis foliatis inclusis*, seu *Triticum*

cum Poloniæ dictum. *Hist. Ox. Po-*
lonian Wheat.

8. TRITICUM *spica multiplici.* C.
B. P. Many-eared Wheat.

9. TRITICUM *æstivum.* C. B. P.
Summer Wheat.

10. TRITICUM *spica hordei Lon-*
dinensibus. Raii Syn. Naked Barley,
vulgo.

11. TRITICUM *rufum hexastichon.*
C. B. P. Six-rowed Wheat.

12. TRITICUM *semine oblongo.* C.
B. P. Long-grained Wheat.

13. TRITICUM *aristis longioribus,*
spica alba. C. B. P. White-eared
Wheat, with long Awns.

All these several Sorts of Wheat
are cultivated in divers Parts of
England; but the Manner of sow-
ing and managing them being so
well known to most Farmers, and
being more proper for a Treatise
of Husbandry than of Gardening, I
shall omit mentioning it in this
Place.

The eleventh Sort of Wheat is
not very common in *England* at pre-
sent. This has six Rows of Grains
to each Ear or Spike; tho' the Spikes
are not so long as in some of the
other Sorts: but it is very much
esteemed for the Goodness of the
Grain in *Savoy*, where it is chiefly
cultivated.

The twelfth Sort I have observed
in some Parts of *Kent*, where it is by
some Farmers cultivated. This pro-
duces a longer Grain than most other
Sorts, but is not so full; and having
more Chaff, is not so much esteemed
as some other Sorts.

The thirteenth Sort is frequently
cultivated in most Parts of *England*,
and is esteemed a very hardy Sort of
Corn. The Awns of this Sort are
as long as those of Rye; so that by
unskilful Persons it is frequently
taken for it, while it is standing on
the Field.

Of all the Sorts of Wheat now
cultivated in this Country, the
Cone Wheat is chiefly preserved,
as being a larger Ear, and a fuller
Grain, than any other Sort. But
the Seeds of these Corns should be
annually changed; for if they are
sown on the same Farm, where
they are saved for some Years,
they will not succeed so well as
when the Seed is brought from a
distant Country; nay, it is a much
better Method to procure the Seeds
from *Sicily*, or some other Corn
Country, than to sow *English* Seeds.
The Husbandmen in the *Low-Coun-*
tries annually procure their Seed
Wheat from *Sicily*, or the Islands of
the *Archipelago*; which they find
thrives much better, and produces
a finer Grain, and is also not so
liable to Smut, as the Corn of
their own sowing.

TRIUMPHETTA.

The Characters are;

It hath a Flower consisting of se-
veral Petals, which are placed cir-
cularly, and expand in form of a Rose:
from whose Empalement arises the
Pointal, which afterward becomes a
hard spherical burry Fruit, inclosing
four angular Seeds.

The Species are;

1. TRIUMFETTA *fructu echinato*
racemoso. *Plum. Nov. Gen.* Trium-
fetta with a burry branching Fruit.

2. TRIUMFETTA *fructu echinato*
racemoso, minor. *Millar.* Smaller
Triumphetta, with a burry branching
Fruit.

The first of these Plants is very
common in the Island of *Jamaica*,
and several other Parts of *America*;
but the second Sort is more rare, be-
ing found in but few Places. The
Seeds of this Kind were sent to *Eng-*
land by Mr. *Robert Millar*, who dis-
covered the Plant on the North Side
of the Island *Jamaica*.

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These being both very tender Plants, must be preserved in the warmest Stoves, otherwise they will not live through the Winter in this Country. They are propagated by Seeds, which must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate Pot filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, and shaded from the Sun until they have taken new Root; after which time they must be treated in the same manner as hath been directed for other tender Exotic Plants. During the Summer the Plants may remain in this Hot-bed, but in Autumn they must be removed into the Stove, and plunged into the Bark-bed, observing to water them frequently; tho' in very cold Weather it must not be given to them in large Quantities. If the Plants live through the Winter, they will flower the following June, and ripen their Seeds in September; but the Plants may be continued two or three Years, provided they are carefully managed.

The Flowers of these Plants are small, and of a yellow Colour, somewhat like those of Agrimony; for which the Plant has been by some ranged under that Genus. These Flowers are produced in Branches at the Extremity of the Shoots; but as they are not very beautiful, they are seldom preserved but in such Gardens, where Variety is chiefly intended.

The first of these Sorts rises to the Height of six or seven Feet, and the Stem becomes woody. Toward the Top it divides into several Branches, each of which produces a Spike or Bunch of Flowers. The Leaves of this Sort are pretty large, and shaped like those of the larger Malvinda.

The second Sort seldom rises more

than three Feet high, and has smaller Leaves than the first. The Stem of this Sort is woody, but it doth not branch so much as the former, and is in every respect a much less Plant than that.

TUBEROSE; *wide Hyacinthus tuberosus.*

TULIPA; Tulip.

The Characters are;

It hath a Lily-flower, composed, for the most part, of six Leaves, shaped somewhat like a Pitcher; the Pointal, which arises in the Middle of the Flower, surrounded with Stamina, afterwards becomes an oblong Fruit, which opens into three Parts, is divided into three Cells, and full of plain Seeds, which rest upon one another in a double Row; to these Marks must be added, A coated Root, with Fibres on the lower Part.

It would be to little Purpose to enumerate the several Varieties of these Flowers, which may be seen in one good Garden, since there is no End of their Numbers, and what some People may value at a considerable Rate, others reject; and as there are annually a great Quantity of new Flowers obtained from Breeders, those which are old, if they have not very good Properties to recommend them, are thrown out and despised: I shall therefore point out the Properties of a good Tulip, according to the Characteristics of the best Florists of the present Age. 1. It should have a tall strong Stem. 2. The Flower should consist of six Leaves, three within, and three without; the former ought to be larger than the latter. 3. Their Bottom should be proportioned to their Top, and their Upper-part should be rounded off, and not terminate in a Point. 4. These Leaves, when opened, should neither turn

inward, nor bend outward, but rather stand erect; and the Flower should be of a middling Size, neither over-large nor too small. 5. The Stripes should be small and regular, arising quite from the Bottom of the Flower; for if there are any Remains of the former self-coloured Bottom, the Flower is in Danger of losing its Stripes again. The Chives should not be yellow, but of a brown Colour. When a Flower has all these Properties, it is esteemed a good one.

Tulips are generally divided into three Classes, according to their Seasons of Flowering; as, *Præcoces* or Early Blowers, *Media's* or Middling Blowers, and *Serotines*, or Late Blowers; but there is no Occasion for making any more Distinctions than two, *viz.* Early and Late Blowers.

The early-blowing Tulips are not near so fair, nor rise half so high, as the Late ones; but are chiefly valued for appearing so early in the Spring; some of which will flower the Beginning of *February*, if planted near a Wall, Pale, Hedge, or other Shelter; and the others will succeed them, so that they keep flowering unril the general Season for these Flowers is come, which is toward the End of *April*. As these early blowing Tulips are but few, I shall insert the Names of the principal of them; which are as follow:

1. *Duke Van Toll, or Winter-duke.*
2. *General Duke.*
3. *General Brancion.*
4. *Pretty-betty.*
5. *Duchess of Brancion.*
6. *Lac Verine.*
7. *Violet Ratgans.*
8. *Violet Remouu, or Pourpre Lisse.*
9. *Palto Van Leyden.*

10. *Florisante.*
11. *Blindenburgh.*
12. *Nonefuch.*
13. *Admiral Crinki.*
14. *General Molfwick.*
15. *Paragon Cleremont.*
16. *Admiral Encusen.*
17. *Morillion.*
18. *Noblest.*
19. *Early Perfect.*
20. *Superintendent.*
21. *Vicroy.*
22. *Maria.*
23. *Aurora Van Bart.*
24. *Paragon Grebberi.*
25. *Galatea.*
26. *Marquis.*
27. *Gilden Bloemen.*
28. *Alcetus.*
29. *Jewel Van Haertem.*
30. *Jacht Van Delft.*
31. *Goude Son.*
32. *Flamboyant.*
33. *Bruyd Renard.*
34. *Palamedes.*
35. *Apollo.*
36. *Juno.*
37. *Silver-boot.*
38. *Florida Voorhelm.*
39. *Roy d'Espagne.*
40. *Metropolit.*
41. *Konings-kroon.*

These are the Names which have been imposed on these Flowers by the Florists of the several Countries where they were raised, and by which the Roots may be obtained from *Flanders* and *Holland*, where the Florists are very exact in keeping up their Lists of these Flowers complete.

The Roots of these early blowing Tulips should be planted the Beginning of *September*, in a warm Border, near a Wall, Pale, or Hedge; because, if they are put into an open Spot of Ground, their Buds are

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are in Danger of suffering by Morning Frosts in the Spring. The Soil for these should be renewed every Year, where People intend to have them fair. The best Soil for this Purpose is that which is taken from a light sandy Pasture, with the Turf rotted amongst it, and to this should be added a fourth Part of Sea-sand. This Mixture may be laid about ten Inches deep, which will be sufficient for these Roots, which need not be planted more than four or five Inches deep at most. The Off-sets should not be planted among the blowing Roots, but in a Border by themselves, where they may be planted pretty close together, especially if they are small; but these should be taken up when their Leaves decay, in the same manner as the blowing Roots, otherwise they would rot, if the Season should prove very wet; for these are not so hardy as the Late-blowers, nor do they increase half so fast as those, so that a greater Care is required to preserve the Off-sets of them.

When these Tulips come up in the Spring, the Earth upon the Surface of the Borders should be gently stirred, and cleared from Weeds; and as the Buds appear, if the Season should prove very severe, it will be of great Service to cover them with Mats; for want of which many times they are blighted, and their Flowers decay before they blow, which is often injurious to their Roots, as is also the cropping of the Flowers as soon as they are blown, because their Roots, which are formed new every Year, are not at that time arrived to their full Magnitude, and are hereby deprived of their proper Nourishment.

If, when these Flowers are blown,

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the Season should prove very warm, it will be proper to shade them with Mats, &c. in the Heat of the Day; as also, if the Nights are frosty, they should be in like manner covered, whereby they may be preserved a long time in Beauty; but when their Flowers are decayed, and the Seed-vessels begin to swell, they should be broken off just at the Top of the Stalks; because, if they are permitted to seed, it will injure the Roots.

When the Leaves of these Flowers are decayed, (which will be before the Late-blowers are out of Flower (their Roots should be taken up, and spread upon Mats in a shady Place to dry; after which they should be cleared from their Filth, and put up in a dry Place, where the Vermin cannot come to them, until the Season for planting them again, being very careful to preserve every Part separate, that you may know how to dispose of them at the Time for planting them again; because it is the better way to plant all the Roots of each Sort together (and not to intermix them, as is commonly practised in most other Kinds of Flowers); for as there are few of them which blow at the same time, so, when the several Roots of one Sort are scattered through a whole Border, they make but an indifferent Appearance; whereas, when twenty or thirty Roots of the same Sorts are placed together, they will all flower at the same time, and afford a more agreeable Prospect.

There are many curious Persons, who, in order to preserve their several Kinds of Tulips, and other bulbous-rooted Flowers, separate, have large flat Boxes made, which are divided in several Parts by small

Parti-

Partitions, each of which is numbered in the same manner as the Divisions of their Beds; so that when a Catalogue of their Roots is made, and the Numbers fixed to each Sort in the Beds, there is nothing more to do, when they take up their Roots, but to put every Kind into the Division marked with the same Number which was placed to each Sort in the Bed; which saves a great deal of Trouble in making fresh Marks every time the Roots are taken up, and effectually answers the Purpose of preserving the Kinds separate.

The several Sorts of these early-blowing Tulips rise to different Heights in their Stems, so that scarcely any two of them flower to an equal Height. The *Duke Van Toll* being one of the first that appears in the Spring, is generally very short-stalked; and so the other Sorts, in proportion to their Earliness, are shorter than those which succeed them; and the late-blowing Kinds are all of them considerably longer in their Stems, than any of the *Præcoces*, or Early-blowers; so that when they are confusedly mixed together, they make a very indifferant Appearance.

The late-blowing Tulips are so numerous, that, as I before observed, it would be to no Purpose to attempt to make a Catalogue of them. These are generally obtained from Breeders, which is a Term applied to all such Flowers as are produced from Seeds, which are of one Self-colour, and have good Bottoms and Chives. These do, in time, break into various beautiful Stripes, according to the Ground of their former Self-colour: but this must be intirely thrown off, otherwise they do not esteem a Flower well broken.

Of these Breeders there hath been a great Variety brought into *England* from *Flanders* of late Years, which is the grand Nursery for most Sorts of bulbous-rooted Flowers; but there are some curious Persons who have lately obtained many valuable Breeders from Seeds sown in *England*: and doubtless, were we as industrious to sow the Seeds of these Flowers, as the People of *France* and *Flanders*, we might in a few Years have as great a Variety as is to be found in any Part of *Europe*: for although it is six or seven Years from the sowing before the Flowers blow, yet if, after the first Sowing, there is every Year a fresh Parcel sown, when the seven Years are expired, there will be constantly a Succession of Roots to flower every Year, which will reward the Expectation, and keep up the Spirit of raising: but it is the Length of Time, at first, which deters most People from the Beginning of this Work.

The Manner of propagating these Flowers from Seeds, is as follows: First, You should be careful in the Choice of the Seed, without which there can be little Success expected. The best Seed is that which is saved from Breeders, which have all the good Properties before related; for the Seeds of striped Flowers will seldom produce any thing valuable.

The best Method to obtain good Seeds is, to make Choice of a Parcel of such breeding Tulip-roots as you would save Seeds from, and plant them in a separate Bed from the Breeders, in a Part of the Garden where they may be fully exposed to the Sun, observing to plant them at least nine Inches deep; for if they are planted too shallow, their Stems are apt to decay before the Seed is perfected.

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These Flowers should always be exposed to the Weather; for if they are shaded with Mats, or any other Covering, it will prevent their perfecting the Seed. About the Middle of *July* (a little sooner or later, as the Summer is hotter or colder) the Seeds will be fit to gather, which may be known by the Dryness of their Stalks, and the Openness of the Seed-vessels; at which time it may be cut off, and preserved in the Pods until the Season for sowing it, being careful to put it up in a dry Place; otherwise it will be subject to mould, which will render it good for little.

Having saved a Parcel of good Seed, about the Beginning of *September* is the best Season for sowing it; when there should be provided a Parcel of shallow Seed-pans or Boxes, which should have Holes in their Bottoms, to let the Moisture pass off: these must be filled with fresh sandy Earth, laying the Surface very even, upon which the Seeds should be sown as regularly as possible, so that they may not lie upon each other: then there should be some of the same light sandy Earth sifted over them, about half an Inch thick. These Boxes or Pans should be placed where they may have the morning Sun till Eleven of the Clock, in which Situation they may remain until *October*; at which time they should be removed into a more open Situation, where they may enjoy the Benefit of the Sun all the Day, and be sheltered from the North Winds, where they should remain during the Winter-season; but in the Spring, when the Plants are up, they should be again removed to their first Situation; and if the Season should be dry, they must be refreshed with Water, while the

Plants remain green; but as soon as their Tops begin to decay, there must be no more given them, lest it rot their tender Bulbs; therefore the Boxes should be placed in a shady Situation, during the Summer-season, but not under the Drip of Trees.

These Plants, at their first Appearance, have very narrow grassy Leaves, very like those of Onions, and will come up with bending Heads, in the same manner as they do; so that Persons, who are unacquainted with them, may pull them up instead of Grass, whilst they are very young, before their Leaves are a little more expanded, which is rarely performed the first Year; for they seldom appear before the Middle of *March*, and they commonly decay about the Latter-end of *May*, or the Beginning of *June*, according as the Season is hotter or colder.

The Weeds and Moss should also be cleared off from the Surface of the Earth in the Boxes, and a little fresh Earth sifted over them, soon after their Leaves decay, which will be of great Service to the Roots; these Boxes should be constantly kept clear from Weeds, which if permitted to grow therein, when they are pulled up, their Roots will be apt to draw the Bulbs out of the Ground; at *Michaelmas* they should be fresh earthed again, and as the Winter comes on, they must be again removed into the Sun as before, and treated in the same manner, until their Leaves decay in the Spring, when their Bulbs should be carefully taken up, and planted in Beds of fresh sandy Earth, which should have Tiles laid under them, to prevent their Roots from shooting downward, which they often do when there

there is nothing to stop them, and thereby they are destroyed. The Earth of these Beds should be about five Inches thick upon the Tiles, which will be sufficient for nourishing these Roots while they are young.

The Distance which these young Bulbs should be allowed, need not be more than two Inches, nor should they be planted above two Inches deep; but toward the End of *October*, it will be proper to cover the Beds over with a little fresh Earth, about an Inch deep, which will preserve the Roots from the Frost, and prevent Moss or Weeds from growing over them. But if the Winter should be very severe, it will be proper to cover the Beds either with Mats or Peas-haulm, to prevent the Frost from entering the Ground; because these Roots are much tenderer while young, than they are after they have acquired Strength.

In the Spring the Surface of the Ground should be gently stirred, to make it clean, before the Plants come up; and if the Spring should prove dry, they must be frequently refreshed with Water, during the Time of their Growth; but this must not be given to them in great Quantities, lest it rot their tender Bulbs; and when their Leaves are decayed, the Weeds should be taken off, and the Beds covered with fresh Earth, which should also be repeated again in Autumn.

In these Beds the Bulbs may remain two Years, during which time they must be constantly keep clear from Weeds, and in Spring and Autumn fresh earthed, in the manner already directed; after which the Bulbs must be taken up, and planted into fresh Beds, at four Inches asunder, and as many deep, where they

may remain two Years more, during which time they should have the same Culture as before. And after that, the Bulbs being large enough to blow, they should be taken up, and planted in fresh Beds, at the usual Distance, and in the same manner as old Roots; where, when they flower, such of them as are worthy to be preserved should be marked with Sticks; and at the Season for taking up the Bulbs, they must be separated from the others, in order to be planted as Breeders, in different Beds; but you should by no means throw out the rest, until they have flowered two or three Years, because it is impossible to judge exactly of their Value in less Time; for many, which at first Flowering appear beautiful, will afterwards degenerate so as to be of little Value; and others, which did not please at first, will many times improve, so that they should be preserved until their Worth can be well judged of.

In this Method many Sorts of new Breeders will be annually raised, from which there will always be fine Flowers broken, which being the Produce of a Person's own Sowing, will be greatly valued, because they are not in other Hands, which is what enhances the Price of all Flowers; and it was intirely owing to this Method of raising new Flowers, that the *Dutch* have been so famous; amongst whom the Passion for fine Tulips did some time since reign so violently, that many of the Florists near *Haerlem* have often given an hundred Ducats for one single Root; which Extravagance was the Occasion of an Order being made by the *States*, to limit the utmost Price that should be afterwards given for any Tulip-root, were it ever so fine.

Having

Having thus given an Account of the Method of raising these Flowers from Seeds, I shall now proceed to the Management of such Roots as are termed Breeders, so as to have some of them every Year break out into fine Stripes.

There are some who pretend to have Secrets, how to make any Sort of Breeders break into Stripes whenever they please; but this, I dare say, is without Foundation; for from many Experiments which I have made in this Kind, I never could find any Certainty of this Matter: all that can be done by Art, is, to shift the Roots every Year into fresh Earth, and a different Situation, by which Method I have had very good Success.

The Earth of these Beds should be every Year different; for altho' it is generally agreed, that lean hungry fresh Earth doth hasten their Breaking, and causes their Stripes to be the finer, and more beautiful; yet if they are every Year planted in the same Sort of Soil, it will not have so much Effect on them, as if they were one Year planted in one Sort of Earth, and the next in a very different one, as I have several times experienced.

The best Compost for these Roots is a Third-part of fresh Earth from a good Pasture, which should have the Sward rotted with it; a Third-part of Sea-sand; and the other Part sifted Lime-rubbish: these should be all mixed together, six or eight Months at least before it is used, and should be frequently turned, in order to mix the Parts well together. With this Mixture the Beds should be made about eighteen Inches deep, after the following manner: After the old Earth is taken from out of the Bed to the Depth intended, then some of the fresh

Earth should be put in about ten Inches thick; this should be leveled exactly, and then Lines drawn each way of the Bed, chequerwise: at six Inches Distance, upon the Centre of each Cross, should be placed the Tulip-roots, in an upright Position: and after having finished the Bed in this manner, the Earth must be filled in so as to raise the Bed eight Inches higher, observing, in doing this, not to displace any of the Roots, and also to lay the Top of the Beds a little rounding, to throw off the Water.

There are many Persons who are so careless in planting their Tulip-roots, as only to dig and level the Beds well, and then with a blunt Dibble to make Holes, into which they put the Roots, and then fill up the Holes with a Rake: but this is by no means a good Method; for the Dibble, in making the Holes, presses the Earth closely on each Side, and at the Bottom; whereby the Moisture is often detained so long about the Roots as to rot them; besides, the Earth being hard at the Bottoms of the Bulbs, they cannot so easily emit their Fibres, which must certainly prejudice the Roots.

These Beds should be sunk, more or less, below the Surface, according to the Moisture or Dryness of the Soil; for the Roots should be so elevated as never to have the Water stand near them long, which is very apt to rot them. So that where the Soil is very wet, it will be proper to lay some Lime-rubbish under the Earth, in order to drain off the Wet; and the Beds should be intirely raised above the Level of the Ground; but to prevent their falling down into the Walks, after Frost or hard Rains, it will be proper to raise the Paths between them, either with Sea-coal Ashes or Rubbish, eight or ten Inches, which will sup-

support the Earth of the Beds; and these Paths may slope at each End from the Middle, which will cause the Water to run off as it falls. But where the Soil is dry, the Beds may be sunk a Foot or fourteen Inches below the Surface; for in such Places the Beds need not be more than four or six Inches above the Surface, which will be Allowance enough for their Settling.

During the Winter-season there will be no farther Care required; the Roots being planted thus deep, will be in no Danger of suffering by Frost: but in the Spring, when their Leaves begin to appear above-ground, the Earth upon the Surface of the Beds should be stirred, to clear it from Weeds, Moss, &c. and when the Flower-buds begin to come up, they should be guarded from Frost; otherwise they are very subject to blight and decay soon after they appear; but they need only be covered in such Nights when there is a Prospect of Frost; for at all other times they should have as much open Air as possible, without which they will draw up weak, and produce very small Flowers.

When these Breeders are in Flower, you should carefully examine them, to see if any of them have broken into beautiful Stripes; which if you observe, there should be a Stick put into the Ground, by every such Root, to mark them, that they may be separated from the Breeders, to plant amongst the striped Flowers the following Year; but you should carefully observe whether they have thrown off their former Colour intirely; as also, when they decay, to see if they continue beautiful to the last, and not appear smeared over with the original Colour; in both which Cases they are very subject to go back to their old

Colour the next Year; but if their Stripes are distinct, and clear to the Bottom, and continue so to the last (which is what the Florists call *dying well*), there is no great Danger of their returning back again, as hath been by some confidently reported; for if one of these Flowers is quite broken (as it is termed), it will never lose its Stripes, though sometimes they will blow much fairer than at others; and the Off-sets will often be more beautiful than the old Roots.

There is nothing more to be observed in the Culture of striped Flowers, than what has been directed for Breeders, excepting that these should be arched over with tall Hoops and Rails, that they may be shaded from the Sun in the Day-time, and protected from strong Winds, hard Rains, and frosty Mornings; otherwise the Flowers will continue but a short time in Beauty; but where these Instructions are duly followed, they may be preserved in Flower a full Month, which is as long as most other Flowers continue.

But after their Flowers are faded, their Heads should be broken off, to prevent their seeding; for if this is not observed, they will not flower near so well the following Year; and this will cause their Stems to decay sooner than otherwise they would do, so that their Roots may be taken up early in June; for they should not remain in the Ground long after their Leaves are decayed. In taking these Roots out of the Ground, you must be very careful not to bruise or cut them, which will endanger their rotting; and, if possible, it should be done a Day or two after Rain. These Roots must be cleared from their old Covers, and all Sorts of Filth, and spread upon

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upon Mats in a shady Place to dry ; after which they should be put up in a dry Place, where Vermin cannot get to them, observing to keep every Sort separated ; but they should not be kept too close from the Air, nor suffered to lie in Heaps together, lest they should grow mouldy, after which they commonly rot when they are planted again.

The Off-sets of these Roots, which are not large enough to produce Flowers the succeeding Year, should be also put by themselves, keeping each Sort distinct : these should be planted above a Month earlier in Autumn than the blowing Roots, in particular Beds in the Flower-nursery, where they may not be exposed to public View : but the Earth of the Beds should be prepared for them, in the same manner as for larger Roots, tho' these must not be planted above five Inches deep, and may be placed much nearer together, than those which are to flower ; and in one Year most of them will become strong enough to flower, when they may be removed into the Flower-garden, and placed in the Beds amongst those of the same Kinds.

TULIPIFERA ; The Tulip-tree.

The Characters are ;

The Flower consists of several Leaves, which expand in such a manner, as (by some thought) to resemble a Tulip ; the Pointal rises in the Centre of the Flower, surrounded by a great Number of Chives ; and afterward becomes a squamose Fruit, on Cone growing erect : to these Marks may be added, The Leaves, for the most part, being angular, the upper Part is balloned as if cut off with Scissors, terminating in two Points.

We have but one Species of this Tree ; viz.

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TULIPIFERA *arbor Virginiana.*
H. L. The *Virginian Tulip-tree.*

This Tree is very common in America, where it grows to a great Magnitude ; but in England there are at present but very few of them which have arrived to any considerable Stature. This was formerly kept in Pots and Tubs, and housed in Winter with great Care, in which Management the Plants made but poor Progress, nor would ever have produced Flowers ; but about fifty Years ago there was one of these Trees planted out in a Wilderness in the Gardens of the Right Honourable the Earl of *Peterborough* at *Parsons-green* near *Fulham*, which soon convinced the Curious of their Mistake in the Culture of this Tree, by the great Progress it made ; and in a few Years after it produced Flowers. This Tree is yet standing, and annually produces a great Quantity of Flowers, though some of the Branches begin to decay, which perhaps may have been occasioned by its being too closely surrounded with other Trees, whose Roots are so much entangled with those of this Tree, that they draw the Nourishment of the Ground from it. In some Years this Tree produces Cones ; but they have not ever been perfected so as to contain good Seeds.

There are some other Trees of this Kind, which have produced Flowers several Years, though I believe none of them are very large : the biggest I have seen (excepting that at *Parsons-green*) is not more than thirty-five Feet high ; whereas my Lord *Peterborough's* is upwards of fifty Feet high, and is proportionably large in the Trunk ; but this has a naked Body near forty Feet high, all the Branches growing near the Top of the Tree, which might

might be occasioned by being so closely surrounded with other Trees; for I have observed, where-ever they have a more open Situation, they are subject to extend their Branches, and will not aspire upward very much, though they generally have one upright Shoot in the Middle, much after the manner of the Plane-tree, whose way of Growth is very like that of this Tree.

The Flowers which these Trees produce are by no means like those of the Tulip, though many Persons have been so incurious as to imagine them so, especially the Inhabitants of *America*, who first gave the Name of *Tulip-tree* unto this Plant, by which Name it has been since called by the Inhabitants of *Europe*, who received it from them with the Plants, many Years since; but I have not heard, that any of these Trees have flowered in any Part of *Europe*, except in *England*.

Mr. *Catesby*, in his *Natural History of Carolina*, &c. says, There are some of these Trees in *America*, which are thirty Feet in Circumference: that the Boughs are very unequal and irregular, making several Bends or Elbows, which make the Trees distinguishable at a great Distance, even when they have no Leaves upon them. They are found in most Parts of the Northern Continent of *America*, from the Cape of *Florida* to *New-England*, where the Timber is of great Use.

This Tree may be propagated from Seeds, which are often brought from *America* in the Cones: these should be taken out in the Spring, and sown in Pots or Boxes filled with light fresh Earth, and placed upon a moderate Hot-bed, which should be covered only with Mats, and not have Glasses over them, because the

Glasses will cause the Earth to dry too fast, and thereby spoil the Seeds.

These Pots should be frequently refreshed with Water, and when the Plants are come up, they should be placed in a shady Situation during the Summer-season; but in Winter they must be put into a Frame, where they may enjoy the open Air in mild Weather, but must be sheltered from Frost.

In the following Spring the Plants should be taken up, and each planted in a separate small Pot filled with light fresh Earth; and if these Pots are plunged into a moderate Hot-bed, under Mats, it will promote their Rooting; in Summer these Plants must be removed into the Shade, and in Winter into a Frame as before. After this manner they may be treated three or four Years, until they have acquired Strength, when they may be turned out of the Pots in the Spring, and planted where they are to remain, which should always be near the Shelter of other Trees, where they will grow much better than in an open Situation, provided they are not too much crowded or over-hung by large Trees.

There are some People who propagate this Tree by Layers; but they are commonly two or three Years before they take Root, and these do seldom make so straight Trees as those raised from Seeds, though indeed they will produce Flowers sooner, as is always the Case with stunted Plants.

This Tree should be planted on a light loamy Soil, not too dry, on which it will thrive much better than upon a strong Clay, or a dry gravelly Ground; for in *America* they are chiefly found upon a moist deep Soil, where they will grow to a pro-

a prodigious Size: though it will not be proper to plant these Trees in a Soil which is too moist in *England*, because it might endanger the rotting of the Fibres of the Roots, by the Moisture continuing too long about them; especially if the Bottom be a Clay, or a strong Loam, which will detain the Wet.

Laurel-leaved TULIP-TREE; *vide Magnolia.*

TURKS-CAP; *vide Liliun flore reflexo.*

TURKEY-WHEAT; *vide Mays.*

TURNEP; *vide Rapa.*

TURNERA.

The Characters are;

It hath a funnel-shaped Flower, consisting of five Leaves, which are fastened to the Calyx, which is monopetalous, and divided into five Parts at the Top: under the Flower-cup there are two Leaves, which join at the Bottom, and surround the Cup: from the Centre of the Flower-cup arises the Pointal, which is divided into three Parts to the Bottom, and surrounded by five Stamina. This Pointal afterward becomes an almost spherical Fruit, which is divided into three Parts, and filled with roundish Seeds, which are fastened to the Placenta by slender Threads.

The Species are;

1. TURNERA *frutescens ulmifolia.* Plum: Nov. Gen. 15. Shrubby Turnera, with an Elm-leaf.

2. TURNERA *frutescens, folio longioris & mucronato.* Shrubby Turnera, with a longer pointed Leaf.

These Plants are both of them Natives of the warm Parts of *America*. The first Species was found by Father Plumier in *Martinico*, who gave it the Name of Turnera, from Dr. Turner, a famous English Physician, who lived in Queen Elizabeth's Reign, and wrote an Herbal, in which

he has chiefly figured and described the useful Plants.

The other Species was discovered by Sir Hans Sloane, Baronet, who has figured it in his *Natural History of Jamaica*, under the following Name: *Cistus urticae folio, flore lacteo, vasculis trigonis.* But both these Sorts were observed by my late Friend Dr. William Housloun, in several Parts of *America*. These grow to the Height of five or six Feet, and may be trained into regular Shrubs: they both produce yellow Flowers, which come out of the Foot-stalks of the Leaves, and are continued for at least nine Months, which renders them worthy of a Place in the Stove.

They may easily be propagated, by sowing their Seeds on an Hot-bed early in the Spring; and when the Plants are come up two Inches high, they must be transplanted into small Pots, and plunged into an Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time they must be treated as hath been directed for the Guava's; to which the Reader is desired to turn, to avoid Repetition. The Seeds of these Plants will often fall into the Pots which are placed near them in the Stove; which will grow, and soon furnish Plants enough, after a Person is once possessed of them. These Plants are too tender to live in the open Air in *England*; but must be placed in the Bark-bed in the Stove; where, during the Winter-season, they must be kept warm, and frequently watered; tho' in the Summer-season they must have a great Share of Air, otherwise they will draw up tender, and not produce many Flowers.

When the Plants are grown pretty large, they may be treated more hardily.

hardily, by placing them in the dry Stove; where, if they are kept in a moderate Degree of Heat, they will thrive and flower very well. Those who would save the Seeds of these Plants, must watch them carefully; because, when they are ripe, they soon scatter, if they are not gathered.

TURNSOLE; *vide Heliotropium.*

TURRITIS; Tower-mustard.

The Characters are;

The Flower consists of four Leaves, which expand in form of a Cross, out of whose Empalement rises the Pointal, which afterward becomes a long smooth Pod, which grows, for the most part, upright, and opens into two Parts, in each of which are contained many smooth Seeds.

The Species are;

1. **TURRITIS vulgatior.** *J. B.*
Common Tower-mustard.

2. **TURRITIS foliis inferioribus cichoraceis, cæteris persiliatæ.** *Tourn.*
Tower-mustard with its Under-leaves like those of Cichory, and the Upper-leaves like Thorough-wax.

3. **TURRITIS muralis minor.** *Pet. H. B.*
Wall-crofs, or Tower-mustard, with Daisy-leaves.

4. **TURRITIS leucoid folio.** *Tourn.*
Tower-mustard with a Stock-gilliflower-leaf.

There are several other Species of this Plant, which are preserved in curious Botanic Gardens for the sake of Variety; but as they have little Beauty or Usefulness, they are seldom cultivated in other Gardens. The three first Sorts grow wild upon Walls and Buildings in divers Parts of England: but the fourth Sort has not been discovered to grow in this Country, except in Gardens.

They may all be cultivated by sowing their Seeds upon a Bed of

light dry Earth in the Spring; and when the Plants are come up, they should be transplanted where they are to remain for Continuance, observing to water them until they have taken Root; after which they will require no farther Care, but to clear them from Weeds, and the second Year they will produce Seeds, after which the Plants never continue.

TUSSILAGO; Coltsfoot.

The Characters are;

It hath a radiated Flower, whose Disk consists of many Florets, but the Crown is composed of many Half-florets: the Embryoes are included in a multised Flower-cup; which are afterwards turned to downy Seeds, fixed in a Bed: to which Notes may be added, The Flowers appearing before the Leaves, in Spring.

The Species are;

1. **TUSSILAGO vulgatis.** *C.B.P.*
Common Coltsfoot.

2. **TUSSILAGO Alpina rotundifolia glabra.** *C. B. P.*
Round-leaved smooth Coltsfoot of the Alps.

The first of these Sorts is very common in watery Places in almost every Part of England, and is rarely kept in Gardens; for the Roots will creep under-ground, and increase so fast, that in a short time they will spread over a large Spot of Ground.

The second Sort grows wild upon the Alps, from whence it has been transplanted into some curious Botanic Gardens for the sake of Variety; the Flowers of this are purple, and those of the common Sort are yellow.



V A

VACCARIA; *vide* *Lychnis*.
VACCINIA; *vide* *Vitis*
Idra.

VALERIANA; Valerian.

The Characters are;

The Leaves grow by Pairs opposite upon the Stalks; the Flower consists of one Leaf, is tubulose, and divided into five Segments at the Top: these Flowers are, for the most part, collected into a sort of Umbel upon the Top of the Stalks, and are succeeded by oblong flat Seeds, which are winged with a soft Down.

The Species are;

1. *VALERIANA hortenensis*, *Phu*, *alsatri folio*, *Dioscoridis*. C. B. P. Great garden Valerian, or Phu.

2. *VALERIANA sylvestris magna aquatica*. J. B. Great wild water Valerian.

3. *VALERIANA major sylvestris montana*. C. B. P. Great wild mountain Valerian.

4. *VALERIANA palustris minor*. C. B. P. Small marsh Valerian.

5. *VALERIANA rubra*. C. B. P. Red garden Valerian.

6. *VALERIANA rubra angustifolia*. C. B. P. Narrow-leaved red garden Valerian.

7. *VALERIANA marina latifolia major alba*. Mor. Umb. Great broad-leaved white Sea Valerian.

8. *VALERIANA Alpina, foliis integris, radice repente, inodora*. Raii *Hist.* Alpine Valerian, with undivided Leaves, and a creeping Root, without Smell.

9. *VALERIANA Alpina prima*. C. B. P. The first Alpine Valerian of Caspar Baubin.

10. *VALERIANA Alpina altera*. C. B. P. Another Alpine Valerian of Caspar Baubin.

11. *VALERIANA Alpina, scrophulariæ folio*. C. B. P. Alpine Valerian, with a Figwort-leaf.

12. *VALERIANA montana, subrotundo folio*. C. B. P. Mountain Valerian, with a roundish Leaf.

13. *VALERIANA Alpina, nardo Celticae similis*. C. B. P. Alpine Valerian, resembling the Celtic Spikenard.

14. *VALERIANA Cretica, filipendulae radice*. *Inst. R. H.* Candy Valerian, with a Dropwort-root.

15. *VALERIANA Celtica*. *Inst. R. H.* Celtic Valerian, or Spikenard.

16. *VALERIANA maxima angustifolia, sive minor alba*. Mor. *Hist.* Narrow-leaved or smaller white Sea Valerian.

17. *VALERIANA Alpina minor*. C. B. P. Smaller Alpine Valerian.

18. *VALERIANA tuberosa Imperati*. *Tourn. Cor.* Tuberoso-rooted Valerian of *Imperatus*.

19. *VALERIANA orientalis angustifolia, floribus & radice Valerianæ hortenensis*. *Tourn. Cor.* Narrow-leaved Eastern Valerian, with the Flowers and Root of the Garden Valerian.

20. *VALERIANA orientalis alliariæ folio, flore albo*. *Tourn. Cor.* Eastern Valerian, with a Sauce-alone-leaf, and a white Flower.

21. *VALERIANA orientalis, sifymbrii Matthioli folio*. *Tourn. Cor.* Eastern Valerian, with a Water-cress-leaf.

22. *VALERIANA orientalis minima, flore leucophæo*. *Tourn. Cor.* The least Eastern Valerian, with a whitish Flower.

23. V A

23. *VALERIANA maxima Pyrenaica, cacaliae folio.* D. Fagon. *Inst. R. H.* The greatest Pyrenean Valerian, with a strange Coltsfoot-leaf.

24. *VALERIANA foliis calcitrapæ,* C. B. P. Valerian with Leaves like those of the Star-thistle.

25. *VALERIANA Lusitanica annua latifolia laciniata.* *Inst. R. H.* Broad jagged-leaved annual Valerian of Portugal.

26. *VALERIANA humilis Americana, folio rotundo subtus argenteo.* Plum. Dwarf American Valerian, with a round Leaf white underneath.

The first of these Sorts is propagated in *England* for Medicinal Use, and is called in the Shops by the Name of *Phu*, to distinguish it from the mountain Valerian, which is preferred to all the other Sorts, by the modern Physicians, though the Roots of this first are still continued in some of the capital Medicines.

This Plant is propagated by parting of its Roots, either in Spring or Autumn, which should be planted in Beds of fresh dry Earth, about eight or ten Inches asunder; for they commonly spread and multiply very fast: if the Season be dry, you must water the Plants until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds; and in Autumn, when their Leaves are decayed, the Roots should be taken up and dried for Use.

The second Sort is very common in moist Places, and by the Sides of Rivers and Ditches in most Parts of *England*; but is rarely cultivated in Gardens. The Roots of this Kind, being so common near *London*, are generally sold in the Markets instead of the third Sort, which is what should always be used, as being by far the strongest and most valuable.

The third Sort is generally found upon dry chalky Soils, in shady Places, in divers Parts of *England*, the Roots of which are much preferable to those of the same Kind which are cultivated in Gardens (as are all the Sorts of aromatic Plants, when gathered from their native Places of Growth).

This Plant may be propagated by parting the Roots either in Spring or Autumn, as was directed for the first Sort; but you should always observe to plant them upon a dry fresh undunged Soil, in which, though the Roots will not make near so great Progress, as in a rich moist Soil, yet they will be much preferable to them for Use. These Roots should also be taken up, when the Leaves decay in Autumn, and preserved dry until used.

The fourth Sort is very common in moist Soils, in divers Parts of *England*, but is seldom propagated in Gardens. This is placed among the Official Simples in the College Dispensatory, though it is rarely used in Medicine. It may be propagated in a moist Soil, by parting the Roots as the former.

The fifth, sixth, and seventh Sorts are propagated in Gardens for the Beauty of their Flowers; but they are only proper for large Gardens, being very apt to grow too large for small Places. These may be propagated by parting their Roots, in the manner before directed, or from Seeds, which should be sown in Autumn, soon after they are ripe, upon a Bed of light fresh Earth; and in the Spring, when the Plants come up, they should either be transplanted into Nursery-beds, or the Borders where they are to remain for good.

Some of these Plants will flower the first Season; but the second Year they

they will all flower very strong. They commonly grow about three Feet high; and when the Roots are strong, they will continue flowering most Part of the Summer, which renders them worthy of a Place in large Borders, and also in Avenues, and other abject Parts of the Garden, they being very hardy, and will grow in almost any Soil or Situation: but their Roots will abide longest in a dry barren Soil; for in rich moist Places they seldom continue more than two Years.

The Seeds of these Kinds will often get into the Joints of old Walls, where they will grow and abide many Years, without any Care or Culture, and produce Flowers most Part of the Summer; and in such a Situation they will endure all Weathers, without the least Injury. These Plants are never used in Medicine.

The eighth, ninth, tenth, eleventh, thirteen: h and seventeenth Sorts grow on the *Alps*, from whence they have been procured by some curious Botanists, and are preserved in their Gardens for Variety. These are abiding Plants, which may be propagated by parting of their Roots. The best Time to transplant these Plants, and part their Roots, is soon after *Michaelmas*, when their Leaves decay, that they may have good Rooting in the Ground, before the dry Weather comes on in the Spring; otherwise they will not flower strong the following Summer. All these Sorts should be planted on a strong loamy Soil, and in a shady Situation; where they will thrive much better than on a light Earth, and in an open Situation, in which they will not live, unless they are duly watered in dry Weather.

The twelfth Sort has been found on the Mountains in the North of

England, but is very common in several Parts of *Germany*, as also on the *Alps* and *Pyrenean* Mountains.

The fourteenth Sort grows in several Islands of the *Archipelago*, and also in *Liguria*: it is chiefly found on Hills and Mountains which are moist. The Roots of this Sort are as large as small Walnuts, which hang from Dugs after the manner of Dropwort. These Roots, when bruised, emit a Smell very like Spikenard.

The fifteenth Sort is the true Spikenard, which is used in Medicine. This grows in great Plenty amongst the Moss, on the Tops of the *Alps*, where the Snow lies a great Part of the Year. These Roots are taken up for Use in *August*, when the Leaves decay, at which time they have the strongest Scent.

The eighteenth Sort has also knobbed Roots, about as large as Walnuts, which have a Scent somewhat like Spikenard. This Sort has Leaves like those of the small Valerian, and the Flowers resemble those of the great Garden Sort, which grow about two Feet high.

All these Sorts are very hardy Plants in respect to Cold; but they will not live in a dry light Soil, and an open Situation: therefore whoever is inclinable to cultivate them, should plant them on a moist loamy Soil, on a North Border, where they may be intirely screened from the Sun; and in very dry Weather they must be constantly watered, otherwise they will not thrive. These Sorts with knobby Roots should not be often transplanted: if they are removed every third Year, it will be often enough; but then the Ground between the Roots should be every Spring gently dug to loosen it, being careful not to cut or bruise the Roots. These Plants usually flower

in June, but they seldom produce good Seeds.

The sixteenth Sort is not very common in the *English* Gardens at present. This only differs from the Garden Valerian with white Flowers, in having narrow Leaves; wherefore it may be propagated in the same manner as hath been directed for the red and white Garden Valerian. It will also propagate itself by Seeds, if they are permitted to scatter in a shady Situation, where the Plants will come up without any Care, and may be transplanted into large Borders, where they will make an agreeable Variety, and continue a long time in Flower.

The nineteenth, twentieth, twenty-first, and twenty-second Sorts, were discovered by Dr. *Tournefort* in the *Levant*, from whence their Seeds were sent to *Paris*. These are also hardy Plants, which will live in the open Air, and should have a shady Situation, and be planted on a moist light Soil.

The twenty-third Sort is a Native of the *Pyrenean* Mountains; but is preserved in the Gardens of the Curious in Botany, for the sake of Variety. This is a biennial Plant, which must be permitted to scatter its Seeds for a Supply of young Plants. This Plant should have a moist Soil, and a shady Situation; where it will thrive, and produce good Seeds; but if the Seeds are not sown in Autumn, they seldom grow; so that when they scatter themselves, they generally grow better than when they are sown by Hand. This Sort rises three Feet high, and has very broad Leaves; but the Flowers, being small, make no great Appearance; and when their Seeds are ripe, the Plants soon after perish.

The twenty-fourth and twenty-fifth Sorts are annual Plants; which, if once introduced into a Garden, will scatter their Seeds, and maintain their Situation. The Seeds of these Kinds will disperse themselves to a great Distance by the Help of the Down which adheres to them; and often grow on Walls and Buildings, where they are stinted and small; but will flower and seed, whereby they will become errant Weeds, notwithstanding they decay as soon as their Seeds are ripe. These two Sorts will grow on any Soil, or in any Situation; but they will thrive best on a moist Soil, and in a shady Situation. Their Seeds must be sown in Autumn, otherwise they seldom succeed.

The twenty-sixth Sort, being a Native of the warm Parts of *America*, is a tender Plant, and very rare in *Europe*; for the Seeds will not grow when kept long out of the Ground; but should be sown in Tubs of Earth abroad; and when the Plants are come up, they may be brought over to *England*. This Sort must be preserved in a Stove; for it is too tender to live in the open Air in this Country. In Summer this Plant should have a large Share of free Air, by opening the Glasses of the Stove in warm Weather; and must be frequently watered: for it grows naturally on low marshy Places, and requires a large Share of Water in hot Weather; but in Winter it must be kept warm, and have but little Water in very cold Weather.

VALERIANA GRÆCA; wide Polemonium.

VALERIANELLA; Corn-salad, or Lamb's-lettuce.

The Characters are;

The Leaves grow by Pairs opposite

on the Branches; the Branches are always divided into two Parts, and appear at the Top like an Umbrella; the Flower consists of one Leaf, which is cut into many Segments, and is succeeded by one naked Seed, having no Down adhering to it, in which it differs from the Valerian.

The Species are;

1. VALERIANELLA *arvensis praecox humilis, semine compresso.* Mor. Umb. Early low Corn-fallad, with a flat Seed.

2. VALERIANELLA *arvensis praecox humilis, foliis serratis.* Tourn. Early low Corn-fallad, with serrated Leaves.

3. VALERIANELLA *arvensis serotina altior, semine turgidiore.* Mor. Umb. Taller late Corn-fallad, with a turgid Seed.

4. VALERIANELLA *semine stellato.* C. B. P. Corn-fallad with a starry Seed.

5. VALERIANELLA *cornucopioides, rubra vel Indica.* Mor. Umb. Red or Indian Corn-fallad, resembling the Cornucopiaz.

6. VALERIANELLA *semine umbilicato nudo rotundo.* Mor. Umb. Corn-fallad, with a round naked umbilicated Seed.

7. VALERIANELLA *semine umbilicato nudo oblongo.* Mor. Umb. Corn-fallad with an oblong naked umbilicated Seed.

8. VALERIANELLA *semine umbilicato hirsuto majore.* Mor. Umb. Corn-fallad with a larger hairy umbilicated Seed.

9. VALERIANELLA *semine umbilicato hirsuto minore.* Mor. Umb. Corn-fallad with a smaller hairy umbilicated Seed.

10. VALERIANELLA *Cretica, fructu vesicario.* Tourn. Cor. Candy Corn-fallad, with a bladdered Fruit.

11. VALERIANELLA *cornucopioides*

echinata. Inst. R. H. Prickly Corn-fallad, resembling an Helmet.

12. VALERIANELLA *orientalis, fructu parvo corniculato.* Tourn. Cor. Eastern Corn-fallad, with a small horned Fruit.

The three first Sorts are found wild in several Parts of England. The third is often cultivated in Gardens for Sallads in the Spring, tho' either of the three may be cultivated for the same Purpose, they being equally good. The Seeds of these Plants should be sown in Autumn, soon after they are ripe; for if they are kept till Spring, the Plants seldom come up the same Summer; the Seeds commonly remaining in the Ground, will come up the succeeding Spring, notwithstanding the Place be dug and sowed with other Seeds, as I have often observed.

These Plants will grow in almost any Soil or Situation, and require no farther Care but to keep them clear from Weeds, until they are fit for Use: they should always be cut while they are young; for if they are grown pretty large, they will become strong and bitter.

The fourth and fifth Sorts are preserved in Botanic Gardens for Variety; but are not of any Use. These may be propagated by sowing their Seeds in the Spring, upon a Bed of dry Earth, where they may remain to flower and seed.

These are all annual Plants, which must be sown every Year, or their Seeds permitted to scatter upon the Ground, where they will come up, and thrive without any other Culture than only to clear them from Weeds.

The sixth, seventh, eighth, and ninth Sorts are Varieties of the common Corn-fallad, which are preserved in some curious Botanic Gardens

for the sake of Variety. These are all very hardy Plants, which, if permitted to scatter their Seeds, will come up in almost any Soil or Situation, and require no other Care but to keep them clear from Weeds. When they are not permitted to scatter their Seeds, they should be sown in Autumn; otherwise the Seeds will often lie in the Ground till the following Autumn before they grow.

The tenth and twelfth Sorts were discovered by Dr. Tournefort in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*; which have since been communicated to many curious Persons in *England*. These are very hardy Plants, which may be propagated by Seeds, in the same manner as the other Sorts; and if they are permitted to scatter their Seeds, will come up, and require no other Care, but to keep them clear from Weeds.

The eleventh Sort produces Tufts of red Flowers, which are shaped like an Helmet, and make a pretty Appearance when blown. This is also an hardy Plant, and may be propagated in the same manner, as the other Sorts.

VANILLA.

The Characters are;

It hath an anomalous Flower, consisting of six Leaves, five of which are placed in a circular Order; and the other, which occupies the Middle, is concave. The Empalement afterwards becomes an horned soft fleshy Fruit, filled with very small Seeds.

The Species are;

1. *VANILLA flore viridi & albo, fructu nigrescente. Plum. Nov. Gen.*
Vanilla with a green and white Flower, and a blackish Fruit.

2. *VANILLA flore violaceo, fructu breviori rubro. Plum. Nov. Gen.*

Vanilla with a violet-coloured Flower, and a short red Fruit.

3. *VANILLA flore albo, fructu breviori corallino. Plum. Nov. Gen.*
Vanilla with a white Flower, and a short coralline Fruit.

The Fruit of these Plants is called by the Spaniards in *America*, *Vanilla*, or *Vinello*, and is much used by them to scent their Chocolate. It is the first Species here mentioned, which is chiefly esteemed. These grow plentifully in the *Bay of Campechy*, in the *West-Indies*; where they are usually sold for about Three-pence each Fruit, *English Money*.

The other two Sorts are found in several Parts of *America*, where they always grow in low marshy Places under Trees, and fasten themselves to the Trunks of the Trees, and are by that means supported. The Fruit of these Kinds are rarely used, being of little Value; but the other Sort is often brought into *Europe*, and sold by the Druggists.

The Method of gathering and preparing of this Fruit for Use is little known to the *Europeans*, being manufactured by the *Indians*, who sell it very cheap to the *Spaniards*. However, I shall subjoin an Account which I received from an intelligent Person, who had resided in the *Spanish West-Indies* for some time; but shall first describe the Plant, with its manner of Growth, and how it may be propagated in the warm Parts of *America*.

The Plant which produces the Fruit called *Vanilla* or *Banilla* by the *Spaniards*, hath a trailing Stem, somewhat like common Ivy, which fastens itself to whatever Tree grows near it, by small Fibres, which are produced at every Joint, which fasten to the Bark of the Tree, and by which

which the Plants are often nourished, when they are cut or broken off from the Root a considerable Height from the Ground, in like manner as the Ivy is often seen in *England*. The Leaves are as large as those of the common Laurel, but are not quite so thick; these are produced alternately at every Joint (which are six or seven Inches asunder), and are of a lively green Colour on the upper Side, but of a paler Green underneath. The Stems of these Plants shoot into many Branches, which fasten themselves also to the Branches of the Trees; by which means they rise to the Height of eighteen or twenty Feet, and spread quite over some of the smaller Trees, to which they are joined. The Flowers are of a greenish yellow Colour, mixed with white; which, when fallen, are succeeded by the Fruit, which are six or seven Inches long.

This Sort, which is manufactured, grows not only in the Bay of *Campechy*, but also at *Cartagena*, at the *Caraccas*, *Honduras*, *Darien*, and *Cayan*; at all which Places the Fruit are gathered and preserved: but is rarely found in any of the *English* Settlements in *America* at present, though it might be easily carried thither, and propagated; for the Shoots of these Plants, being full of Juice, may be easily transported; because they will continue fresh out of the Ground for several Months.

I had some Branches of this Plant, which were gathered by Mr. *Robert Millar* at *Campechy*, and sent over between Papers by way of Sample: these had been at least four Months gathered, when I received them; and, upon opening of the Papers, I found the Leaves rotten, with the Moisture contained in them, and the

Paper was also perished with it; but the Stems appeared fresh: upon which I planted some of them in small Pots, and plunged them into an Hot-bed of Tanners Bark; where they soon put out Leaves, and sent forth Roots from their Joints. But as these Plants naturally fasten themselves to the Stems of the Trees, it is with great Difficulty they are kept alive, when they have not this Assistance: therefore whoever would preserve any of these Plants in *Europe*, should plant them in Tubs of Earth, near the Stem of some vigorous *American* Tree, which requires a Stove, and can bear a great deal of Water; because the *Vanillas* must be plentifully watered in the Summer-season, otherwise they will not thrive. They require also to be shaded from the Sun by Trees; so that if these are planted at the Foot of the *Hernandia*, or *Jack-in-a-Box*, whose Leaves are very large, and afford a good Shade, they will succeed better than when they are exposed in single Pots alone; and as these Plants require the same Degree of Heat in Winter, they will agree well together.

When the Plants are designed for Propagation in the warm Parts of *America*, there is nothing more required than to make Cuttings of about three or four Joints in Length, which should be planted close to the Stems of Trees, in low marshy Places; and to keep down other troublesome Plants, which, if permitted to grow about the Cuttings before they are well rooted, would overbear and destroy them: but after they are established, and have fastened their Shoots to the Stems of the Trees, they are not in much Danger of being injured by neighbouring Plants; though when the

Ground is kept clear from Weeds, the Plants will be much better nourished.

These Plants do not produce Flowers until they are grown strong, so that the Inhabitants affirm, that it is six or seven Years from the Planting to the Time of their bearing Fruit. But when they begin to flower and fruit, they continue for several Years bearing, and this without any Culture; and as it is a Commodity which bears a good Price, it is well worth cultivating in several of the *English* Settlements, especially as it will grow in moist woody Places, where the Land is not cleared from Timber.

The Method used to prepare the Fruit, is, when it turns of a yellow Colour, and begins to open, to gather it, and lay it in small Heaps to ferment two or three Days, in the same manner as is practised for the Cocoa or Chocolate Pods. Then they spread them in the Sun to dry, and when they are about half dried, they flat them with their Hands, and afterwards rub them over with the Oil of *Palma Christi*, or of the Cocoa: then they expose them to the Sun again to dry, and afterward they rub them over with Oil a second time; then they put them in small Bundles, covering them with the Leaves of the *Indian Reed* to preserve them.

These Plants produce but one Crop of Fruit in a Year, which is commonly ripe in *May*, fit for gathering; for they do not let them remain on the Plants to be perfectly mature, because then they are not fit for Use; but when they are about half changed yellow, they esteem them better for keeping than when they are changed to a dark-brown Colour; at which time the Fruit

splits; and shews a great Quantity of small Seeds, which are inclosed within it. While the Fruit is green, it affords no remarkable Scent; but as it ripens, it emits a most grateful aromatic Odour. When the Fruit begins to open, the Birds attack it, and devour all the Seeds very greedily, but do not eat any other Part of the Fruit.

The Fruit which are brought to *Europe*, are of a dark-brown Colour, about six Inches long, and scarce an Inch broad; are wrinkled on the Outside, and full of a vast Number of black Seeds like Grains of Sand, of a pleasant Smell, like Balsam of *Peru*.

This Fruit is only used in *England*, as an Ingredient in Chocolate, to which it gives a pleasant Flavour. But the *Spanish* Physicians in *America* use it in Medicine, and esteem it grateful to the Stomach and Brain, for expelling of Wind, to provoke Urine, to resist Poison, and cure the Bite of venomous Animals.

As this Plant is so easily propagated by Cuttings, it is very strange, that the Inhabitants of *America* should neglect to cultivate it, especially as it is an Ingredient in Chocolate, which is so much drunk all over *America*; but as the *English* have in a manner quite neglected the Culture of the Cocoa, it is no wonder they should neglect this; since the former was cultivated in a great Plenty by the *Spaniards* in *Jamaica*, while that Island remained in their Possession; so that the *English* had an Example before them, if they would have followed it: whereas the Vanilla was not found growing there; and therefore it is not to be supposed, that the Persons who were so indolent, as to quit the Culture of many valuable Plants then growing

ing on the Spot, should be at the Trouble of introducing any new ones.

VERATRUM; White Hellebore.

The Characters are;

The Flower is naked, consisting of six Leaves, which expand in form of a Rose, in the Middle of which arises the Pointal, surrounded by six Stamina, or Threads, which afterwards turns to a Fruit, in which, for the most part, three membranaceous Sheaths are gathered into a little Head, and are full of oblong Seeds, resembling a Grain of Wheat, and encompassed, as it were, by a leafy Wing.

The Species are;

1. *VERATRUM flore subviridi.*
Tourne. White Hellebore, with a greenish Flower.

2. *VERATRUM flore atro-rubente.*
Tourne. White Hellebore, with a dark-red Flower.

The first of these Plants is that which is ordered for Medicinal Use, and is by much the stronger and more acrid Plant; for when both Sorts are placed near each other, the Snails will intirely devour the Leaves of the second Sort, when at the same time they will scarcely touch those of the first. The second Sort doth also appear sooner in the Spring, and flowers near a Month before the first Sort.

These Plants are very pretty Ornaments, when planted in the middle of open Borders of the Pleasure-garden; for if they are placed near Hedges, or Walls, where generally Snails harbour, they will greatly deface the Leaves, especially of the second Sort, by eating them full of Holes; and as a great Part of the Beauty of these Plants consists in their broad-folded Leaves, so, when

they are thus defaced, the Pleasure is almost lost.

They may be propagated by parting their Roots toward the latter End of February, or the Beginning of March, just before they begin to shoot, and should be planted in a light fresh rich Soil, in which they will thrive exceedingly, and produce strong Spikes of Flowers. These Roots should not be removed oftner than once in three Years, by which time, if they like the Soil, they will be very strong, and afford many Heads to be taken off; but if they are frequently transplanted, it will prevent their increasing, and cause them to flower very weak.

You may also propagate these Plants by Seeds, which should be sown as soon as ripe, either in a Bed or Box filled with fresh light Earth, and the Ground kept constantly clear from Weeds. In the Spring the Plants will appear, at which time, if the Season be dry, you should now-and-then refresh them with Water, which will greatly promote their Growth; and you must carefully clear them from Weeds, which, if permitted to grow, will soon overspread and destroy these Plants while young. The Spring following, just before the Plants begin to shoot, you should prepare a Bed of fresh light Earth, and carefully take up the young Plants, observing not to break their Roots, and plant them therein about six Inches square, where they may remain until they are strong enough to flower, when they should be transplanted into the Borders of the Pleasure-garden. But as these Plants seldom flower in less than four Years from Seeds, this Method of propagating them is not very much practised in England.

divides into many Branches, which are armed with Thorns towards their Extremities. The Leaves are oblong, narrow, and sinuated like those of the wild Rocket, but are very white and woolly. The Flowers are produced near the Extremity of the Branches, which are of a yellow Colour, resembling those of the Wall-flower; from whence some Authors have named it *Leucoium spinosum*, i. e. prickly Gilliflower.

The sixteenth Sort is very like the fifteenth, but Dr. *Tournefort*, who found this in the *Archipelago*, thinks it to be different, because it has not degenerated in the Royal Garden at *Paris*, as the other Sort commonly will do, when it has been cultivated two or three Years in a Garden. This Sort seldom continues longer than two or three Years before the Roots perish.

The seventeenth, eighteenth, nineteenth, twentieth, and twenty-first Sorts were discovered by Dr. *Tournefort* in the *Levant*; from whence he sent their Seeds to the Royal Garden at *Paris*. All these Sorts are hardy enough to thrive in the open Air in *England*, provided they are sown on a dry undunged Soil; for when they grow on a moist Soil, their Roots are subject to rot in the Winter; and if the Ground is enriched with Dung, it causes the Plants to grow so rank in Autumn, that they are in Danger of being destroyed by hard Frost.

All these Plants are propagated by Seeds, which should be sown on a Bed of light fresh Earth, in an open Situation. The best Time to sow these Seeds is in Autumn, soon after they are ripe; when they will more certainly grow, than if they are sown in the Spring: and when they are sown early in the Autumn, the Plants will flower the following Sum-

mer, by which there will be a Year saved. These Seeds should be sown in Drills, which should be made about eighteen Inches asunder, because it will be proper to let some of the Plants remain to flower in the Seed-bed, where they will grow much stronger than those which are transplanted: when the Plants come up, they should be kept clean from Weeds; and about *Michalmas* some of the Plants should be carefully drawn out, where they grow too close together, which may be transplanted out into a Nursery-bed to get Strength; and afterward they may be removed and planted about in Wilderness-quarters; where (if they are not too much over-shaded by Trees) they will thrive and flower very well, and make an agreeable Variety. Those Plants, which are left in the Seed-beds to flower, should be singled out to a Foot or more Distance in the Rows; otherwise they will not have room to spread.

There are very few of the *Mulleins* which are planted in Gardens for Ornament, because several of the Sorts grow wild in *England*; for which Reason many Plants are rejected, and meaner Sorts are cultivated, because they are more rare: but in large Gardens, where there are many Wilderness-quarters, these Plants are very proper Furniture, because they require very little Care to cultivate them, and they continue a long time in Flower; and though they do not make so fine an Appearance as some other Plants, yet for the agreeable Scent of their Flowers, which resemble the *Violets*, they deserve a Place much better than many other Plants which are cultivated in Gardens.

The fifteenth Sort being tenderer than any of the others, some of the Plants

Plants should be planted in Pots, filled with fresh light Earth, that they may be sheltered under an Hot-bed Frame in Winter, where they should have as much free Air as possible in mild Weather, and covered only in very hard Frost. The other Plants may be planted on a dry Soil in a warm Situation, where they will endure the Cold of our ordinary Winters very well.

VERBENA, Vervain.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is upright, and commonly divided into two; but the Under-lip is cut into three Parts, so that at the first Sight it appears like a Flower with five Leaves; these Flowers are each succeeded by four naked Seeds, which fill the Calyx: to which may be added, The Flowers generally grow in Spikes or Heads, but not in Whorles round the Stalks.

The Species are;

1. VERBENA *communis cœruleo flore.* C. B. P. Common Vervain, with a blue Flower
2. VERBENA *Lusitanica latifolia procerior.* Tourn. Taller broad-leaved Portugal Vervain.
3. VERBENA *urticæ folio, Canadensis.* H. R. Par. Canada nettle-leaved Vervain.
4. VERBENA *Americana, spica multiplici, foliis urticæ angustioribus, floribus cœruleis.* Par. Bat. Prod. American Vervain, with many Spikes, narrow Nettle-leaves, and blue Flowers.
5. VERBENA *tenuifolia.* C. B. P. Narrow-leaved Vervain.
6. VERBENA *urticæ folio longiore serrato.* Houst. American Vervain, with a longer sawed Nettle-leaf.
7. VERBENA *Bonariensis altissima, lavendulæ Canariensis spica multiplici.* Hort. Elth. The tallest Vervain of Buenos Ayres, with many

Spikes resembling the Canary Lavender.

8. VERBENA *Carolinensis, mellissæ folio aspero.* Hort. Elth. Carolina Vervain, with a rough Balm-leaf.

9. VERBENA *Mexicana, trachelii folio, fructu aparines.* Hort. Elth. Mexican Vervain, with a Throatwort-leaf, and a Fruit like Goose-grafs.

The first Sort here mentioned is very common in most Parts, and is rarely cultivated in Gardens: this is the Sort which is directed by the College of Physicians for Medicinal Use, and is brought to the Markets by those Persons who gather it in the Fields.

The next three Sorts, tho' not Natives of this Country, yet are very hardy, and will endure the sharpest of our Winters in the open Air.

These may be all propagated by sowing their Seeds on a Bed of fresh Earth in the Spring; and when the Plants come up, they should be transplanted out, or thinned so as to allow them ten or twelve Inches Distance; for they generally grow pretty large, and require to have room; after which they will demand no farther Care, but to clear them from Weeds; and the second Summer they will flower and seed, which, if permitted to fall upon the Ground, will come up the succeeding Spring, without any farther Culture.

The fifth Sort here mentioned is equally as hardy as the common Vervain, from which it only differs in having narrower Leaves; but is never admitted in Gardens, unless for the sake of Variety.

The sixth Sort was discovered by the late Dr. William Houstoun in Jamaica, from whence he sent the

Seeds into *England*. This is a biennial Plant, which commonly perishes soon after it has perfected its Seeds.

The seventh Sort was brought from *Buenos Ayres*. This Plant grows to the Height of five or six Feet or more, and produces its Flowers at the Extremity of the Branches in many slender Spikes, which are placed close together, somewhat like the *Canary Lavender*. These Flowers are small, and of a blue Colour.

The eighth Sort is a Native of *Carolina*. This is a much humbler Plant, for it rarely rises above two Feet and an half high. This produces its Flowers in Spikes like the common Sort.

The ninth Sort was brought from *Mexico*. This commonly grows about three Feet high or more; and generally produces three Spikes from a Joint at the Extremity of the Branches. The Flowers are Male and Female on the same Spike. The Female Flowers produce their Seeds covered with the Empalement, which swells into a roundish Form, so as to appear somewhat like the Seeds of Goose-grass or Clivers.

The sixth, seventh, and ninth Sorts are tender Plants, which may be propagated by Seeds, and should be sown on an Hot-bed early in the Spring; but when the Plants are come up, they must have a good Share of free Air admitted to them in warm Weather; otherwise they will draw up too weak: they must also be often refreshed with Water. When the Plants have obtained some Strength, they should be transplanted on another moderate Hot-bed, observing to shade them until they have taken new Root; after which time they must have Air and Moisture in warm Weather in great Plenty, which will strengthen the

Plants. About the Beginning of *June*, the Plants should be carefully taken up with Balls of Earth to their Roots, planted into Pots filled with fresh light Earth, and then plunged into a very moderate Hot-bed, where they should be screened from the Sun until they have taken new Root; and then they should be inured to the open Air by degrees; for in *July* they may be removed out of the Hot-bed, and placed in a warm sheltered Situation, where they may remain till the Middle or Latter-end of *September*, when they must be removed into the Stove; where, if they have a moderate Degree of Warmth in Winter, and are duly supplied with Water, the Plants may be preserved, and the following Summer they will produce Flowers; and if the Season proves favourable, they will perfect their Seeds in Autumn.

The seventh Sort, being much more hardy than those last-mentioned, may be sown on a Bed of light Earth in a warm Situation, about the Middle of *March*; and when the Plants are come up, they must be constantly kept clean from Weeds, until they are strong enough to transplant; when they must be carefully taken up, and some of them planted into small Pots filled with fresh light Earth, and placed in a shady Situation, until they have taken new Root: then they may be placed in an open Situation with other hardy Exotic Plants, where they may remain during the Summer Season; but in Winter they must be sheltered from severe Frost. The other Plants may be planted in a warm Border, where they will endure the Cold of our ordinary Winters without Covering, but in hard Winters these are sometimes destroyed; for which Reason it will be proper to have

have some of the Plants in Pots, in order to preserve the Kind. This Sort flowers, and produces good Seeds, in this Country; but the Roots seldom continue above two or three Years.

VERONICA; Speedwel, or Fluellin.

The Characters are;

The Leaves, for the most part, grow opposite by Pairs; the Calyx consists of one Leaf, which is divided into four Parts, and expands in form of a Star; the Flower consists of one Leaf, which is, for the most part, divided into four Segments, and expands in a circular Order; when the Flower decays, the Ovary becomes a membranaceous Fruit, divided into two Cells, which are shaped like an Heart, and are filled with Seeds, which are sometimes small, and at other times large and thick.

The Species are;

1. VERONICA *mas, supina* & *vulgatissima*. C. B. P. Common Male Speedwel, or Fluellin.

2. VERONICA *spicata angustifolia*. C. B. P. Narrow-leaved spiked Speedwel.

3. VERONICA *major latifolia erecta*. Mor. Hist. Greater broad-leaved upright Speedwel.

4. VERONICA *multicaulis Pannonica*. Tourn. Hungarian Speedwel, bearing many Stalks, or Spikes of Flowers.

5. VERONICA *spicata Cambro-Britannica, bugulae subhirsuto folio*. Raii Syn. Edit. 3. Welsh spiked Speedwel, with an hairy Bugle-leaf.

6. VERONICA *caerulea, trifido aut quinquefido folio*. Flor. Bat. Blue Speedwel, with a trifid or quinquefid Leaf.

7. VERONICA *Virginiana altissima, spica multiplici, floribus candidis*. Flor. Bat. Tall Virginian Speed-

wel, with many Spikes, and white Flowers.

8. VERONICA *spicata longifolia*. Tourn. Long-leaved spiked Speedwel.

9. VERONICA *petraea sempervirens*. Pon. Bald. Ever-green rock Speedwel.

10. VERONICA *mas repens Pyrenaica, folio longiori glabro*. Schol. Bot. Male creeping Pyrenean Speedwel, with a longer smooth Leaf.

11. VERONICA *mas erecta*. C. B. P. Male upright Speedwel.

12. VERONICA *spicata, flore purpureo*. Mor. Hort. Reg. Blæs. Spiked Speedwel, with a purple Flower.

13. VERONICA *spicata minor*. C. B. P. Smaller spiked Speedwel.

14. VERONICA *Alpina frutescens*. C. B. P. Shrubby Speedwel of the Alps.

15. VERONICA *Alpina fruticans, serpylli minoris folio circinato*. Pluk. Phyt. Shrubby Speedwel of the Alps, with a round lesser Mother-of-thyme-leaf.

16. VERONICA *frutescens durior, oblongo, chamædryos folio, Patavina*. Bocc. Mus. Harder shrubby Speedwel of Padua, with an oblong Germander-leaf.

17. VERONICA *Austriaca, foliis tenuissime laciniatis*. Inst. R. H. Austrian Speedwel, with Leaves finely jagged.

18. VERONICA *maxima*. Lugd. The greatest Speedwel, or false Germander.

19. VERONICA *maxima Pyrenaica, non ramosa*. Inst. R. H. The greatest unbranched Speedwel of the Pyrenean Mountains.

20. VERONICA *major frutescens altera*. Mor. Hist. Another greater shrubby Speedwel, or false Germander.

21. VERO-

21. *VERONICA supina, facie teucrii pratensis.* Lob. Icon. Low Speedwel, with the Face of Meadowgermander.

22. *VERONICA longifolia Virginiana altissima, foliis ternis profunde serratis caulem amplexantibus, spica multiplici cœrulea.* Royen. The tallest long-leav'd Virginian Speedwel, with deeply-sawed Leaves embracing the Stalks, and many Spikes of blue Flowers.

23. *VERONICA minor angustifolia ramifera & procumbens.* Mor. Hist. Oxon. Small narrow-leaved branching and trailing Speedwell.

24. *VERONICA aquatica major, folio subrotundo.* Mor. Hist. Greater Water Speedwell, with a roundish Leaf, commonly called Brook-lime.

25. *VERONICA aquatica, angustiore folio.* Inst. R. H. Narrow-leaved Water Speedwel, or Brooklime.

26. *VERONICA aquatica minor, folio subrotundo.* Inst. R. H. Lesser Water Speedwel, with a roundish Leaf.

27. *VERONICA aquatica major, folio oblongo.* Mor. Hist. Greater Water Speedwel, or Brooklime, with an oblong Leaf.

28. *VERONICA aquatica minor, folio oblongo.* Mor. Hist. Small Water Speedwel, with an oblong Leaf.

29. *VERONICA Constantinopolitana incana, chamædryos folio.* Tourn. Cor. Hoary Speedwel of Constantinople, with a Germander-leaf.

30. *VERONICA orientalis, foliis hederæ terrestris, flore magno.* Tourn. Cor. Eastern Speedwel, with Ground-ivy-leaves, and a large Flower.

31. *VERONICA orientalis erecta, gentianellæ foliis.* Tourn. Cor. Upright Eastern Speedwel, with small Gentian-leaves.

32. *VERONICA orientalis elatior,*

gentianellæ foliis, flore majore albid. Tourn. Taller Eastern Speedwel, with small Gentian-leaves, and a larger white Flower.

33. *VERONICA orientalis minima, foliis laciniatis.* Tourn. Cor. The least Eastern Speedwel, with jagged Leaves.

34. *VERONICA orientalis, telephii folio.* Tourn. Cor. Eastern Speedwel, with an Orpine-leaf.

35. *VERONICA major frutescens altera, foliis constanter & eleganter variegatis.* Boerb. Ind. alt. The other great shrubby Speedwel, with Leaves constantly and beautifully variegated.

36. *VERONICA Americana erecta, foliis graminis, floribus ex foliorum alis.* Houst. Upright American Speedwel, with Grass-leaves, and Flowers coming out of the Wings of the Leaves.

37. *VERONICA fruticosa erecta dulcis, hexangulari caule, flore dilute cœruleo.* Sloan. Cat. Wild Liquorice, or Sweet-weed.

38. *VERONICA caule hexangulari, foliis satyriæ ternis serratis.* Sloan. Cat. Speedwel with an hexangular Stalk, and sawed Savery-leaves growing by Threes.

39. *VERONICA quæ scordium maritimum, fruticosum procumbens, flore cœruleo.* Sloan. Cat. Shrubby trailing maritim Speedwel, or Scordium, with a blue Flower.

The first Sort grows wild, in Woods, and other shady Places, in divers Parts of England, and is a Plant of little Beauty; but as it is the Sort which is used in Medicine, under the Title of *Paul's Botony*, I thought it not amiss to set it down here. This is generally brought to Market by such Persons as make it their Business to gather Herbs in the Fields to supply the same, so that it is not

not often cultivated in Gardens; but those who have a mind to propagate it, may do it with much Ease; for as the Branches trail upon the Ground, they push out Roots from their Joints, which Branches, being cut off, and planted, will take Root and grow in almost any Soil or Situation.

The second, third, and fourth Sorts are very ornamental Plants in the large Borders of the Flower-garden, particularly the fourth, which produces a great Number of Spikes of beautiful blue Flowers. These continue flowering at least two Months, and in cool moist Seasons much longer; and these Flowers are very proper to cut for Basons or Flower-pots to adorn Rooms in the Summer-season.

The fifth Sort is a Native of the Mountains in *Wales*, from whence it hath been transplanted into many curious Gardens. This produces fine large Spikes of blue Flowers, and deserves a Place in every Garden.

The sixth, seventh, eighth and ninth Sorts are Natives of warmer Countries than *England*; but are hardy enough to endure the Cold of our Winters very well, provided they are planted in a dry Soil. These are all pretty Varieties, and succeed each other in Flowering, which renders them worthy of a Place in every curious Garden. These should all be planted in the Middle of the Borders in the Pleasure-garden (except the fifth and ninth, which seldom grow above a Foot high, and so are better placed amongst Flowers of the same Growth); where, being intermixed with other Flowers, they afford an agreeable Variety.

They may be propagated by parting of their Roots, which commonly increase very fast, so that the raising them from Seeds is seldom practised. The best Season for parting and transplanting the Roots is in *September*, that they may have time to take fresh Root before the Winter comes on; and these being fixed in Autumn, will be much stronger than those which are removed in the Spring, and will produce a greater Number of Flowers.

They may be planted in almost any Situation; but should have a middling fresh Soil, not too wet, in which they will thrive exceedingly, and require no farther Care but to keep them clear from Weeds, and to part their Roots every Autumn; for if they are suffered to remain too long unremoved, their Roots will spread, and take up too much room in the Borders, so as to injure such Plants as grow near them.

The fourteen Sorts which are next mentioned, are very hardy abiding Plants, and may be propagated either by Seeds, or parting of their Roots. If propagated by Seeds, they should be sown on an open Bed of fresh Earth in *March*, and in *April* the Plants will come up, when they must be kept clear from Weeds; and if the Season should prove very dry, and they are watered two or three times a Week, it will cause them to make a great Progress. Where the Plants come up too close together, some of them should be drawn up, and transplanted into Nursery-beds, where they should be shaded and watered until they have taken new Root; and then they will require no farther Care, but to keep them clear from Weeds until *Michaelmas*, when they

they will be fit to transplant out where they are designed to remain for good. All those Sorts are very proper to plant on the Side of sloping Banks, or in Wilderness-quarters under Trees, where they will flower a long time, and make an agreeable Variety.

The twenty-second Sort is a Plant of larger Growth than the others: this commonly rises four or five Feet high, if it is planted on a good Soil; and produces fine Spikes of blue Flowers, which in a cool Season, or when they grow on a moist Soil, and in a shady Situation, will continue in Beauty a long time; for which it may deserve a Place in every good Garden.

These Plants may also be propagated by parting of their Roots, which may be done every third Year; for if they are too often parted, or divided into small Heads, they will not make any Figure, because when they have not a Number of Stems, so as to form a good Bunch, they are soon past their Beauty, and have but a mean Appearance. The best Time to part these Roots is at *Michaelmas*, that they may be well rooted again before Winter; for when they are removed in the Spring, they seldom flower strong the same Year, especially if the Season should prove dry. Those Sorts which grow pretty tall, are very proper to plant under large Trees, in open Wilderness-quarters; but those with trailing Branches are fit for the Sides of Banks, or irregular shady Slopes, where they will make an agreeable Variety.

The twenty-fourth Sort is used in Medicine, being accounted a very good Antiscorbutic; is styled *Becabunga* in the Dispensatory, and in *Eng-*

lisp Brooklime. It is very common in standing Waters in most Parts of *England*, but is seldom admitted into Gardens.

The twenty-fifth, twenty-sixth, twenty-seventh, and twenty-eighth Sorts grow in standing Waters, and are only preserved in some Botanic Gardens for the sake of Variety. These may be easily propagated by taking the Plants from the Places of their natural Growth, and putting them on the Surface of shallow standing Waters, where they will soon strike out their Roots, and multiply exceedingly.

The other six Sorts next mentioned were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*: these are all of them hardy Plants, and will thrive in the open Air. They may be propagated by Seeds in the same manner as the Sorts above-mentioned, and deserve a Place in good Gardens for their Variety.

The thirty-fifth Sort is preserved in Gardens for the sake of its beautiful variegated Leaves, which make a pretty Appearance in Winter. This may be propagated by parting the Roots, or from Slips taken off in the Spring, and planted in a shady Border, which, if duly watered, will take Root; and the *Michaelmas* following they may be transplanted where they are designed to remain.

The thirty-sixth Sort was discovered by the late Dr. *Houfouin* at *La Vera Cruz*, from whence he sent the Seeds to *England*. This is a low annual Plant, which seldom rises above four or five Inches high. The Flowers are produced from the Wings of the Leaves, and are very small and white. This grows on sandy Ground

Ground, where the Seeds scatter, and the Plants come up in plenty.

The thirty-seventh, thirty-eighth, and thirty-ninth Sorts grow plentifully in the Island of *Jamaica*, from whence they have been brought into *Europe*, and are preserved in several curious Botanic Gardens, for the sake of Variety. All these being Plants natural to hot Countries, are too tender to thrive in the open Air in *England*: wherefore the Seeds should be sown on an Hot-bed in the Spring; and when come up, each Plant should be transplanted into a separate small Pot, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; and then they may be treated in the same manner as is directed for the *Samoloides*, with which Management they will flower, and perfect their Seeds in *England*.

I cannot omit mentioning the Virtues of the common Speedwel, which have caused it to be in great Request of late. It is found an excellent Remedy for the Gout, and all Rheumatic Disorders. The Method is to make a Tea of the dried Herb; the Quantity to be used is about a quarter of an Ounce, from which four common Dishes of Tea may be drawn: these are to be drank every Morning, until the Patient finds Relief. To this some add the dried Herbs of Bog-bean and Ground-pine, which they mix in equal Quantities, and make a Tea of them, from which many Persons have received Benefit.

VIBURNUM; The Wayfaring, or Pliant-mealy-tree.

The Characters are;
The Flower consists of one Leaf, which is divided into five Parts, and expands in a circular Order; these are collected into the Form of an

Umbrella; the Ovary, which is placed on the Upper-part of the Flower, becomes a soft Berry, full of Juice, which contains one stony compressed furrowed Seed.

The Species are;

1. **VIBURNUM**. *Matth.* The common Viburnum, or Pliant-mealy-tree.

2. **VIBURNUM** *folio variegato*. The common Viburnum, with striped Leaves.

3. **VIBURNUM** *Carolinianum, floribus purpurascantibus ex alis foliorum*. *Carolina* Wayfaring-tree, with purplish Flowers, coming out from the Wings of the Leaves.

4. **VIBURNUM** *Americanum latifolium, floribus albis, ramulis tomentosis*. Broad-leaved *American* Wayfaring-tree, with white Flowers, and woolly Branches.

The first of these Trees is very common in divers Parts of *England*, particularly in *Kent*, where it grows in most of the Hedges upon the dry chalky Hills near *Gravesend, Rochester, &c.* in very great Plenty. But notwithstanding its being thus common, yet it deserves a Place in small Wilderness-quarters, among other flowering Trees, where, by its mealy Leaves and Shoots, together with its large Bunches of white Flowers in the Spring, which are succeeded by red Berries in Autumn, it affords an agreeable Variety.

This Tree may be propagated either from Seeds, or by laying down the tender Branches; but the former Method, being tedious, is seldom practised, especially since young Plants may be taken from the Woods or Hedges, where there are many of the old Trees growing; from which a Number may soon be propagated.

The best Time for laying these Branches is in Autumn, just as the Leaves begin to fall. The Manner of laying them, being the same as for other hardy Trees, need not be repeated: by the succeeding Autumn the Layers will be rooted, when you may take them off from the old Plants, and transplant them into a Nursery for two or three Years, in which they may be trained up to regular Stems and Heads, and may afterwards be planted where they are to remain. This Tree commonly grows about twelve or fourteen Feet high; but it is rarely seen above sixteen or eighteen; so that it should be planted in Lines with such Trees as do not exceed this Growth; otherwise it will be hid thereby, and the Beauty lost.

The striped Sort may be propagated by inarching it upon the plain Sort. This is preserved by such as delight in variegated Plants, tho' there is no great Beauty in them; but these Trees rarely grow near so large as those of the plain Sort, as is the Case of all other striped Plants.

There is also another Sort very like to the Common, which has been introduced into the *English* Gardens lately, and was brought from *Virginia*; but as this Sort has not yet flowered with us, I cannot say how it differs from ours. This was at first somewhat tender, while young; and in the sharp Winter *Anno 1728*. the Plants of this Kind, which were placed in the open Air, were killed down to the Ground; but the Roots of most of them shot up again the succeeding Spring, and have since endured the Cold of our Winters very well.

The third Sort grows plentifully in *South-Carolina* and *Georgia*, from

whence the Seeds have been brought to *England*. This rises to the Height of eight or nine Feet, and divides into many Branches near the Ground. The Leaves, which are produced by Pairs, are somewhat like those of the *European* Kind. The Flowers are produced in small Umbels from the Wings of the Leaves, which are of a purplish Colour. These are rarely succeeded by Fruit in *England*, because it is generally late in Summer before the Flowers appear; so that if the Autumn is not very favourable, the Flowers fall off without producing Seeds.

This Plant is hardy enough to live abroad in the open Air in *England*, provided it is planted in a sheltered Situation; for as it naturally grows in Woods, where it is sheltered from Cold by taller Trees, so if it is placed in an open Situation, it is often injured by severe Frosts. It is commonly propagated by Seeds, which are procured from the Countries of its natural Growth: they should be sown in Pots filled with fresh Earth early in the Spring, and then plunged into an Hot-bed of Tanners Bark. These Pots must be constantly watered every other Day, or at least twice a Week, according as the Earth dries; for if it is not kept pretty moist, the Seeds will remain a long time in the Ground, before they vegetate. When the Plants come up, they must be kept clean from Weeds, and in warm Weather should have a large Share of Air admitted to them, otherwise they will draw up very weak. They must also be duly watered, for they naturally grow on moist Places, and are pretty droughty Plants. About the middle of *June*, they must be inured to the open Air by degrees. In *July* the Pots should be taken out of the Hot-bed, and placed

placed in a sheltered Situation in the open Air; where they may remain till *October*, when the Pots should be placed under a common Hot-bed Frame, where the Plants may be covered in frosty Weather; but when the Weather is mild, they should be exposed as much as possible. This Plant sheds its Leaves in Autumn; and the Latter-end of *March*, or the Beginning of *April*, it puts out new Leaves; wherefore it should be transplanted, just before the Buds begin to come out. Some of them should be planted into separate small Pots filled with fresh light Earth; and the others may be put into a warm Border of fresh light Earth, where they may remain two Years to get Strength; and then they may be removed to the Places where they are designed to remain. Those which are potted, should be plunged into an old Bed of Tanners Bark, and covered either with Mats or Glasses, until they have taken new Root; and then they may be placed in the open Air with other hardy Exotics, where they may remain during the Summer-season; but in Winter they should be sheltered under an Hot-bed Frame as before. When they have obtained Strength, they may be shaken out of the Pots, and planted in Wilderneys-quarters, reserving two or three Pots to be sheltered in Winter, for fear those abroad should be destroyed by severe Frost.

These Plants may also be propagated by laying down the young Branches, in the same manner as is practised for the common Sort. The best Time for laying them down is in *March*, just before the Leaves come out. If these are duly watered in dry Weather, they will be sufficiently rooted by the following Spring, when they may be taken off, and

treated in the same manner as the feeding Plants.

The fourth Sort is very tender. The Seeds of this Kind were sent from *Campechy* by Mr. *Robert Millar*, who found the Plants growing in low marshy Places in great Plenty. This Sort rises to the Height of eight or ten Feet, and has broader Leaves than the common Sort, which are (while young) covered pretty thick with a soft white Down; but as the Leaves grow older, their upper Sides are greener, and lose most of the Down. The young Branches are also very woolly; but as these grow older, it falls off. The Flowers are produced from the Wings of the Leaves in large Bunches, which are white; but the Apices or Summits are of a red Colour, which at a small Distance appears like Stripes in the Flowers. After the Flowers are decayed, the Fruit appears, which, when ripe, turns black.

This Plant may be propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, and fit to transplant, they should be each placed in a separate small Pot filled with light rich Earth, and then plunged into an Hot-bed of Tanners Bark, observing to shade them from the Sun until they have taken new Root, when they should have free Air admitted to them every Day in proportion to the Warmth of the Season; and as they are Plants which delight in low marshy Places, they must be constantly supplied with Water in hot Weather, otherwise they will not thrive. When they have filled the small Pots with their Roots, they should be shaken out, and their Roots trimmed, and then put into Pots a Size larger; but they must be plunged again into the Hot-bed,

bed, because while they are young, they will not thrive, if they are too much exposed to the open Air; tho' in warm Weather the Glasses should be every Day raised with Stones, to admit fresh Air, otherwise they will draw up too weak. At *Michaelmas* they should be removed out of the Hot-bed, and plunged into the Bark-bed in the Stove, where they should be kept in a moderate Temperature of Heat, and must be frequently watered; in which Stove they will retain their Leaves all the Year, and make considerable Progress; so that in two Years from sowing, they will produce Flowers and Fruit.

As these Plants grow older and stronger, they may be treated more hardily: therefore they may be placed in a dry Stove in Winter; and in the middle of Summer may be exposed abroad in a warm sheltered Situation with other tender Exotic Plants, observing in dry Weather to water them duly, and to shift them into other Pots, as they shall require it: with which Management they will produce their Flowers every Year toward the End of Summer; and if the Autumn proves very favourable, or the Plants are early removed into the Stove, they will perfect their Seeds very well.

This Sort may also be propagated by Layers, as the other; but when the Shoots are laid down, it will be proper to plunge the Pots into a moderate Hot-bed of Tanners Bark; which will cause them to put out Roots much sooner than when they are exposed abroad. The Layers, when sufficiently rooted, may be taken off, and planted into separate Pots, and treated in the same manner as the seedling Plants.

AMERICAN VIBURNUM;
vide Camara.

VICIA; Vetch.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement arises the Pointal, which afterward becomes a Pod full of roundish or angular Seeds: to which must be added, The Leaves grow, as it were, by Pairs, on a Middle-rib, ending in a Tendril.

The Species are;

1. VICIA *sativa vulgaris*, *semine nigro*. C. B. P. Common Vetch, or Tare.
2. VICIA *sativa alba*. C. B. P. White Vetch, or Tare.
3. VICIA *supina, latissimo folio non serrato*. Tourn. Low Vetch, with a broad Leaf not serrated.
4. VICIA *supina, latissimo folio serrato*. Tourn. Low Vetch, with a broad serrated Leaf.
5. VICIA *siliquis supra infraque terram edens*. Tourn. Eatable Vetch, having Pods both above and below Ground.
6. VICIA *multiflora*. C. B. P. Many-flowered Vetch.
7. VICIA *maxima dumetorum*. C. B. P. Bush or perennial Vetch.
8. VICIA *sepium, folio rotundiore acuto, semine nigro*. C. B. P. Bush Vetch, with a rounder sharp-pointed Leaf, and a black Seed.
9. VICIA *vulgaris, acutiore folio, semine parvo nigro*. C. B. P. Wild Vetch, with a sharper pointed Leaf, and a small black Seed.
10. VICIA *perennis incana multiflora*. Bot. Monsp. Hoary perennial Vetch, with many Flowers.
11. VICIA *perennis multiflora, majori flore caeruleo, ex albo mixto*. Bot. Monsp. Tufted perennial Vetch, with a large blue Flower mixed with white.
12. VICIA *perennis multiflora incana, insularum Stæchadum*. *Inst.* R. H. Perennial hoary tufted Vetch of the *Stæchades*.

13. VICIA

13. *VICIA sylvestris hirsuta incana*. C. B. P. Hoary round wild Vetch.

14. *VICIA sylvestris incana, major & præcox, Parisiensis, flore suave-rubente*. Inst. R. H. The greater early hoary wild Vetch, with a soft red Flower.

15. *VICIA sylvatica maxima, piso sylvestri similis*. J. B. The greatest wild Vetch, resembling wile Peas.

16. *VICIA sylvestris lutea, filiqua hirsuta*. C. B. P. Wild yellow Vetch, with hairy Pods.

17. *VICIA serotina perennis, flore luteo, filiqua hirsuta*. Inst. R. H. Late-flowering perennial Vetch, with a yellow Flower, and an hairy Pod.

18. *VICIA serotina perennis, flore luteo, filiqua glabra*. Inst. R. H. Late-flowering perennial Vetch, with a yellow Flower, and smooth Pod.

19. *VICIA sylvestris lutea, cum galea fusca*. J. R. Wild yellow Vetch, with a brown Standard.

20. *VICIA Cretica multiflora latifolia, flore intense purpureo*. Tourn. Cor. Broad-leaved many-flowered Vetch of Crete, with a deep-purple Flower.

21. *VICIA orientalis multiflora incana, angustissimo folio*. Tourn. Cor. Hoary Eastern tufted Vetch, with a very narrow Leaf.

22. *VICIA verna villosissima & incana, flore parvo spicato, ex purpureo ad ianthinum vergente*. Tourn. Cor. The most hairy and hoary Spring Vetch, with a small spiked Flower, from a purple to a violet Colour.

23. *VICIA multiflora spicata, floribus albidis, calyce purpureo*. Tourn. Cor. Spiked tufted Vetch, with whitish Flowers, and a purple Emplacement.

24. *VICIA orientalis multiflora argentea, flore variegato*. Tourn.

Cor. Eastern tufted silvery Vetch, with a variegated Flower.

25. *VICIA orientalis, flore maximo pallescente, macula lutea notato*. Tourn. Cor. Eastern Vetch, with a large pale Flower, spotted with Yellow.

26. *VICIA multiflora Cissubica frutescens, lentis filiqua*. Breyn. Prod. Shrubby tufted Vetch, with Pods like Lentils.

27. *VICIA sylvatica multiflora maxima*. Phyt. Brit. The greatest tufted wood Vetch.

28. *VICIA segetum, cum filiquis plurimis hirsutis*. C. B. P. Small wild Tare, with many rough Pods.

29. *VICIA segetum, singularibus filiquis glabris*. C. B. P. Corn Vetch, or fine Tare, with single smooth Pods.

30. *VICIA minima, cum filiquis glabris*. Inst. R. H. The smallest Vetch, with smooth Pods.

31. *VICIA sive Cracca, foliis & filiquis longioribus*. Bot. Monsp. Vetch with longer Leaves and Pods.

32. *VICIA minima præcox, Parisiensium*. H. R. Par. The least early Vetch, with an angular Seed.

The first of those here mentioned is cultivated in the Fields in divers Parts of England for the Seed, which is the common Food of Pigeons: the Method of cultivating it being much the same as is practised for Peas, I shall not repeat it in this Place, but refer the Reader to that Article.

The second Sort is a Variety of the first, from which it only differs in the Colour of the Flowers and Seeds, which in this Kind are both white; but the Flowers of the other Kind are purple, and the Seeds are black. This may be cultivated as the former.

The third and fourth Sorts are,

at present, only preserved in Botanic Gardens in *England*, though I believe they might be cultivated in the Field, as the common Sort, with good Success.

These must be sown in the Spring-season, as Peas; but should have a light dry Soil, and require more room than the common Sort; for the Plants are apt to spread pretty far, provided they like their Situation. They are both annual Plants, which decay soon after their Seeds are ripe. These are supposed to be the Bean of the antient *Egyptians*.

The fifth Sort was carried from *Africa* into the *West-Indies*, by the Negroes, who are very fond of its Fruit, where it thrives prodigiously; and when once well fixed in the Ground, will propagate itself very fast: for soon after the Flowers fade the Pedicle thrusts itself under the Surface of the Earth, where the Fruit is perfected; which, if not sought for, and taken up when ripe, will soon shoot out, and make fresh Plants: so that the Persons who have not been acquainted with this Plant, seldom know how and when to look for their Pods, by which means the Negroes generally gather them for their own Use. This Plant is also an Inhabitant of the *East-Indies*, and in divers Parts of *Asia* hath been long cultivated; though there seems to be no extraordinary Quality in it to recommend it. In *England* it is only preserved as a Curiosity, and must have the Assistance of an Hot-bed, otherwise the Fruit will not ripen.

The sixth Sort grows wild in divers Parts of *England*, under Hedges, and by the Sides of Woods, where it climbs upon whatever Bushes are near it; and during the Time of Flowering, which is commonly in

June or *July*, it affords an agreeable Prospect. This Plant may be cultivated by the Sides of Wildernes-quarters, where it may be allowed to climb upon some low Bushes, without which Support it seldom thrives well; and in such shady Situations it will flower extremely, and continue for several Years. The best way to propagate it is by sowing the Seeds either in Spring or Autumn, in the Places where they are to remain; for these Plants commonly shoot their Roots downright into the Ground, so that they seldom thrive well if transplanted.

The seventh, ninth, and sixteenth Sorts, here enumerated, grow wild in this Kingdom. The seventh is very common in shady Woods, and on the Sides of Banks under Trees, in most Parts of *England*. The ninth Sort is found on *Sbotower-hill*, and in some other Places in *England*. And the sixteenth grows on *Glaßbury-thorn-hill*, in *Somerſetſhire*.

The eighth, tenth, eleventh, twelfth, thirteenth, seventeenth, eighteenth, and nineteenth Sorts grow wild in *Germany*, *France* and *Italy*, but are not Natives of this Country. These are all of them abiding Plants, whose Roots continue several Years; but their Shoots die down in Autumn, and fresh ones come out the following Spring; some of which will rise to the Height of five or six Feet, and trail over Bushes, or whatever Plants they grow near; so that they must be supported, otherwise they will appear very unsightly.

These may be propagated by Seeds, which may be sown in Drills on a Border of fresh Earth, exposed only to the morning Sun. The best Time for sowing these Seeds is in *March*, and when the Plants come up,

up, they must be kept clean from Weeds; and where they are too close together, some of them should be drawn up to give room for the remaining ones to grow strong. This is all the Culture they require till *Michaelmas*, when their Shoots will decay; at which time the Roots should be carefully taken up, and transplanted where they are designed to remain, which should be under Trees, and in other shady Wilderness-quarters; where if they are rightly disposed, they will thrive extremely well, and make an agreeable Variety.

The twelfth Sort grows wild in the *Stachades Isles*, from whence the Seeds have been obtained by some curious Persons, who preserve the Sort for the sake of Variety; as is also the fourteenth Sort, which is found wild in the Neighbourhood of *Paris*.

The twentieth, twenty-first, twenty-second, twenty-third, twenty-fourth, and twenty-fifth Sorts were discovered by *Dr. Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*. These, though they are Natives of warmer Countries than *England*, yet will thrive very well in the open Air; wherefore they may be admitted into Gardens for the sake of Variety.

The twenty-sixth Sort is also an abiding Plant, whose Shoots decay every Autumn, and fresh ones are produced in the Spring. This Sort should have a moist shady Situation, in which the Shoots will rise five or six Feet high; produce great Quantities of Flowers; and thereby afford an agreeable Variety in some obscure Places, where few better Plants will thrive.

The twenty-seventh Sort grows wild in some Woods in the North

of *England*, as also in *Oxfordshire*. This is also an abiding Plant, which should be treated in the same manner as the former Sort.

As all these Sorts of Vetches grow near Bushes, or under Hedges, on which they climb, and are thereby supported from trailing on the Ground, so whenever they are brought into Gardens, they should be planted in the like Situation: for if they trail on the Ground, they will run over whatever Plants grow near them, and make a bad Appearance; whereas, if they are planted near any ordinary Shrubs, over which they may be allowed to ramble, their Flowers will appear scattering amongst the Branches of the Shrubs, and afford an agreeable Variety.

The twenty-eighth, twenty-ninth, thirtieth, and thirty-first Sorts are annual Plants, which grow too plentifully amongst the Corn, so as to become very troublesome Weeds in some Parts of *England*; therefore should be rooted out in the Spring, before their Seeds ripen: for if any of them are permitted to stand until the Seeds are ripe, the first hot Day after, the Pods will burst, and cast their Seeds to a great Distance, so as to fill the Ground with young Plants in Autumn. These Plants always come up in Autumn, and abide the Winter, during which time they do not appear as if they would ever become large enough to injure the Crop, amongst which they grow; but in the Spring they will send forth many lateral Shoots, so as to spread to a considerable Distance; and by their Tendrils will fasten themselves to the Stalks of Corn, or any other Plants, and thereby greatly weaken them; and sometimes, where these Weeds are in Plenty, and the Corn

but weak, they will ramp quite over it, and thereby almost destroy it. The best Time to extirpate these Weeds is in *March* or *April*, when, if they are cut up with a Spaddle in dry Weather, they will in a Day or two be effectually destroyed, so as not to recover; and if this be repeated two or three Sasons, it will intirely clear the Land of them.

The thirty-second Sort is a very small annual Plant, which grows wild on chalky Hills in some Parts of *England*, but particularly near *Greenbith* in *Kent*. It flowers the Beginning of *April*; the Seeds are ripe in *May*; and the Plant soon after perishes; so that whoever is desirous to find it, must search for it while it is in Vigour; otherwise it is so small that it can hardly be discovered. If this Plant is designed to be preserved in a Garden, the Seeds should be sown early in Autumn, that the Plants may get Strength before Winter; for when they are sown in the Spring, they seldom succeed. When they are once established in a Garden, and their Seeds permitted to scatter, they will maintain themselves better than if sown by Hand, and will require no other Care but to keep them clear from Weeds.

There are some of the larger Kinds of these Vetches, as well worth cultivating in the Fields as the common Tare, and will serve for the same Purposes; especially the eighth, ninth, and fifteenth Sorts, which grow large, and afford a good Quantity of Sceds. These may all be cultivated in the same manner as the common Sort, and are equally hardy.

The usual Time for sowing of Vetches or Tares is in the Spring, about the Middle of *February*; but

from several Experiments which I have made, I find it to be a much better Method to sow them in Autumn; for as they are hardy enough to resist the Frost in Winter, they will get Strength early in the Spring, and will grow considerably larger than those which are sown in the Spring, and will produce a larger Quantity of Seeds, which, ripening early in Summer, may be gathered in before Wheat Harvest.

The Sorts of Vetches, which are cultivated for Use in the open Fields, should be sown in Drills, after the same manner as is practised for Peas. These Drills should be a Foot and half or two Feet asunder, that there may be room for the Houghing-plough to go between them, in order to destroy the Weeds, and to earth the Plants. These Drills should be about the same Depth as those usually made for Peas, and the Seeds should be scattered about the same Distance in the Drills. These Seeds should be carefully covered as soon as they are sown; for if they are left open, the Rooks will discover them; so that where they are not carefully watched, they will intirely devour them. Indeed these, being sown in Autumn, will be in less Danger than those which are sown in the Spring; because there is more Food for Rooks and Pigeons in the open Fields at this Season; and the Plants will appear much sooner above Ground. The best Time to sow them is, about the Beginning of *September*; for the Rains which usually fall at that Season, will bring them up in a short time. Toward the latter End of *October* the Plants will have obtained considerable Strength; wherefore they should then be earthed up with the Houghing-plough. This Work should be performed in dry Weather,

ther, and in doing it Care must be had to lay the Earth up as high to the Stems of the Plants as possible, so as not to cover their Tops; because this will secure them against Frost. The whole Space of Ground between the Rows should also be stirred, in order to destroy the Weeds, which, if carefully performed in dry Weather, will lay the Land clean till *March*; at which time the Crop should earthed a second time, and the Ground cleaned again between the Rows; which will cause the Plants to grow vigorous, and in a little time they will spread so as to meet and cover the Spaces; whereas those sown in the Spring will not grow to half this Size, and will be very late in Flowering.

Some People sow these Vetches, and when they are fully grown, plough them into the Ground, in order to manure it. Where this is designed, there will be no Occasion to sow them in Drills at this Distance, nor to husband them in the manner before directed; but in this Case it will be the best Method to sow them in Autumn, because they will be fit to plough in much sooner the following Year, so that the Land may be better prepared to receive the Crops for which it is intended. In some Parts of *France*, and in *Italy*, these Vetches are sown for feeding of Cattle while green, and are accounted very profitable; but in those Countries Grass is more scarce than in *England*, so that I think it would not answer to sow them for this Purpose here.

Where these Plants are cultivated for their Seeds, they should be cut soon after the Pods change brown; and when they are dry they must be immediately stacked; for if they are suffered to lie out in the Field to receive Wet, and there comes one hot

Day after it, the Pods will most of them burst, and cast out the Seeds. When the Seeds are threshed out, the Haulm is esteemed very good Food for Cattle; and some have recommended the Seeds for Horses, and affirm they are as proper for those Animals as Beans; which, if true, will render them more valuable, because these will grow on the lightest sandy Land, where Beans will not thrive; consequently may be a good Improvement to some Counties in *England*, where they do not attempt to cultivate Beans.

The perennial Sorts are not proper to cultivate in the Fields, because they are of slower Growth than the annual Kinds; for they make but little Progress the first Year they are sown, and most of them delight in shady Places, and to grow under Bushes, on which they can ramp; so that when they grow in the open Ground, their Branches trail; and in wet Weather, if they are close together, they will rot. Wherefore the annual Kinds of large Growth are such as should be preferred for sowing. But of all the Sorts there is not one so good as that with white Seeds.

VINCETOXICUM; *vide* Asclepias.

VINE; *vide* Vitis.

VIOLA; Violet.

The Characters are;

It hath a polypetalous anomalous Flower, somewhat resembling the papilionaceous Flower; for its two upper Petals, in some measure, represent the Standard, the two side ones the Wings; but the lower one, which ends in a Tail, in some measure, resembles the Keel; out of the Paleament arises the Pointal, which afterward becomes a Fruit, for the most part, three-cornered, opening into three Parts, and full of roundish Seeds.

The

The Species are ;

1. *VIOLA Martia purpurea, flore simplici odore.* C. B. P. Common purple Violet, with a sweet-scented Flower.

2. *VIOLA Martia major hirsuta inodora.* Mor. Hist. Greater hairy March Violet, without Smell.

3. *VIOLA Martia inodora sylvestris.* C. B. P. Wild or Dogs Violet.

4. *VIOLA Martia alba.* C. B. P. White sweet-scented Violet.

5. *VIOLA Martia, multiplici flore.* C. B. P. Double purple Violet.

6. *VIOLA Martia, flore multiplici candido.* C. B. P. Double white Violet.

7. *VIOLA Martia, folio eleganter variegato, flore albo.* March Violet, with a beautiful variegated Leaf, and a white Flower.

8. *VIOLA Martia, flore rubello.* March Violet, with a reddish-coloured Flower.

9. *VIOLA erecta, flore cœruleo.* Mor. Hist. Upright Violet, with a blue Flower.

10. *VIOLA montana lutea grandiflora.* C. B. P. Mountain Violet, with a large yellow Flower.

11. *VIOLA tricolor hortensis repens.* C. B. P. Pansies, Heart's-ease, or Three-coloured Violet, commonly called *Three Faces under an Hood.*

12. *VIOLA Martia hortensis, foliis amplioribus.* C. B. P. Garden March Violet, with larger Leaves.

13. *VIOLA Martia inodora sylvestris, foliis mucronatis, oblongis & striatioribus.* C. B. P. Dog's Violet, with oblong and narrow-pointed Leaves.

14. *VIOLA Martia sylvestris æquate cœrulea, folio & flore minore.* Hort. Cath. Blue wild Violet, with a smaller Leaf and Flower.

15. *VIOLA Martia, multiplici flore*

rubello. C. B. P. March Violet, with a double reddish Flower.

16. *VIOLA Martia, multiplici flore ex albo & purpureo variegato.* C. B. P. March Violet, with a double Flower, variegated with White and Purple.

17. *VIOLA Martia multiplex, flore cinereo.* R. H. Par. Double March Violet, with an ash-coloured Flower.

18. *VIOLA flore pleno maximo.* J. B. The largest double Violet.

19. *VIOLA Martia intense purpurea, flore minore pleno.* J. B. March Violet, with a small double Flower, of a deep purple Colour.

20. *VIOLA palustris rotundifolia glabra.* Mor. Hist. Smooth round-leaved marsh Violet.

21. *VIOLA Alpina, folio in plures partes dissecto.* C. B. P. Alpine Violet, with a Leaf cut into many Parts.

22. *VIOLA Alpina purpurea, exiguis foliis.* C. B. P. Purple Violet of the Alps, with small Leaves.

23. *VIOLA Alpina rotundifolia lutea.* C. B. P. Yellow Violet of the Alps, with a roundish Leaf.

24. *VIOLA montana pumila angustifolia, flore niveo inodoro.* C. B. P. Mountain dwarf narrow-leaved Violet, with a snow-white Flower without Smell.

25. *VIOLA Martia arborescens lutea.* Tabern. Icon. Yellow tree-like March Violet.

26. *VIOLA montana tricolor odoratissima.* C. B. P. The most sweet-smelling three-coloured Mountain Violet.

27. *VIOLA montana alba grandiflora.* C. B. P. Great-flowered white Mountain Violet.

28. *VIOLA montana lutea, subrotundo crenato folio.* Barr. Icon. Yellow Mountain Violet, with a roundish notched Leaf.

29. *VIOLA*

29. *VIOLA montana cœrulea grandiflora*. H. R. Par. Great-flowered blue Mountain Violet.

30. *VIOLA montana lutea, foliis non crenatis*. C. B. P. Yellow Mountain Violet, with Leaves not notched.

31. *VIOLA montana tricolor, flore variegato*. Inst. R. H. Three-coloured Mountain Violet, with a striped Flower.

32. *VIOLA Hispanica fruticosa longifolia*. Inst. R. H. Long-leaved shrubby Spanish Violet.

33. *VIOLA Pyrenaica, longius caudata, teucris folio*. Inst. R. H. Pyrenean Violet, with a long Tail, and a Tree-germander-leaf.

34. *VIOLA Ætnica erecta bicolor hirsuta minima elatior ac ramosior*. Hort. Cath. Upright two-coloured hairy very small Violet of Ætna, taller and more branching.

35. *VIOLA arvensis, flore toto luteo*. C. B. P. Field Violet, with a Flower all yellow.

36. *VIOLA cœrulea maxima, cucumerinis hirsutis foliis, Virginiana*. Pluk. Phyt. The largest blue Violet of Virginia, with hairy Cucumber-leaves.

37. *VIOLA maxima, cucumerinis hirsutis foliis, Virginiana, flore luteo*. Pluk. Alm. The largest Violet of Virginia, with hairy Cucumber-leaves, and a yellow Flower.

38. *VIOLA Virginiana, platani fere foliis, parvis & incanis*. Pluk. Mantiff. Virginian Violet, with small hoary Leaves, shaped like those of the Plane-tree.

39. *VIOLA Cretica saxatilis lutea odoratissima, leucis foliis*. Tourn. Cor. Rock Violet of Crete, with a very sweet yellow Flower, and Wall-flower-leaves.

40. *VIOLA orientalis montana grandiflora, violacei coloris*. Tourn. Cor. Mountain Eastern Violet,

with a large Flower of a purple Colour.

41. *VIOLA Martia Virginiana minor, foliis longius mucronatis, flore purpureo, inodora*. Small Virginian Violet, with long-pointed Leaves, and a purple Flower without Smell.

The first Sort here mentioned is very common in Woods, and shady Lanes, in divers Parts of England, and is what should always be used in Medicine; though the People who sell these Flowers in the Markets, many times impose upon the Ignorant the Flowers of the second Sort, which are much larger than those of the first, and fill up the Measure better; but they having no Smell are very improper for Use.

All the eight first Sorts are pretty Varieties in a Garden; where being planted under Hedges, in Wildernesses, or other shady Places, they will thrive exceedingly, and will want no other Culture than only to keep them clear from Weeds; and in the Spring, when they are in Flower, they cast forth a most agreeable Perfume, especially in Mornings and Evenings; so that it renders such Places very delightful at that Season.

These may be easily propagated by parting their Roots; the best Time for which is at Michaelmas, that the Plants may take Root before Winter, so that they may flower stronger the succeeding Spring.

The double Sorts, and those without Smell, may be admitted for Variety: but the single blue, white and reddish-coloured Sorts, are those which should be most cultivated; because these are all equally well scented, in which the greatest Curiosity of these Flowers consists. And these all growing wild

wild in *England*, may be easily obtained in great Quantity from their Places of Growth, by such as are fond of these Flowers.

The ninth Sort is preserved in some curious Gardens for Variety; but there is no Scent in its Flowers, so that it hardly merits a Place in curious Flower-gardens.

The tenth Sort produces large yellow Flowers, which continue a long time: this being a Native of cold mountainous Places, should have a shady cool Situation; and is very proper for North Borders, where it will thrive exceedingly, and continue flowering most Part of the Summer. It is propagated by parting of the Roots, in the same manner as the former.

The eleventh Sort is admitted into Gardens for the beautiful Colours of its Flowers, of which there are a great Number of Varieties; but they have no Scent. This Plant is annual, but will require no other Culture than only to place a few Roots in such Parts of the Garden where you would have them grow, and suffer them to shed their Seeds, which will come up and multiply fast enough: therefore you must observe to reduce them within Compass, otherwise they will spread over the whole Garden. This Plant is placed amongst the Official Simples in the College Dispensatory.

The several Sorts of Violets, here enumerated, are preserved in some curious Gardens for the sake of Variety. They are all hardy enough to thrive in the open Air in *England*; but those Sorts which are Natives of the *Alps*, and other mountainous Places, must be planted in a shady Situation, and should have a pretty strong moist Soil, otherwise they will not thrive.

The twelfth Sort differs from the common Violet, only in having larger Leaves, which may proceed from the Culture; for I have frequently observed, when the Roots of Violets have been gathered in the Woods, and brought into Gardens, that their Leaves have been greatly enlarged in one Year; but then they have not been so productive of Flowers as before.

The thirteenth, fourteenth, twentieth, twenty-first, twenty-second, twenty-third, twenty-fourth, thirty-second, thirty-third, thirty-fourth, thirty-fifth, thirty-sixth, thirty-seventh, thirty-eighth, and forty-first Sorts, being Plants of no great Beauty, are only preserved for the sake of Variety by some curious Persons; but the fifteenth, sixteenth, seventeenth, eighteenth and nineteenth Sorts merit a Place in every good Garden, for the sake of their double Flowers, which are extremely sweet. The eighteenth Sort produces very large full Flowers, which are almost as large as the Double Cinnamon-rose; so that they make a fine Appearance, and the Flowers are also very sweet. This Plant should be planted on a strong Soil in a shady Situation, where they will thrive and flower much better than in a rich Ground.

The twenty-sixth, twenty-seventh, twenty-eighth, twenty-ninth, thirtieth, and thirty-first Sorts, being also very pretty Plants, may be allowed a Place on a North Border in the Flower-garden, for the sake of Variety. These are of the Kind of the *Pansies* or *Hearts-ease*, but their Flowers are much larger; and as their Roots abide several Years, they may be propagated by parting them. The best Time for this Work is at *Michaelmas*, that they may be well rooted

rooted before Spring; otherwise they will not flower very strong the following Spring.

The thirty-ninth and fortieth Sorts were discovered by Dr. Tournefort in the *Levant*. These, though they are Natives of warmer Countries, yet they will thrive very well in the open Air in *England*. They must also be planted in a shady Border, and in dry Weather they should be often watered, which will continue their Flowers a long time: for as these are also of the Parsy Kind, they continue in like manner to produce new Flowers from the Wings of the Leaves, for at least two Months, if they are not stinted by Drought. The thirty-ninth Sort, having very sweet Flowers, well deserves a Place in curious Gardens.

VIORNA; vide Clematitis.

VIRGA AUREA; Golden-rod.

The Characters are;

The Leaves are for the most part whole, and are placed alternately on the Stalks; the Calyx (or Flower-cup) is squamous; the Flowers are small, radiated, and of a yellow Colour, consisting of many Florets, each of which is furnished with an Embryo, which afterward becomes a Seed, having a downy Substance adhering to it: to which should be added, That the Flowers are produced in a long Spike.

The Species are;

1. VIRGA AUREA *vulgaris latifolia*. J. B. The common or broad-leaved Golden-rod.

2. VIRGA AUREA *montana, folio angusto subincano, flosculis conglobatis*. Raii Syn. Narrow-leaved mountain Golden-rod, with an hoary Leaf, and conglobated Flowers.

3. VIRGA AUREA *angustifolia, panicula speciosa, Canadensis*. H. R. Par. Narrow-leaved Canada Golden-rod, with a specious Panicle.

4. VIRGA AUREA *Canadensis hirsuta, panicula minus speciosa*. Boerb. Ind. Rough Canada Golden-rod, with a less specious Panicle.

5. VIRGA AUREA *Novae Angliae, altissima, paniculis nonnunquam reflexis*. Flor. Bat. The tallest New-England Golden-rod, with a reflexed Panicle.

6. VIRGA AUREA *altissima serotina, panicula speciosa patula*. Rand. Tallest late-flowering Golden-rod, with a specious spreading Panicle.

7. VIRGA AUREA *Virginiana, foliis angustioribus asperis, panicula minus speciosa*. Pluk. Phyt. Virginian Golden-rod, with narrow rough Leaves, and a less specious Panicle.

8. VIRGA AUREA *rugosis foliis, Virginiana, panicula florum amplissima*. Pluk. Phyt. Rough-leaved Virginian Golden-rod, with an ample Panicle of Flowers.

9. VIRGA AUREA *foliis laevibus non serratis, panicula speciosa, floribus magnis*. Flor. Bat. Smooth-leaved Golden-rod, with a specious Panicle, and large Flowers.

10. VIRGA AUREA *Marylandica, spicis florum racemosis, foliis integris scabris*. Mart. Hist. Rar. Plant. Golden-rod from Maryland, with branching Spikes of Flowers, and whole rough Leaves.

11. VIRGA AUREA *Canadensis, asterisci folio*. Par. Bat. Canada Golden-rod, with a Leaf like Aiteriscus.

12. VIRGA AUREA *Americana serrata, floribus ad foliorum alas conglobatis*. Breyn. Prod. American Golden-rod, with serrated Leaves, and conglobated Flowers coming out from the Wings of the Leaves.

13. VIRGA AUREA *limonii folio, panicula uno versu disposita*. H. R. Par. Golden-rod with a Sea-lavender-leaf, and the Flowers growing upon one Side of the Stalk.

14. VIRGA

14. *VIRGA AUREA Novboracensis glabra, caulibus rubentibus, foliis angustis glabris. Flor. Bat.* Smooth New-York Golden-rod, with red Stalks, and narrow smooth Leaves.

15. *VIRGA AUREA floribus fistulosis, senecionis instar, foliis angustioribus non serratis. Hist. Oxon.* Golden-rod with fistulous Flowers, somewhat like Groundsel, and narrow smooth Leaves.

16. *VIRGA AUREA Canadensis, foliis carnosis non serratis latioribus. Hist. Oxon.* Canada Golden-rod, with broad fleshy smooth Leaves.

17. *VIRGA AUREA Novæ Angliæ, foliis longissimis glabris. Flor. Bat.* New-England Golden-rod, with long smooth Leaves.

18. *VIRGA AUREA latifolia serrata. C. B. P.* Golden-rod with broad sawed Leaves.

19. *VIRGA AUREA montana, latiore folio glabro. H. R. Par.* Mountain Golden-rod, with a broad smooth Leaf.

20. *VIRGA AUREA montana, latiore folio hirsuto. R. H. Par.* Mountain Golden-rod, with a broad hairy Leaf.

21. *VIRGA AUREA Alpina, laurinis rigidioribus foliis. Bocc. Mus.* Alpine Golden-rod, with stiffer Bay-leaves.

22. *VIRGA AUREA major, foliis glutinosi & graveolentibus. Inst. R. H.* Greater Golden-rod, with clammy and stinking Leaves.

23. *VIRGA AUREA minor, foliis glutinosi & graveolentibus. Inst. R. H.* Smaller Golden-rod, with clammy and stinking Leaves.

24. *VIRGA AUREA major, foliis glutinosi & graveolentibus, gallas ferens. Inst. R. H.* Greater gall-bearing Golden-rod, with clammy and stinking Leaves.

25. *VIRGA AUREA Virginiana*

annua. Zan. Annual Virginian Golden-rod.

26. *VIRGA AUREA Americana hirsuta; radice odorata. Joncq.* Rough American Golden-rod, with a sweet-smelling Root.

27. *VIRGA AUREA Marylandica cæsia glabra. Hort. Eltb.* Smooth Golden-rod of Maryland.

28. *VIRGA AUREA Americana annua graveolens, flore minimo, foliis conjugatis, & hyperici modo perforatis. Houst.* Annual stinking American Golden-rod, with a very small Flower, and Leaves growing by Pairs, which are perforated in the manner of St. John's-wort.

29. *VIRGA AUREA Americana, urticae foliis rugosis conjugatis & hirsutis, storum spicis foliosis. Houst.* American Golden-rod, with rough Nettle-leaves growing by Pairs, and the Spikes of Flowers set with small Leaves.

30. *VIRGA AUREA Americana fruticosa, salicis folio, floribus quasi umbellatis. Houst.* Shrubby American Golden-rod, with a Willow-leaf, and Flowers growing almost in an Umbel.

These Plants are very great Ornaments in the Borders of large Flower-gardens, where, by their Succession of Flowering, they afford a very great Pleasure; for the earliest Kinds begin to flower in *June*, which are succeeded by other Sorts until the Latter-end of *October*; and their Flowers being produced, for the most part, on long specious Spikes or Panicles, make a very handsome Appearance, and are very ornamental to Flower-pots, when intermixed with Flowers of different Colours, to place in Rooms.

They are all easily propagated by parting their Roots in the Spring, before they begin to shoot, and should

should be planted in the Middle of the larger Borders in the Flower-garden: they will grow in almost any Soil or Situation, but will thrive best in a light fresh Earth, and an open Exposure, though some of the hardiest of them may be placed under Avenues of Trees, where they will continue in Flower a long time, and look very well. The first twelve Sorts are somewhat hardier than the rest, and will increase very fast by Off-sets, which some of them send forth in very great Plenty, insomuch that if they are not carefully dug round at least once in every Year, they will spread over the Borders where they are planted, and destroy such Plants as stand near them. The other Sorts should have a warmer Situation, and a dry Soil; these are not so apt to spread at their Roots as the others, so that there will be the less Difficulty of keeping them within Bounds.

The first Sort here mentioned is sometimes used in Medicine. This grows wild in most shady Woods in the South Parts of *England*; from whence the Roots may be transplanted into a shady Part of the Garden, where they will thrive and flower very well.

These are all perennial Plants, which die to the Surface of the Ground every Winter, but rise again the succeeding Spring: most of them produce their Flowers in Autumn, and, if the Season proves favourable, will ripen their Seeds; which, if sown soon after ripe, will come up the following Spring, from whence some new Varieties may be obtained.

The eighteenth, nineteenth, twentieth, twenty-first, twenty-eighth, and twenty-ninth Sorts are abiding Plants, which may be propagated by parting

their Roots, in the same manner as hath been directed for the former Sorts. These Plants continue a long time in Flower, and appearing toward the latter Part of Summer, when there are few better Sorts in Beauty, are worthy of a Place in every large Garden, especially as they are very hardy, and require very little Care to cultivate them; for they will thrive in the Shade under Trees, and if they are taken up and parted every fourth Year, they will thrive and flower extremely well.

The twenty-second, twenty-third, and twenty-fourth Sorts seldom continue longer than two or three Years, and therefore should be often renewed. These may be increased by parting their Roots; but the Plants which are thus parted, seldom thrive so well as those which are raised from Seeds, but as these Plants do not perfect their Seeds every Year in *England*, the other Method must be practised to preserve the Kinds. The best Time for this Work is in the Autumn, that they may be well rooted before the Spring, otherwise they will not flower very strong. These Sorts should be planted on a loamy Soil on open Borders; for they will not thrive under the Drip of Trees.

The twenty-fifth Sort is an annual Plant of no great Beauty, which if permitted to scatter its Seeds, will become a Weed over the Garden. This Plant is now become a common Weed in the Fields in divers Parts of *England*; but it is generally believed, the Seeds were at first blown out of Gardens; for it was originally brought from *America*.

The twenty-eighth, twenty-ninth, and thirtieth Sorts were discovered by the late Dr. *Houfoun* at *La Vera Cruz*. These being tender Plants, will

will not live in the open Air in *England*. They may be propagated by Seeds, which should be sown on a moderate Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted into Pots filled with fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing, after they have taken new Root, to admit a large Share of free Air to them every Day, when the Weather is warm, as also to water them constantly every Day; for they naturally grow in moist Places. The twenty-eighth Sort, which is an annual Plant, will flower toward the Middle of *June*, and the Seeds will ripen the End of *August*; when some of them should be sown to come up before Winter, because the Seeds will more certainly grow at this Season, than in the Spring, and the Plants will grow much stronger. The twenty-ninth Sort, being a biennial Plant, rarely flowers the first Season; therefore this, and the thirtieth Sort, (which is an abiding Plant) should be removed into the Stove at *Michaelmas*, and placed where they may have a temperate Degree of Warmth in Winter, in which they may be preserved; but they must be frequently refreshed with Water, tho' in very cold Weather it must not be given in great Quantities. With this Management the Plants will flower extremely well, and add to the Variety in the Stove.

VISCUM; Mistleto.

The Characters are;

The Flower consists of one Leaf, which is shaped like a Basin, and for the most part divided into four Parts, and beset with Warts; the Ovary, which is produced in the Female Flowers, is placed in a remote Part of the Plant (or for the most part on

different Plants) from the Male Flowers, and consists of four shorter Leaves; this afterward becomes a round Berry, full of a glutinous Substance, inclosing a plain heart-shaped Seed.

We have but one Species of this Plant in *England*; viz.

VISCUM baccis albis. C. B. P. Common Mistleto, with white Berries.

This Plant is always produced from Seed, and is not to be cultivated in the Earth, as most other Plants, but will always grow upon Trees; from whence the Antients accounted it a Super-plant, most of whom thought it was an Excrecence on the Tree, without the Seed being previously lodged there: which Opinion is now generally confuted from a repeated Number of Experiments.

The Manner of its being propagated is this; viz. The Mistleto-Thrush, which feeds upon the Berries of this Plant in Winter, when it is ripe, doth often carry the Seeds from Tree to Tree; for the viscous Part of the Berry, which immediately surrounds the Seed, doth sometimes fasten it to the outward Part of the Bird's Beak; which to get disengaged of, he strikes his Beak against the Branches of a neighbouring Tree, and thereby leaves the Seed sticking by this viscous Matter to the Bark; which, if it lights upon a smooth Part of the Tree, will fasten itself thereto; and the following Winter will put out and grow: and in the same manner it may be propagated by Art; for if the Berries, when full ripe, are rubbed upon the smooth Part of the Bark of a Tree, they will adhere closely thereto, and if not destroyed, will produce Plants the following Winter.

The Trees which this Plant doth most readily take upon, are the Apple, the Ash, and some other smooth-rind Trees; but I have several times tried it upon the Oak, without Success; for the Bark of that Tree is of too close a Texture to admit the Seeds striking therein; which is also the Reason it is so rarely found upon that Tree: and notwithstanding the great Encumbrances which have been given to the Mistle of the Oak, for its Medicinal Virtues; yet I can't help thinking, that it is equally good from whatever Tree it be taken; nor is it possible to find this Plant growing in any Quantity upon the Oak; so that those Persons who pretend to furnish the Town with it for Physical Use, do but impose upon the World; for it is so rarely met with, that whenever a Branch of an Oak-tree hath any of these Plants growing upon it, it is cut off, and preserved by the Curious in their Collections of Natural Curiosities; and of these there are but few to be seen in *England*.

As to what some Persons have asserted of the Manner how it is propagated, from Tree to Tree, by the Mistle-thrushes, which eat the Berries, and void the Seed in their Dung, upon the Branches of Trees, whereby the Seeds are stuck thereon, and take Root into the Bark, and produce fresh Plants; I can by no means agree to; since, if it were only this way propagated, it would always be found upon the Upper-part or the Sides of such Branches, upon which the Dung can only be supposed to lodge; whereas it is often found upon the Under-side of Branches, where it is almost impossible for these Birds to cast their Dung: besides, I believe the Stomachs of these Birds are too pow-

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erful Digesters to suffer any Seeds to pass intire through the Intestines. But I shall leave this to those who have Leisure to make Observations in such Places where this Plant abounds, and shall add only a short Account of the Method used to make Bird-lime, which may not be improper to insert in this Place for the Satisfaction of the Curious.

The *Italians* make their Bird lime of the Berries of Mistleto, heated and mixed with Oil, as that made of Holly-bark; and to make it bear the Water, they add Turpentine.

That which is commonly used with us, is made of the Bark of Holly; which they boil for ten or twelve Hours; and when the green Coat is separated from the other, they cover it up for a Fortnight in a moist Place, pounded into a tough Paste, that no Fibres of the Wood be left; then they wash it in a running Stream till no Motes appear, and put it up to ferment for four or five Days, and scum it as often as any thing arises, and then lay it up for Use. When they use it, they incorporate with it a third Part of that Oil over the Fire.

The Bird-lime that is brought from *Damascus* is supposed to be made of Sebestens, the Kernels being frequently found in it; but this will not endure either Frost or Wet.

The Bird-lime brought from *Spain* is of an ill Smell.

The Bark of our Lantone, or Way-faring-thrub, as it is said, will make Bird-lime as good as the best.

VISNAGA, *Spanish* Picktooth.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of several Petals, which rest on the Empalement; which afterward becomes the Fruit, composed of two oblong furrowed Seeds: to these Notes

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must be added, *The Leaves are finely divided like Fenel; and when the Flowers fall off, the Umbel contracts together.*

The Species are;

1. *VISNAGA seu Gingidium. Mor. Umb.* Common Spanish Picktooth.
2. *VISNAGA seu Gingidium Montis Libani. Munt. Plant.* Greater Tooth-pick of Mount Libanus.

The first Sort grows plentifully in the South of France, as also in Spain and Italy. The Spaniards make use of the Foot stalks of the Umbel for Tooth-picks, from whence it obtained this Name. This is preserved in the Gardens of some curious Persons, for the sake of Variety. It is an annual Plant, and perishes soon after the Seeds are ripe. The Seeds of it should be sown early in the Autumn, that the Plants may obtain Strength before the Frost. These will endure the Cold of our Winters extremely well, provided the Seeds are sown on a dry Soil; for they do not very well bear transplanting; therefore the Seeds should be sown where the Plants are designed to remain. In the Spring they should be thinned where they come up too thick, leaving them about six or eight Inches asunder; and if they are afterward kept clear from Weeds, it is all the Culture they require. In June they will flower, and their Seeds will ripen in August.

The second Sort is less common in England than the first: this is found on Mount Libanus, and in several other mountainous Places in the East Country. The Umbels of this Sort are much larger than those of former, and the Leaves of the Plant are not so finely cut. The Seeds of this Sort have been often brought into England, from which I have raised the Plants, which have grown

very well the former Part of the Season; but they have always decayed soon after Midsummer, so that I never could preserve any of them to flower.

VITEX; Agnus-castus, or the Chaste-tree.

The Characters are;

It hath a Flower consisting of one Leaf, which appears as if it had two Lips: the Fore-part is tubulose; from whose Flower-cup rises the Pointal, which afterward becomes an almost spherical Fruit, which is divided into four Cells, in which are contained oblong Seeds: to which may be added, The Leaves are digitated (or finger'd) like those of Hemp.

The Species are;

1. *VITEX foliis angustioribus, can-nabis modo dispositis. C. B. P.* The Chaste-tree, with narrow Leaves.
2. *VITEX latiore folio. C. B. P.* The Chaste-tree, with broad serrated Leaves.
3. *VITEX sive Agnus, flore al-bido. H. R. Par.* The Chaste-tree, with whitish Flowers.
4. *VITEX sive agnus minor, fo-liis angustissimis. H. R. Par.* The lesser Chaste-tree, with very narrow Leaves.

The first of these Plants is pretty common in most English Gardens. where a Variety of hardy Trees are preserved; but the other Sorts are less common, and only in some curious Gardens at present. These Plants are all very hardy, and may be propagated by planting their Cuttings early in the Spring, before they shoot; they require a fresh light Soil, and must be frequently refreshed with Water, until they have taken Root; after which they must be carefully cleared from Weeds, during the Summer-season; and if the Winter proves severe, you must lay a little Mulch upon

on the Surface of the Ground between the Plants, to prevent the Frost from penetrating to their Roots, which would injure them while they are young; toward the Middle of *March*, if the Season be favourable, you should transplant them either into the Places where they are designed to remain, or into a Nursery for two or three Years, to get Strength; where they must be pruned up, in order to form them into regular Plants; otherwise they are very subject to shoot out their Branches in a straggling manner.

If these Plants are placed in a warm Situation, and have a kindly light Soil, they will grow to be eight or ten Feet high, and produce their Spikes of Flowers at the Extremity of every strong Shoot in Autumn; which although of no great Beauty, yet coming late in the Year, and having an odd Appearance, together with the Variety of their Leaves, render them worthy of a Place in small Wilderness Quarters amongst other Shrubs of the same Growth.

They may also be propagated by laying down their Branches in the Spring of the Year (in doing of which, you must be very careful not to break them; for their Shoots are extremely brittle, and very subject to split off with the least Violence): these will take Root in one Year, provided they are watered in very dry Weather; and may then be transplanted out, and managed as was directed for those Plants raised from Cuttings.

VITIS; The Vine.

The Characters are;

The Flower consists of many Leaves, which are placed in a circular Order, and expand in form of a Rose; the Ovary, which is situated in the

Bottom of the Flower, afterward becomes an oval or round Fruit, which is very full of Juice; and contains many small Stones in each. To which should be added, That the Tree is climbing, sending forth Claspers at the Joints, by which it fastens itself to whatever Plant stands near it, and the Fruit is produced in Bunches.

The Species are;

1. VITIS *sylvestris labrusca*. C. B. P. The wild Vine, commonly called, *The Claret Grape*. This Sort of Grape is pretty well known in England; it has a Berry of a middling Size, of deep black Colour, covered over with a Bloom like a Plum, which may be wiped off; the Juice stains of a deep-red Colour, and before it is quite dead-ripe, is of an austere Taste; the Bunches are pretty large, but short, having commonly two Side-bunches or Shoulders, on the Upper-part of the Bunch; the Leaves of this Vine are jagged, and change to a deep-red Colour before they fall off.

2. VITIS *præcox Columella*. H. R. Par. This is called in England the *July Grape*, but in France, *Morillon* and *Vigne bâtive*. This is the earliest Grape at present known in England, for which it is chiefly preserved; for it is not much esteemed for its Goodness: the Skin is thick, the Juice but very indifferent, and the Berries commonly grow very thin upon the Bunches. These are of a middle Size, and of a dark muddy-red Colour.

3. VITIS *Corinthiaca, sive Apyrina*. J. B. The *Corinth Grape*, vulgarly called, *The Curran Grape*: it is an early Ripener, the Berry is small and slender, the Juice very sweet, and hath very little Stone. Of this Kind there are two or

three different Colours, as red, black, and tawny. This is the Sort which is brought from the Islands near the *Morea*, by the Name of *Currans*, and sold by the Grocers of *London*, to put into Puddings, &c.

4. *VITIS laciniatis foliis. Cornut.* The parsley-leaved Grape, *vulge.* This Sort was originally brought from *Canada*, where it grows wild in the Woods; and is preserved in the Gardens of the Curious, for the Variety of its fine jagged Leaves. This is a pretty large white Grape, and has a sweet Juice, but not very vinous; the Berries are very apt to grow thin upon the Bunches, unless the Vine is pruned short, and left but thin with Wood.

5. *VITIS subhirsuta. C. B. P.* The Morillon Taconne, or Munjer; *i. e.* The Miller's Grape; this is called the *Burgundy* in *England*. The Leaves of this Sort are very much powdered with white, especially in the Spring, when they first come out; from whence it had the Name of *Miller's Grape*. It produces middle-sized black Grapes, which grow close upon the Bunches, and are generally short and thick. This is an excellent Bearer, and an hardy Sort.

6. *VITIS præcox Columella, acinis dulcibus nigricantibus.* The black Morillon. This is called in *Burgundy*, *Pineau*, and at *Orleans*, *Auverna*. It is a very sweet Grape, of a middle Size, somewhat oval, and of a fine black Colour: the Bunches are somewhat longer than those of the former. This makes very good Wine.

7. *VITIS uva perampla, acinis albidis dulcibus durioribus. Tourn.* The Chasselas blanc, Bar-sur-Aube, White Chasselas, or Royal Muscadine. This is a large white Grape, and grows close upon the Bunches,

which are also very large, and have commonly two small Side-branches or Shoulders, produced from the upper Part of the Bunch; the Berries, when full ripe, if well exposed to the Sun, change to a pale amber Colour, the Juice is very rich, and the Fruit is commonly ripe early in *September*.

8. *VITIS uva perampla, acinis dulcibus nigricantibus. Tourn.* The Chasselas noir, *i. e.* The black Chasselas. This is very often called *The black Muscadine*. The Berries of this are as large as those of the former, the Bunches are commonly larger, and are somewhat later ripe; the Juice is very rich. If well exposed, they bear well, and are ripe toward the End of *September*.

9. *VITIS uva perampla, acinis dulcibus rubentibus. Tourn.* The red Chasselas. This is also called *The red Muscadine*. The Berries of this Sort are a little larger than those of the former, and grow much thinner upon the Bunches; are of a faint red Colour; and the Juice is very sweet, but later ripe, upon which account it is not so valuable in *England*.

10. *VITIS uva perampla, acinis ovatis albidis. Tourn.* The Burdelais, vulgarly called *Burlake*. The Berries of this Kind are very large, of an oval Shape, and grow pretty close on the Bunches, which are sometimes of a prodigious Size. I have seen a Bunch of these Grapes which has weighed five Pounds. But they never ripen in this Country, so that they are fit for nothing, except *Verjuice*, or to make *Tarts*.

11. *VITIS acinis albis dulcissimis; Vitis Apiana. C. B. P. Garidel.* The Muscat, or White Frontinac. The Berries of this Kind are large, and grow extremely close upon the Bunches,

Bunches, which are very long, and have commonly two Shoulders to them: the Fruit, when ripe, has a rich musky Flavour; but it is commonly very late in the Autumn before they ripen, and the Berries being so very close upon the Bunches, detain the Moisture in their Middles; so that they commonly perish: to prevent which, some very curious Persons look over their Vines, soon after the Grapes are formed, and with a Pair of Scissars cut out all the small ones, so as to leave the others at a moderate Distance, whereby the Sun and Air is easily admitted, which dissipates the Moisture, and prevents their perishing. This Sort is a great Bearer.

12. *VITIS acinis rubris nigricantibus dulcissimis. Gardel.* The Muscat rouge, or Red Frontinac. The Berries of this Kind are of the Size of the former, but grow much thinner on the Bunches; it is higher flavoured, and when thorough ripe, is the richest Grape yet known. But this must have a very dry Soil, and a South-east Aspect, otherwise it seldom ripens well in England.

13. *VITIS acinis nigricantibus dulcissimis.* The black Frontinac. The Berries of this Kind are less than the two former, but are not so high-flavoured; their Juice is sweet, and they are earlier ripe. This is a good Bearer; but the Grapes upon the same Bunch seldom ripen at the same time, so that they cannot be gathered in full Bunches, but must be picked off singly as they ripen.

14. *VITIS Damascena. H. R. Par.* The Damask Grape. The Berries of this Kind are very large, black, and of an oval Form; the Bunches are very large, and the Vine pro-

duces vigorous Shoots. This ripens late in England.

15. *VITIS præcox, acino rotundo albido dulci.* The white Sweet-water. The Berries of this Kind are large and white, the Skins are very thin, and the Juice is sweet; this is very early ripe, but the Berries are apt to be thin upon the Bunches; for it is one of the tenderest Sorts, when in Flower, that I have yet seen; so that if there happens bad Weather at that Season, they are very subject to blight, and being so uncertain in bearing, has rendered it less esteemed than it was formerly.

16. *VITIS præcox, acino nigro, dulci & rotundo.* The black Sweet-water. This is a less Grape than the former; it is of a fine black Colour, and grows pretty close upon the Bunches; its Juice is sweet, and it is early ripe.

17. *VITIS alba dulcis. J. B.* The white Muscadine. The Berries of this Kind are large, of a white Colour, and the Juice is very sweet; the Bunches are long, and it is early ripe.

18. *VITIS Allobrogica Plinii. Car. Steph. Præd. Rusi.* The Raisin Grape. This is a large oval Grape, of a blackish Colour, when ripe; the Bunches are very large, and make a fine Appearance, but never ripen well in England. I have known some Persons who had a great Quantity of this Sort of Grape, which they commonly cut in the Middle of October, with pretty long Stalks to the Bunches, and hung them on Strings, in Rows, in their Kitchen, at such a Distance as not to touch each other; and about Christmas these Grapes will be so ripened by the Warmth of the Room, as to eat extremely well.

19. *VITIS acino rubro duriori, sapore dulci. Garidel.* The Greek Grape. This is a middle-sized Grape of a deep-red Colour; the Skin is very tough, and the Stones are small; this is by many People called *The Brick Grape*. In a kindly Season, when these Grapes ripen well, they make excellent Wine; but it must have a good Wall, otherwise it will not ripen in *England*.

20. *VITIS pergulana, uva per-ampla, acino oblongo duro, majori & subviridi. Garidel.* The Pearl Grape, called in *Provence*, *Pendoulau*, or *Rin de Ponso*. This is a large oblong Grape, of a greenish-white Colour, the Juice has a Mixture of Sweet and Sour, and it is late ripe.

21. *VITIS uva perampla, acinis nigricantibus majoribus.* The Saint Peter's Grape, or *Hesperian*. The Berries of this Sort are very large, round, and of a deep-black Colour when ripe; the Bunches are very large, and have two Shoulders to them; the Juice is very rich, and a little tinged with Red; the Leaves of this Sort are remarkably jagged, so as to be known when there is no Fruit upon the Vines; it is late ripe. I believe this is the same Sort which the *French* call *Gras Noir d'Espagne*, i. e. *Great black Spanish*.

22. *La Malvoise, i. e. the Malmsey Grape.* It is a middle-sized Fruit, of a muddy-red Colour; its Juice is very rich and soft, the Bunches are large, and it is a great Bearer; this ripens toward the Latter-end of *September*.

23. *Malvois Musquée, i. e. the Malmsey Muscadine.* This is a middle-sized Grape, rather long than round, of a rich musky Flavour when ripe. This is one of the Sorts of Grapes from which the *Madera*

Wine is made. It ripens late in *England*.

24. The red *Hamburg* Grape. The Berries of this Kind are large, and of a reddish Colour, covered with a Flue; the Bunches are large, and it is a good Bearer. This ripens toward the End of *September*, and is a fine Grape. It was brought into *England* by Mr. *Warner* of *Rotherbith*, who hath supplied many curious Persons with it.

25. The black *Hamburg*, or *Warner* Grape. This has a middle-sized Berry, rather long than round, of a fine black Colour, when ripe; the Juice is very rich, somewhat inclining to a musky Flavour. This ripens about the Middle of *September*. It was brought into *England* by Mr. *Warner*, with the former.

26. *Raisin Suisse, i. e. the Switzerland Grape.* This is preserved only as a Curiosity; the Fruit of this Kind are striped with White and Black, and sometimes divided into Quarters of those Colours; and many times half the Bunch is white, and the other half black, and some intire Bunches are white, and others black, so that it appears as if two Kinds had been grafted on the same Root. The Fruit is good for little, but Shew; therefore one Plant of this Kind is enough in a Garden.

27. *The white Muscat* or *Frontinac* of *Alexandria*; by some called the *Jerusalem Muscat*, and *Gross Muscat*. The Berries are of an oval Shape, and very large; they grow very loose on the Bunches, are very fleshy and firm, and when ripe are of a greenish White, and have a delicate Flavour; somewhat like the white *Frontinac*, but not quite so strong. This, being a very late Grape, rarely ripens in *England* without some Assistance; but as it

is an excellent Fruit when ripe, it merits a Place against Hot-walls; where, with a little artificial Heat, it will ripen very well.

28. *The Red Muscat or Frontinac of Alexandria*, by some called *Red Jerusalem Muscat*. This is not quite so late in ripening as the former; and is more esteemed about *Paris*, where, against good Walls, it ripens very well without any artificial Heat. The Berries of this Kind are not quite so large as those of the White; but they are of the same Form, and are equal in Goodness.

29. *The White Melie Grape*. The Berries of this Sort are of a middle Size, somewhat oval-shaped, and grow pretty close on the Bunches. When these are ripe, they are of a greenish White, covered with a Flue, which wipes off: the Juice is very sweet, and makes an excellent White-wine. This ripens very well against Walls, and in a good Season will ripen on Espaliers, or in Vineyards.

30. *The White Morillon*. This is a middle-sized Grape, almost round, and grows pretty close on the Bunches; the Juice is well flavoured, but the Skin is tough. This ripens very well against good Walls.

31. *The Alicant Grape*. This is a large Fruit of a deep-red Colour, covered with a blue Flue; the Bunches are also very large, and the Grapes grow sparsely on them. The Juice is rich and vinous, when the Grapes are thoroughly ripe; which seldom happens in this Country, unless they are brought forward with an artificial Heat. This is the Sort of Grape of which the strong *Spanish Wine* is made.

32. *The White Auvernat*. This is in Shape very like the black Auvernat Grape: it grows pretty close

on the Bunches, and is of a muddy white Colour when ripe. The Juice of this Sort is not so palatable to eat as many others, but it makes an excellent White-wine.

33. *The Grey Auvernat* is also shaped somewhat like the former; but is of a pale murrey Colour, inclining to brown. This Sort produces its Grapes looser on the Bunches than the former, and ripens sooner; wherefore it is better to plant for Vineyards, because it seldom fails to ripen in a good Aspect.

34. *The Raisin Muscat*. This is a large oblong pointed Grape, whose Berries are firm and fleshy, and are loosely placed on the Bunches. Being a very late Fruit, it will not ripen in *England* without the Assistance of a Hot-wall. This Sort of Grape is frequently brought over from *Portugal*, and is sold in Winter in the *London Markets*.

There have been several other Sorts of Grapes introduced into this Country of late; but there are not many of them worth cultivating, being too late in ripening to come to any Perfection in *England*, without the Assistance of artificial Heats; and there are amongst the Sorts here enumerated, some of the most valuable Kinds which deserve Hot-walls; for which Reason I shall not describe any more Sorts, since it would be an endless Task to enumerate all the Sorts of Grapes, which are known in *Europe*; for as new Varieties arise frequently from the Seeds in hot Countries, the Inhabitants of those Wine Countries, who are curious in collecting the several Sorts, are annually adding to their Collections. The late Duke of *Tuscany*, who was formerly very curious in collecting all the Sorts of *Italian* and *Greek* Grapes into his Vineyards, was possessed of upward of three hundred

hundred several Varieties; many of which were of little Worth, only were kept by way of Curiosity.

There have lately been some Plants of the *Tokay* Grapes brought into *England*. When these Cuttings were procured Abroad, it was supposed, that the *Tokay* Wine was made of only one Sort of Grape: but by those of the Cuttings which did succeed here, it appears that there are several Sorts of Grapes cultivated in the Vineyards where that Wine is made; some of which are white, and others are black; but they are not extraordinary good Grapes for this Country.

Amongst the Claret Grapes there are also several Varieties, which differ in the Colour of their Juice; some of them having a very pale-red Juice, which will not give much Colour to the Wine; and others have a deep-coloured Juice, which will stain like the Juice of Mulberries; and it is the latter Sort which the Vine-dressers abroad prefer; not only for the Colour, but also for the Roughness of its Juice. The Leaves of this Sort of Grape turn of a deep purple Colour all over, at the time when the Fruit is ripening; whereas the Leaves of the paler Sorts are like the Juice of the Fruit, of a more lively purple Colour; so that the Sorts of these Claret Grapes are as easily distinguished by their Leaves in the Autumn Season, as by the Fruit when ripe.

All the Sorts of Vines are propagated either from Layers or Cuttings, the former of which is greatly practised in *England*; but the latter is what I would recommend, as being much preferable to the other. For the Roots of Vines do not grow strong and woody, as in most Sorts of Trees; but are long, slender, and pliant; so that when they are taken

out of the Ground, they seldom strike out again, but shrivel and dry; so that they rather retard than help the Plants in their Growth, by preventing the new Fibres from pushing out; for which Reason I had rather plant a good Cutting than a rooted Plant, provided it be well chosen, and there is less Danger of its not growing.

But as there are few Persons who make Choice of proper Cuttings, or at least that form their Cuttings rightly, in *England*, it will be proper to give Directions for this Work in the first Place, before I proceed. You should always make Choice of such Shoots as are strong and well supplied of the last Year's Growth; these should be cut from the *vine*, just below the Place where they were produced, taking a Knot of the two Years Wood, which should be pruned smooth; then you should cut off the Upper-part of the Shoot, so as to leave the Cutting about sixteen Inches long; now, in making the Cuttings after this manner, there can be but one taken from each Shoot; whereas most Persons cut them into Lengths of about a Foot, and plant them all, which is very wrong; for the Upper-part of the Shoots are never so well ripened, as the Lower-part, which was produced early in the Spring; so that if they take Root, they never make so good Plants; for the Wood of these Cuttings, being spongy and soft, admits the Moisture too freely, whereby the Plants will be luxuriant in Growth; but never so fruitful as such whose Wood is closer and more compact.

When the Cuttings are thus prepared, they should be placed with their Lower-part into the Ground, in a dry Place, laying some Litter about

about their Upper-parts, to prevent them from drying; in this Situation they may remain until the Beginning of April, (which is the best Time for planting them) when you should take them out, and wash them from the Filth they have contracted; and if you find them very dry, you should let them stand with their Lower-parts in Water, six or eight Hours, which will distend their Vessels, and dispose them for taking Root. Then set about preparing the Ground where the Plants are designed to remain (whether against Walls, or for Standards); for they should not be removed again. But as I intend hereafter to treat in particular about the Planting and Management of Vineyards, in this Place I shall confine myself only to such as are planted either against Walls or Pales, for Eating.

In preparing the Ground, you should consider the Nature of the Soil, which, if strong and inclinable to Wet, is by no means proper for Grapes; but where it thus happens, you should open a Trench against the Wall, which should be filled with Lime-rubbish, the better to drain off the Moisture; then raise the Border with fresh light Earth, about a Foot thick, so that it may be at least a Foot above the Level of the Ground; then you should open the Holes about six Feet Distance from each other; putting one good strong Cutting into each Hole, which should be laid a little sloping, that their Tops may incline to the Wall; but must be put in so deep, that the uppermost Eye may be level with the Surface of the Ground; for when there are two or three Eyes left above-ground, as is the common Method used by the *English* Gardeners, they all attempt to shoot; so that the Strength of the

Cuttings is divided to nourish so many Shoots, whereas, on the contrary, it is all employed on one single Shoot, which consequently will be much stronger; besides, the Sun and Air is apt to dry that Part of the Shoots which remains above Ground, and often prevents their Buds from shooting.

Then, having placed the Cutting into the Hole, you should fill up the Hole gently, pressing down the Earth with your Foot; and raise a little Hill just upon the Top of the Cutting, to cover the upper Eye quite over, which will prevent it from drying. This being done, there is nothing more necessary, than to keep the Ground clear from Weeds, until the Cuttings begin to shoot; at which time you should look over them carefully, to rub off any dangling Shoots, if such are produced, and fasten the main Shoot to the Wall; which should be constantly fastened up, as it is extended in Length, to prevent its breaking, or hanging down. You must continue also, during the Summer-season, constantly rubbing off all lateral Shoots which are produced, leaving only the first main Shoot; and be sure to keep the Ground constantly clear from Weeds; which, if suffered to grow, will exhaust the Goodness of the Soil, and starve the Cuttings.

The *Michaelmas* following, if your Cuttings have produced strong Shoots, you should prune them down to two Eyes (which, though by some People it may be thought too short, yet I am satisfied, from several Experiments, to be the best Method): the Reason for advising the pruning the Vines at this Season, rather than deferring it till Spring, is, because the tender Parts of those young Shoots, if left on, are subject

to decay in Winter, and imbibe some noxious Matter from the Air, which greatly weakens their Roots; so that, if they are cut off early in Autumn, the Wounds will heal over before the bad Weather, and thereby the Roots will be greatly strengthened.

In the Spring, after the cold Weather is past, you must gently dig up the Borders, to loosen the Earth; but you must be very careful, in the doing of this, not to injure the Roots of your Vines; you should also raise the Earth up to the Stems of the Plants, so as to cover the old Wood, but not so deep as to cover either of the Eyes of the last Year's Wood. After this they will require no farther Care until they begin to shoot, when you should look over them carefully, to rub off all weak dangling Shoots, leaving no more than the two Shoots, which are produced from the two Eyes of the last Year's Wood, which should be fastened to the Wall; and so from this, until the Vines have done shooting, you should look them over, once in three Weeks, to rub off all lateral Shoots as they are produced, and to fasten the two main Shoots to the Wall, as they are extended in Length, which must not be shortened before the Middle of *July*, when it will be proper to nip off their Tops, which will strengthen the lower Eyes. And during the Summer-season you must constantly keep the Ground clear from Weeds, nor should you permit any Sort of Plants to grow near the Vines, which would not only rob them of Nourishment, but shade the Lower-parts of the Shoots, and thereby prevent their ripening; which will not only cause their Wood to be spongy and luxuriant, but render it less fruitful.

At *Michaelmas* you should prune these again, leaving three Buds to each of the Shoots, provided they are strong, otherwise it is better to shorten them down to two Eyes; for it is a very wrong Practice to leave much Wood upon young Vines, or to lay their Shoots in too long, which greatly weakens the Roots: then you should fasten them to the Wall, drawing each of them out horizontally from the Stem; and in the Spring dig the Borders as before.

The third Season you must go over the Vines again, as soon as they begin to shoot, rubbing off all Danglers, as before, and training in the leading Shoots (which this Season may be supposed to be two from each Shoot of the last Year's Wood; but if they attempt to produce two Shoots from one Eye, the weakest of them must be rubbed off; for there should never be more than one allowed to come out of an Eye). If any of them produce Fruit, as many times they will the third Year, you should not stop them, so soon as is generally practised upon the bearing Shoots of old Vines, but permit them to shoot forward till *Midsummer*; at which time you may pinch off the Tops of the Shoots: for if this were done too soon, it would spoil the Buds for the next Year's Wood; which, in young Vines, must be carefully preserved, because there are no Shoots laid in on Purpose for Wood, as is commonly practised on old Vines.

During this Summer you must constantly go over your Vines, and displace all weak lateral Shoots as they are produced, and carefully keep the Ground clear from Weeds, as was before directed, that the Shoots may ripen well, which is a material

material thing to be observed in most Sorts of Fruit-trees, but especially in Vines; which seldom produce any Fruit from immature Branches. These things being duly observed, are all that is necessary in the Management of young Vines. I shall therefore proceed to lay down Rules for the Government of grown Vines, which I shall do as briefly as possible. And,

First, Vines rarely produce any bearing Shoots from Wood that is more than one Year old; therefore great Care should be taken to have such Wood in every Part of the Trees; for the Fruit are always produced upon Shoots, which come out from the Buds of the last Year's Wood; so that it is always upon the same Year's Shoots. The Method commonly practised by the Gardeners in *England* is, to shorten the Branches of the former Years Growth, down to three or four Eyes, at the time of pruning; tho' there are some Persons who leave these Shoots four or five Eyes long, and affirm that by this Practice they obtain a greater Quantity of Fruit: but this is very wrong, since it is impossible, that one Root can nourish forty or fifty Bunches of Grapes, so well as it can ten or twelve; so that what is gotten in Number, is lost in their Magnitude; besides, the greater Quantity of Fruit there is left on Vines, the later they are ripened, and their Juice is not so rich. And this is well known in the Wine Countries, where there are Laws enacted, to direct the Quantity of Shoots, and the Number of Eyes that those are to have upon each Root, lest by overbearing them they not only exhaust and weaken the Roots, but thereby render the Juice weak, and so destroy the Reputation of their Wine.

Wherefore the best Method is, to leave their bearing Shoots about four Eyes in Length (because the lowermost never produce), and three Buds are sufficient; for each of these will produce two or three Bunches; so that from each of those Shoots there may be expected six or eight Bunches, which is a sufficient Quantity. These Shoots must be laid in about eighteen Inches asunder; for if they are closer, when the Side-shoots are produced, there will not be room enough to train them in against the Wall, which should always be observed; and as their Leaves are very large, the Branches should be left at a proportionable Distance, that they may not crowd or shade each other.

In Pruning, you should always observe to make the Cut just above an Eye, sloping it backward from it, that, if it should bleed, the Sap might not flow upon the Bud; and where there is an Opportunity of cutting down some young Shoots to two Eyes, in order to produce vigorous Shoots for the next Year's Bearing, it should always be done; because in stopping of those Shoots which have Fruit upon them in *May*, it often spoils the Eyes for Bearing; and this reserving of new Wood, is what the Vignerons abroad always practise in their Vineyards. The best Season for pruning of Vines is the End of *September*, or the Beginning of *October*, for the Reasons before laid down.

The Latter-end of *April*, or the Beginning of *May*, when the Vines begin to shoot, you must carefully look them over, rubbing off all small Buds which may come from the old Wood, and only produce weak dangling Branches; as also when two Shoots are produced from the same Bud, the weakest of them

them should be displaced, which will cause the others to be stronger; and the sooner this is done, the better it is for the Vines.

In the Middle of *May*, you must go over them again, rubbing off all the dangling Shoots, as before; and at the same time you must nail up all the strong Branches, so that they may not hang from the Wall; for if their Shoots hang down, their Leaves will be turned the wrong way; which, when the Shoots are afterwards nailed upright, will have their back Surface upward; and until the Leaves are turned again, and have taken their right Direction, the Fruit will not thrive: so that the not observing this Management, will cause the Grapes to be a Fortnight later before they ripen. Besides, by suffering the Fruit to hang from the Wall, and be shaded with the Closeness of the Branches, it is greatly retarded in its Growth: therefore, during the growing Season, you should constantly look over the Vines, displacing all dangling Branches, and wild Wood, and fasten up the other Shoots regularly to the Wall, as they are extended in Length; and towards the Latter-end of *May* you should stop the bearing Branches, which will strengthen the Fruit, provided you always leave three Eyes above the Bunches; for if you stop them too soon, it will injure the Fruit, by taking away that Part of the Branch which is necessary to attract the Nourishment of the Fruit, as also to perspire off the Crudities of the Sap, which it is not proper for the Fruit to receive.

But although I recommend the stopping those Shoots which have Fruit at this Season, yet you should by no means stop those which are intended for bearing the next Year,

before the Beginning of *July*, left by stopping them too soon, you cause the Eyes to shoot out strong lateral Branches, whereby they will be greatly injured. These therefore should be trained upright against the Wall until that Time; when their Tops may be nipped off, to give Strength to the lower Buds.

During the Summer-season, you should be very careful to rub off all dangling Branches, and train up the Shoots regularly to the Wall, which will greatly accelerate the Growth of the Fruit; and also admit the Sun and Air to them, which is absolutely necessary to ripen, and give the Fruit a rich Flavour; but you must never divest the Branches of their Leaves, as is the Practice of some Persons; for altho' the admitting of the Sun is necessary to ripen them, yet if they are too much exposed thereto, their Skins will be tough, and they will rarely ripen: besides, the Leaves being absolutely necessary to nourish the Fruit, by taking them off, the Fruit is starved, and seldom comes to any Size, as I have several times observed: therefore a great Regard should be had to the Summer Management of the Vines, where Persons are desirous to have their Fruit excellent, and duly ripened.

When the Fruit are all gathered, you should prune the Vines; whereby the Litter of their Leaves will be intirely removed: at once, and the Fruit will be the forwarder the succeeding Year, as has been before observed.

The Method directed here, if duly executed, will not fail of Success; and, in every tolerable Season, by carefully observing these Instructions, good Fruit may be expected of those Sorts which generally ripen in this Climate: but as there

are some of the *Frontinac*, and other curious Sorts of Grapes, which rarely come to Perfection against the best-aspected Walls in *England*; and as in some of the Northern Counties the common Sorts of Grapes are seldom eatable, without some artificial Heat; I shall add some Instructions for the Management of these Walls, which indeed deserve to be made more general for this Purpose. (especially in those Counties where Fuel is plenty), where the finest Sorts of Grapes may every Season be brought to Perfection, which without this can never be obtained.

The Method of building Hot-walls will be treated under the Article *Wall*: wherefore I shall pass it over in this Place, and proceed to the preparing of the Ground for planting. The Borders against these Hot-walls should have the Earth taken out three Feet deep (provided the Ground is dry), otherwise two Feet will be sufficient; because in wet Land the Borders should be raised at least a Foot above the Level of the Ground, that the Roots of the Vines may not be injured by the Wet. When the Earth is taken out, the Bottom of the Trench should be filled with Stones, Lime, Rubbish, &c. a Foot and half thick, which should be leveled and beaten down pretty hard. The Trenches should be made five Feet wide at least, otherwise the Roots of the Vines will in a few Years extend themselves beyond the Rubbish; and finding an easy Passage downwards, will run into the moist Ground, and thereby imbibe so much Wet, as to lessen the vinous Flavour of the Grapes. But before the Rubbish is filled into the Trench, it is a better Method to raise a nine Inch Wall, at five Feet Distance from the Hot-

wall, which will keep the Rubbish from intermixing with the neighbouring Earth, and also confine the Roots of the Vines to the Border in which they are planted, so that they cannot reach to the Moisture of the Ground round about them. This nine Inch Wall should be raised to the Height of the intended Border; and will be of great Use to lay the Timbers of the Frames upon, which are designed to cover the Vines when they are forced, whereby the Timbers will be better preserved from rotting; and where the Borders are raised to any considerable Height above the Level of the Ground, these Walls will preserve the Borders from falling down into the Walks. But in carrying up of these Walls it will be proper to leave, at about eight or ten Feet Distance, little Openings to let the Water pass off; because when the Rubbish at the Bottom of the Trench unites and binds very hard, the Water cannot easily find a Passage thro' it. Therefore it will be the better Method to leave these small Passages in the Wall, lest the Moisture, being confined at Bottom, should be pent up as in a Ditch, which will be of ill Consequence to the Vines.

When the Walls are finished, and thoroughly dry, the Rubbish should be filled in, as before directed; then there should be fresh light Earth laid on, about a Foot and an half or two Feet thick, which will be a sufficient Depth of Soil for the Vines to root in. These Borders should be thus prepared at least a Month or six Weeks before the Vines are planted, that they may have time to settle. The best Time to plant them is about the End of *March*, or the Beginning of *April*, according as the Season proves early or late. These I would also advise to be planted with Cuttings,

Cuttings, rather than rooted Plants, for the Reasons assigned before: but there should be two Cuttings put into each Hole, lest one of them should fail; for if both should succeed, the weakest of them may be easily drawn out the following Spring. These Cuttings should be well chosen from good bearing Vines, and the Shoots well ripened, otherwise they will never make good Plants. The Distance these Vines should be allowed, is the same as for common Walls, *i. e.* about six Feet. In planting of them there should be Holes opened with a Spade, about fourteen or fifteen Inches deep; for if there are but three or four Inches of good Earth under the Foot of the Cuttings, it will be sufficient. Then the two Cuttings should be laid in the Hole a little sloping, but in such a manner as not to touch or cross each other; because if they do, when one of them is taken away the following Spring, it cannot be done without disturbing the other. Then the Earth should be filled into the Holes, and gently pressed with the Foot to the Cuttings, and raised in a Heap over them, so as just to cover the uppermost Eyes of the Cuttings. Then lay a little Mulch on the Surface of the Ground about the Cuttings, to prevent the Sun and Air from drying of the Earth; and if the Spring should prove very dry, they should have some Water once a Week, which will be as often as these Cuttings require; for nothing will destroy them sooner than too much Water, which rots their Bark, and destroys them. If these Cuttings are well chosen, and the Instructions here laid down duly observed, they will make strong Shoots the first Summer; for I have frequently planted Cuttings, which have shot five Feet in one Year; but then

I carefully rubbed off all the side-dangling Shoots as they were produced, and never permitted more than one Shoot to remain on each Cutting; which is what should always be observed by those who have the Management of Vines. With this Management there will be little Hazard of the Cuttings taking Root; for in upwards of five hundred Cuttings, which I received from *Italy*, which were cut off from the Vines in the Beginning of *November*, and wrapped up in Moss, and put on board the Ship, which did not arrive at the Port of *London* till *March*, so that they were full four Months cut off before they were planted; yet there were not twenty of the Number which failed, and many of them shot above six Feet the first Season.

As I have directed the pruning of Vines to be performed in the Autumn (which is without Dispute the best Season for this Work); so in preserving of the Cuttings till the planting Season, I have advised them to be cut to their Lengths, and their Ends laid into the Ground, and then covered with Litter to keep the Air from them: but since, I have found it a much better way not to shorten the Shoots, from which the Cuttings are to be made, but to lay their Ends just into the Ground, about two Inches deep, and so leave them at full Length, only observing to cover them with dry Litter or Peas-haulm in frosty dry Weather; but in moist Weather the Covering should not remain on, because it would make the Cuttings grow mouldy, which would greatly injure them. Then in the Spring, when they are to be planted, they should be taken out of the Ground, and their upper Part cut off, so as to reduce them to about fourteen Inches in Length, according to the Distance of

of the Buds or Eyes; for those Cuttings, whose Buds grow pretty close together, need not be left more than one Foot long; but in others fourteen Inches will be full short. The leaving the upper Part of the Shoots on, all the Winter, is of great Service to the Cuttings, because when they are cut off in Autumn, the Air penetrates the wounded Part, and greatly injures the upper Eyes.

The Management of these Vines, for the three first Years after planting, being the same as is practised for those against common Walls, I shall not repeat it in this Place, having fully treated thereof before; only will observe, that during these three Years the Vines should be encouraged as much as possible, and the Shoots not left too long, nor too many in Number on each Root, that they may be duly ripened and prepared for the bearing the fourth Year, which is the soonest they should be forced; for when any Sorts of Fruit-trees are forced by Fire too young, they seldom continue above three or four Years, and during that time they produce very weak Shoots, and what Fruit they produce, is small, and not well-flavoured; so that in being over-hasty to save a Year or two, very often the whole Design is lost; for unless the Trees are in a proper Condition to bear much Fruit, it is not worth while to make Fires for a small Quantity of starved ill-tasted Fruit; the Expence and Trouble being the same for ten or twelve Bunches of Grapes, as it will be for a hundred or more.

These Vines should not be forced every Year; but with good Management they may be forced every other Year; tho' it would be yet better, if it were done only every third Year: therefore in order to have a Supply

of Fruit annually, there should be a sufficient Quantity of Walling built, to contain as many Vines as will be necessary for two or three Years, so that by making the Frames in Front moveable, they may be shifted from one Part of the Wall to another, as the Vines are alternately forced. Therefore I would advise about forty Feet in Length of Walling to be each Year forced, which is as much as one Fire will heat; and when the Vines are in full Bearing, will supply a reasonable Quantity of Grapes for a middling Family.

In most Places where these Hot-walls have been built, they are commonly planted with early Kinds of Grapes, in order to have them early in the Season: but this, I think, is hardly worth the Trouble; for it is of but little Consequence to have a few Grapes earlier by a Month or six Weeks, than those against common Walls: therefore I should advise, whenever a Person is willing to be at the Expence of these Walls, that they may be planted with some of the best Kinds of Grapes, which rarely come to any Perfection in this Country, without the Assistance of some artificial Heat; of which the following Sorts are the most valuable.

- The Red Muscat of Alexandria.*
- The White Muscat of Alexandria.*
- The Raisin Muscat, or Frontiniac.*
- The Red Frontiniac.*
- The Grissy Frontiniac.*
- The White Frontiniac.*
- The Black Frontiniac.*
- The Burdolais or Burlace.*
- The Malmsey Muscadine.*
- The St. Peter.*

When the Vines which are planted against the Hot-walls, are grown to full Bearing, they must be pruned and managed after the same manner as hath been directed for those
against

against common Walls; with this Difference only, *viz.* that those Seasons when they are not forced, the Vines should be carefully managed in the Summer for a Supply of good Wood, against the Time of their being forced; so that it will be the better Method to divert the Vines of their Fruit, in order to encourage the Wood; for as few of the Sorts will ripen without Heat, it is not worth while to leave them on the Vines during the Seasons of resting, except it be the common Frontinacs, which in a good Season will ripen without artificial Heat; but, even during these, I would not advise many Grapes to be left on them, because as the Design of resting the Vines is to encourage and strengthen them, therefore all possible Care should be had, that the young Wood is not robbed by over-bearing; for those Years when the Vines are forced, the Joints of the young Wood are generally drawn farther asunder, than they ordinarily grow in the open Air; so that when they are forced two or three Years successively, the Vines are so much exhausted, as not to be recovered into a good bearing State, for some Years; especially if they are forced early in the Season, or where great Care is not taken in the Summer, to let them have a proper Share of free Air, to prevent their being drawn too much, and to ripen their Shoots. Those Years when the Vines are forced, the only Care should be to encourage the Fruit, without having much Regard to the Wood; so that every Shoot should be pruned for Fruit, and none of them shortened for a Supply of young Wood, because they may be so managed in the other Year's Pruning, as to replenish the Vines with new Wood. Those Vines which are designed for

Forcing in the Spring, should be pruned early the Autumn before, that the Buds which are left on the Shoots, may receive all possible Nourishment from the Vine; and at the same time the Shoots should be fastened to the Trellise in the Order they are to lie; but the Glasses should not be placed before the Vines till about the Middle or End of *January*, at which time also the Fires must be lighted; for if they are forced too early in the Year, they will begin to shoot before the Weather will be warm enough to admit Air to the Vines; which will cause the young Shoots to draw out weak, and thereby their Joints will be too far asunder; consequently there will be fewer Grapes on them, and those Bunches which are produced, will be smaller, than when they have a sufficient Quantity of Air admitted to them every Day.

If the Fires are made at the time before directed, the Vines will begin to shoot the latter End of *February*, which will be six Weeks earlier than they usually come out against the common Walls; so that by the time that other Vines are shooting, these will be in Flower, which will be early enough to ripen any of those Sorts of Grapes perfectly well. The Fires should not be made very strong in these Walls; for if the Air is heated to about ten Degrees above the temperate Point on Mr. *Fowler's* Thermometers, it will be sufficiently warm to force out the Shoots leisurely, which is much better than to force them violently. These Fires should not be continued in the Day-time, unless the Weather should prove very cold, and the Sun not appearing to warm the Air, at which times it will be proper to have small Fires continued all the Day; for where the Walls are

 rightly

rightly contrived, a moderate Fire made every Evening, and continued till Ten or Eleven of the Clock at Night, will heat the Wall, and warm the inclosed Air, to a proper Temperature; and as these Fires need not be continued longer than till about a Week or ten Days in May (unless the Spring should prove very cold) the Expence of the Fire will not be very great, because they may be contrived to burn either Coal, Wood, Turf, or almost any other Sort of Fuel; tho' where Coal is to be had reasonable, it is the evenest Fuel for these Fires, and will not require much Attendance.

When the Vines begin to shoot, they must be frequently looked over to fasten the new Shoots to the Trellise, and to rub off all dangling Shoots; in doing of which great Care must be taken; for they are very tender, and very subject to break when any Violence is offered. The Shoots should also be trained very regular, so as to lie as near as possible at equal Distances, that they may equally enjoy the Benefit of the Air and Sun; which is absolutely necessary for the Improvement of the Fruit. When the Grapes are formed, the Shoots should be stopped at the second Joint beyond the Fruit, that the Nourishment may not be drawn away from the Fruit in useless Shoots, which must be avoided as much as possible in these forced Vines; upon which no useless Wood should be left, which will shade the Fruit, and exclude the Air from it by their Leaves.

As the Season advances, and the Weather becomes warm, there should be a proportionable Share of free Air admitted to the Vines every Day, which is absolutely necessary to promote the Growth of the Fruit;

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but the Glasses should be shut close every Night, unless in very hot Weather; otherwise the cold Dews in the Night will retard the Growth of the Fruit. The Bunches of the White Frontinac, the Raisin Muscat, St. Peter, and Burdelas, should also be looked over, and the small Grapes cut out with Scissars, in order to thin them; for these Sorts grow so close together on the Bunches, that the Moisture is detained between the Grapes, which often occasions their rotting; and the Air being excluded from the middle of the Bunches, the Grapes never ripen equally; which by this Method may be remedied, if done in time; and as these Grapes are protected by the Glasses, from the Blights which frequently take those which are exposed, there will be no Hazard in thinning these Grapes soon after they are set; at which time it will be much easier to perform this Operation, than when the Grapes are grown larger, and consequently will be closer together. But in doing of this, the Bunches must not be much handled; for if any of the Grapes are the least bruised, or the Flue which there naturally is upon them, be rubbed off, their Skins will harden, and turn of a brown Colour; after which the Fruit will never thrive. Therefore the Scissars which are used for this Operation, should have very narrow Points, that they may be more easily put between the Grapes, without injuring the remaining ones: and this Operation should be performed while the Grapes are very young. The other Sorts of Grapes, which I have recommended for these Hot-walls, do not produce their Fruit so close together on the Bunches; for which Reason they will not require this Operation, unless

It is by any Accident they should receive a Blight, which often occasions a great Inequality in the Size of the Grapes; which, whenever it thus happens, will require to be remedied by cutting off the small Grapes, that the Bunches may ripen equally, and appear more sightly.

By the Beginning of *July*, these Grapes will be almost full-grown; therefore the Glasses may be kept off continually, unless the Season should prove very cold and wet; in which Case they must be kept on every Night, when the Days are cold or wet, and only opened when the Weather is favourable; for as the racy vinous Flavour of these Fruits is increased by a free Air, so during the Time of their ripening, they should have as large a Share as the Season will admit to be given them. But when the cold Nights begin to come on in *August*, the Glasses must be every Night shut to exclude the Cold, otherwise it will greatly retard the ripening of the Fruit; for although the Vines are brought so forward in the Spring, as that the Fruit by this Season are quite turned to their Colour, yet if they are exposed to the cold Dews, and the morning Frosts, which frequently happen toward the latter Part of *August*, it will prevent the Fruit from ripening so kindly as when they are guarded from it. When the Grapes begin to ripen, they must be carefully guarded against Birds and Wasps, otherwise they will be in Danger of Destruction in a short time; to prevent which, the Vines should be carefully covered with Nets, so as to exclude the Birds, which will make great Havock with the Grapes, by breaking of their Skins; and if there are a few

Twigs covered with Bird-lime, placed here-and-there on the Outside of the Nets, it will be of Service; because the Birds are often so bold as to attempt to break the Nets to get to the Grapes, and may be intangled on these Twigs; from which, whenever that happens, they should not be disengaged, but suffered to remain to keep off their Companions; and if they get off themselves, it will have the desired Effect; for few other Birds will come to the same Place that Season, as I have more than once experienced.

As to the Wasps, the best Method is to hang up some Phials, about half filled with sugared Water, and rub the Necks of the Phials with a little Honey, to draw all the Wasps to them, which by attempting to get at the Liquor, will fall into the Phials, and are drowned; wherefore these should be carefully looked over once in three or four Days, to take out the Wasps, and destroy them, and to replenish the Phials with Liquor. If this be duly observed, and the Phials placed in time, before the Grapes are attacked, it will effectually prevent their being injured; but where these Precautions are not taken, the Grapes will be in Danger of being absolutely destroyed: for as these early Grapes will turn Colour long before any others against common Walls, they are in much more Danger, there being no other Fruit for them in the Neighbourhood; whereas, when Grapes in general begin to ripen, there is a large Quantity in almost every Garden; so that if they destroy a Part in each Garden, yet there will be a greater Chance to have some escape, than where there is only one Wall for them to attack.

These

These Sorts of Grapes, being forced in the manner before directed, will begin to ripen early in *September*, especially the Black and Red Frontinacs, which will be fit for the Table a Fortnight earlier than the other Sorts; but as the Design of forcing them is to have them in as great Perfection as possible in this Climate, they should not be gathered until they are thorough ripe: for which Reason some of the later Sorts should be left on the Vines till *October*, or sometimes longer; tho' then the Glasses should be kept over them in wet and cold Weather, to protect the Fruit from it: but whenever the Weather is fair, the Glasses must be opened to let in the free Air; otherwise the Damps, arising from the Earth at that Season, will cause a Mouldiness upon the Grapes, which will rot them: so that if the Season should prove very cold and wet, it will be proper to make a small Fire every Night, to dry off the Damps, and prevent this Injury. By this Method the Grapes may be continued upon the Vines, until the Middle or latter End of *November*, when some of the large late-ripe Sorts will be in very great Perfection. But most People in *England* gather their Grapes too soon, never suffering them to remain on the Vines to ripen, even in the warmest Seasons; when, if they are left on till after *Michaelmas*, they will be perfectly good.

But altho' I have directed Glasses to be used, for covering of these Vines against the Hot-walls, yet where Persons do not care for this Expence, oiled Papers may be substituted instead of them, and will do as well with Care: therefore there should be slender Frames made of Fir, to fix against the Wall, in the

same manner as those for Glass: but these Frames need not be much stronger than stretching Frames for Pictures, but with two or more Cross-bars of Wood to support the Paper, and a Pack-thread run across from Bar to Bar: then the Paper should be pasted together so as to fit the Frames, and when it is fixed to the Frames, it should be oiled over with a Brush on the Outside, and set to dry before the Covers are used. If the Paper is good, and no Accident happens to tear it, these Covers may last two Years, provided they are kept dry when they are not in Use; and when the Paper is decayed, it may at a small Expence be repaired again.

Though the Heat through these Paper Covers will not be so great as through Glasses, yet the Warmth will be more equal; for in the Day time, when the Sun shines with Force, the Heat will be too violent thro' Glasses; so that if they are not shaded in the Middle of the Day, or the Glasses opened to admit a large Share of Air, the Vines will soon suffer thereby; but the Danger is not so great from Paper: but these Covers must be opened when the Weather is soft, to admit fresh Air, otherwise the Shoots of the Vines will draw weak, and their Leaves will be pale and sickly, and the Bunches of Grapes small, and not well nourished; therefore whoever is intrusted with the Care of these Walls, must diligently observe to temper the Heat of their Fires, and proportion the Quantity of Air, according to the Warmth of the Season.

Of late Years many Persons have planted Grapes against Espaliers, which in some Places have succeeded very well in good Seasons; but if

these are not planted in a good Soil, and to a proper Aspect, and the Sorts rightly chosen, they seldom produce any Fruit which are fit to be eaten. The Soil proper to plant Vines in Espaliers should be the same as hath been directed for Vineyards; *viz.* either a chalky or gravelly Bottom, with about a Foot and half of light hazel Earth on the Top, a little sloping to the South or South-east, that the Wet may easily find a Passage, so as not to remain on the Ground. In such a Soil situated to the Sun, and screened from cold Winds; there are several Sorts of Grapes, which in warm Seasons will ripen very well in *England*.

But there are some curious Persons, who line the Backside of their Espaliers with low reed Hedges, and others who do it with thin slit Deals; both of which are a good Defence to the Vines against Blights in the Spring, and accelerate the ripening of the Grapes; so that in tolerable Seasons they will come to good Maturity. Neither of these Methods are very expensive; for these close Fences need not be more than four Feet high; because the Vines being to be managed after the same manner as those in Vineyards, will never rise above the Height of a Man; and the bearing Shoots must always be trained about two Feet above the Surface of the Ground, so that the Fruit-branches will be always below the Top of the close Fences; and as for the upright Shoots, which are designed for the next Year's Bearing, it matters not how much they rise above the Fence; wherefore these may have a loose Trelase, to which they may be fastened, to prevent their overhanging of the Fruit.

In the making of these Kinds of close Espaliers for Grapes, it will be proper to lay one strong oaken Plank

(such are procured in breaking up of old Ships or Barges) next the Surface of the Ground, which will last many Years sound, and be very useful in supporting of the Fences. If these Planks are fifteen Inches broad, as they may always be readily procured; then, if the upper Part of the Fence be Reeds, there may be two Lengths cut out of them (provided the Reeds are of a due Length) without including their Tops. In the Front of these Hedges should be a slight Trelase, to fasten the Vines to, which may be made of Ash-poles. The upright Poles of these Trelases need not be nearer together than eighteen Inches; and if there are three cross Poles, at about a Foot asunder, they will be sufficient to fasten the bearing Shoots of the Vines at proper Distances, in the manner they are designed to be trained; which should be in such Position, that the Fruit may not be overshadowed by the Branches. And if the upright Poles are cut so long, as to be a Foot and half above the Reeds, they will be tall enough to support the upright Shoots for the next Year's Bearing; which being trained singly at proper Distances, will have the Advantage of the Sun and Air to ripen the Wood, much better than where four or five Shoots are fastened to the same Pole.

To this Trelase the Reeds may be fastened with Hoops on the Backside, after the manner usually practised in making of common reed Fences; and if on the Top of the Reeds there is fastened a thin Slip of Deal, to secure the Tops of the Reeds from being broken, it will preserve them a long time. In making of these Fences the Reeds should not be laid too thick: for that will not only be more Expence, but will be troublesome to fasten,

fasten, and not last so long, as when they are made of a moderate Thickness. Therefore, as the Reeds will be cut into two Lengths, each Bundle will spread about six Feet in Length; observing first to spread the bottom Parts of the Bundles, which contain the largest Ends of the Reeds, the whole Length; and then the upper Parts of the Reeds should be reversed and spread in Front of the other, which will make the upper Part of the Fence almost as thick as the Bottom. But neither these, nor the boarded Fences, need be made till the Vines are in full Bearing, which will be the fourth or fifth Year after planting, according to the Progress they make; during which time the Shoots may be supported by any common Stakes. For if the Fences are made before the Vines are planted, as is frequently practised, they will be half decayed by the time the Vines are fit to bear; and before this Time the Fences are of no Use to them.

The Sorts of Grapes which are proper to plant against the Fences, are,

The Miller Grape.

The Black Morillon.

The Chasselas White.

The White Muscadine.

The Melie Grape.

The Sweet Water.

The Auvernat, or true Burgundy.

These, if well managed, will ripen very well, provided the Season is tolerably good, and will come in soon after those on the Walls, so that if they are taken care of, by hanging of Mats before them, when the Nights prove cold in Autumn, and are permitted to hang till October, the Fruit will prove very good. But where the Sweet-water Grape is planted against these Fences, they will require to be covered

in the Spring, at the time when they are in Flower, if there should be cold Nights; otherwise the Bunches will receive a Blast, which will destroy the greatest Part of the Grapes, so that many times there will not be more than six or eight good Grapes on each Bunch; and the others will be small starved Fruit, hardly so large as the smallest Peas.

In planting of these Vines, either for open Espaliers, or the close Fences, they should be performed in the same manner as for Vineyards, which should be from Cuttings planted six Feet asunder, putting two into each Hole. And as these are only designed for the Table, a single Row of a moderate Length will be sufficient to supply a Family, where there are others against Walls to come before them. But where a Person is inclinable to have more Rows than one, they should be placed twelve Feet asunder, that they may equally enjoy the Sun and Air.

As to the Pruning and other Management of these Vines, that being the same as for those in the Vineyard, I shall not repeat it in this Place: so I have nothing here to add, more than that I find the Grape which is preferred by the most skilful *Vignerons* in France, and what they call the *Auvernat*, as before-mentioned, to be the same which in England is called the *Blue Cluster Grape*, and hath been long in this Country planted as an eating Grape against Walls; so that from these, Cuttings may be easily procured. But it is to be feared, that the bad Seasons, and the ill Success which has attended the few Vineyards already planted in England, will put a Stop to their future Improvements, tho' it is great Pity it should; for as to

the bad Seasons, the Vineyards abroad have been equally exposed thereto; nor has the Wine which they have produced for some late Seasons, been of much Value; so that the Dealers in Wine in *England* have mixed it up with some of the strong Wines of former Years Growth, in order to render it saleable. And with regard to the ill Success which People have had, who have planted Vineyards, that is intirely owing to their not having followed the Directions exhibited below, under the Article of *Vineyards*, either in the Choice of Soil and Situation, the Sorts of Grapes, the Distance which should be allowed to them, or the Method of pruning and managing them. In every of these Articles, I am convinced from several late Trials, there is no Reason to make the least Alteration. And as to what farther Observations I have made, in the Business of pressing, making and keeping of Wines, those shall be inserted under the Article *Wine*.

Having thus treated of the Management of Vines against Walls, &c. I come next to the Culture of such as are planted in Vineyards.

Of Vineyards in England.

There have of late Years been but very few Vineyards in *England*, tho' they were formerly very common, as may be gathered from the several Places in divers Parts of *England*, which yet retain that Name; as also from antient Records, which testify the Quantities of Ground which were allotted for Vineyards, to Abbeys and Monasteries, for Wine for the Use of the Inhabitants: but as to the Quality of the Wines which were then produced in *England*, we are at present ignorant; and how these Vine-

yards were rooted up, and became so generally neglected, we have no very good Accounts left. Whatever might be the Cause of this total Neglect in cultivating Vines in *England*, I will not pretend to determine; but such was the Prejudice most People conceived to any Attempts of producing Wine in *England*, that, for some Ages past, every Trial of that kind has been ridiculed by the Generality of People; and at this Day very few Persons will believe it possible to be effected.

Indeed, if we judge only by the Success of some modern Essays made near *London*, where small Vineyards have been planted a few Years past, there would be no great Encouragement to begin a Work of this Kind, because the Produce of very few of these Vineyards has been so kindly as were to be wished. But, however, this should not deter others from making farther Trials, especially when they consider the many Disadvantages which most or all of these Plantations are attended with: for, first, there is scarce one of them placed upon a proper Soil and Situation for this Purpose; and, secondly, there is not one which is rightly planted and managed, as I shall presently shew: and how can we expect Success from Vineyards under these Disadvantages, when even in *France* or *Italy* they would succeed little better, if their Management were not directed with more Judgment? I shall therefore humbly offer my Opinion, which is founded upon some Trials I have seen made, and from the Instructions which I have received from several curious Persons abroad, who cultivate Vineyards for their own Use, and that of their Friends; and who

who have been very exact in observing the several Methods in Practice amongst the Vignerons of those Countries: from whence it is hoped, that the Prejudice which most People have against a Project of this kind, will either be removed, or at least suspended, until Trials shall have been judiciously made of this Affair.

The first and great Thing to be considered in planting Vineyards, is the Choice of Soils and Situations; which if not rightly chosen, there will be little Hopes of Success; for upon this the whole Affair greatly depends. The best Soil for a Vineyard in *England* is such whose Surface is a light sandy Loam, and not exceeding a Foot deep above the Gravel or Chalk, either of which Bottoms are equally good for Vines: but if the Soil is deep, or the Bottom either Clay, or a strong Loam, it is by no means proper for this Purpose; for altho' the Vines may shoot vigorously, and produce a great Quantity of Grapes, yet these will be later ripe, fuller of Moisture, and so consequently their Juice not mature, nor well digested; but will abound with Crudity, which, in Fermenting, will render the Wine sour and ill-tasted; which is the common Complaint of those who have made Wine in *England*.

Nor is a very rich light deep Soil, such as is commonly found near *London*, proper for this Purpose; because the Roots of these Vines will be inticed down too deep to receive the Influences of Sun and Air, and hereby will take in much crude Nourishment; whereby the Fruit will be rendered less valuable, and be later ripe, which is of ill Consequence to these Fruits, which are known to imbibe a great Share of their Nourishment from the Air, which, if replete with Moisture

(as is commonly the Case in Autumn), must necessarily contribute greatly to render the Juices less perfect: therefore great Care should be had as to the Nature of the Soil upon which they are planted.

The next Thing necessary to be considered, is the Situation of the Place; which, if possible, should be on the North-side of a River, upon an Elevation, inclining to the South, with a small gradual Descent, that the Moisture may the better drain off; tho', if the Ground slopes too much, it is by no means proper for this Purpose: but if, at a Distance from this Place, there are larger Hills, which defend it from the North and North west Winds, it will be of great Service, because hereby the Sun's Rays will be reflected with a greater Force, and the cold Winds being kept off, will render the Situation very warm. Add to this a chalky or flinty Surface, which if those Hills abound with (as there are many Situations in *England* which do), it will still add to the Heat of the Place by reflecting a greater Quantity of the Sun's Rays.

The Country about this should be open and hilly; for if it be much planted, or low and boggy, the Air will constantly be filled with moist Particles, occasioned by the plentiful Perspiration of the Trees, or the Exhalations from the adjoining Marshes, whereby the Fruit will be greatly prejudiced (as was before observed). These Vineyards should always be open to the East, that the morning Sun may come on them to dry off the Moisture of the Night early, which, by lying too long upon the Vines, does greatly retard the Ripening of their Fruit, and renders it crude and ill-tasted: and since the Fruit of

Vines are rarely ever injured by Easterly Winds, there will be no Reason to apprehend any Danger from such a Situation; the South-west, North-west, and North Winds being the most injurious to Vineyards in *England*, as indeed they are to most other Fruit; so that, if possible, they should be sheltered therefrom. Having made Choice of a Soil and Situation proper for this Purpose, the next Thing to be done, is to prepare it for Planting. In doing of which, the following Method should be observed: In the Spring it should be plowed as deep as the Surface will admit, turning the Sward into the Bottom of each Furrow; then it should be well harrowed to break the Clods, and cleanse it from the Roots of noxious Weeds: and after this it must be constantly kept plowed and harrowed, for at least one Year, to render the Surface light; and hereby it will be rendered fertile by imbibing the nitrous Particles of the Air (especially if it be long exposed thereto before it is planted); then in *March* the Ground should be well plowed again; and after having made the Surface pretty even, the Rows should be marked out from South-east to North-west, at the Distance of ten Feet from each other; and these Rows should be crossed again at five or six Feet Distance, which will mark out the exact Places where each Plant should be placed, so that there will be ten Feet Row from Row, and five or six Feet asunder in the Rows, nearer than which they ought never to be planted. And herein most People who have planted Vineyards, have greatly erred, some having allowed no more than five Feet Row from Row, and the Plants but three Feet asunder in

the Rows: and others, who think they have been full liberal in this Article, have only planted their Vines at six Feet Distance every way; but neither of these have allowed a proper Distance to them, as I shall shew: for in the first Place, where the Rows are put too close, there will not be room for the Sun and Air to pass in between them to dry up the Moisture, which being detained amongst the Vines, must produce very ill Effects. And secondly, where the Vines are placed in exact Squares, so near together as six Feet, there can be no room for the Current of Air to pass between them, when their Branches are extended on each Side; and consequently the Damps in Autumn will be entangled and detained amongst the Vines, to the great Prejudice of their Fruit. For since the Autumns in *England* are often attended with Rains, cold Dews, or Fogs, all proper Care should be taken to remove every thing which may obstruct the drying up the Damps which arise from the Ground.

The skilful Vignerons abroad are also sensible how much it contributes to the Goodness of their Vines to allow a large Space between the Rows; and therefore where the Quality of the Wine is more regarded than the Quantity, there they never plant their Vines at less than ten Feet Row from Row, and some Persons allow twelve. It was an Observation of *Balloonius*, almost two hundred Years since, that in those Islands of the *Archipelago*, where the Rows of Vines were placed at a great Distance, the Wine was much preferable to those which were close planted; and this he positively affirms to be the Case in most Countries where he had

had travelled. Indeed, we need not have recourse to Antiquity for the Reality of such Facts, when we are daily convinced of this Truth in all close Plantations of any kind of Fruit, where it is constantly observed, that the Fruits in such Places are never so well coloured, so early ripe, nor near so well flavoured, as those produced on Trees, where the Air can freely circulate about them, and the Rays of the Sun have free Access to the Branches, whereby their Juices are better prepared before they enter the Fruit.

Having thus considered the Distance which is necessary to be allowed to these Plants, we come next to the Planting: but in order to this, the proper Sorts of Grapes should be judiciously chosen; and in this Particular we have egregiously erred in *England*; all the Vineyards at present planted here, are of the sweetest and best Sorts of Grapes for eating, which is contrary to the general Practice of the Vineyards abroad, who always observe, that such Grapes never make good Wine; and therefore, from Experience, make Choice of those Sorts of Grapes, whose Juice, after Fermenting, affords a noble rich Liquor; which Grapes are always observed to be austere, and not by any means palatable. This is also agreeable to the constant Practice of our Cyder-makers in *England*, who always observe, that the best eating Apples make but poor Cyder; whereas the more rough and austere Sorts, after being pressed and fermented, afford a strong vinous Liquor. And I believe it will be found true in all Fruits, that where the natural Heat of the Sun ripens and prepares their Juices, so as to render them palatable, whatever Degree of Heat

these Juices have more, either by Fermentation, or from any other Cause, will render them weaker and less spirituous. Of this we have many Instances in Fruits; for if we transplant any of our Summer or Autumn Fruits, which ripen perfectly in *England* without the Assistance of Art, into a Climate a few Degrees warmer, these Fruits will be mealy and insipid: so likewise, if we bake or stew any of these Fruits, they will be good for little, losing all their Spirit and Flavour by the additional Heat of the Fire; and such Fruits as are by no means eatable raw, are hereby rendered exquisite, which, if transplanted into a warmer Climate, have, by the additional Heat of the Sun, been also altered so as to exceed the most delicious of our Fruit in this Country.

From whence it is plain, that those Grapes which are agreeable to the Palate for Eating, are not proper for Wine; in making of which, their Juices must undergo a strong Fermentation. Therefore since we have in *England* been only propagating the most palatable Grapes for Eating, and neglected the other Sorts, before we plant Vineyards, we should take care to be provided with the proper Sorts from abroad; which should be chosen according to the Sort of Wines intended to be imitated; tho' I believe the most probable Sort to succeed in *England* is the *Auvernat*, or true *Burgundy* Grape (which, whatever some Persons may pretend, is, at present, very rare in *England*, most People taking the *Monier* Grape for the *Burgundy*): this Sort of Grape is most preferred in *Burgundy*, *Champaigne*, *Orleans*, and most of the other Wine Countries in *France*; and I am informed,

formed, that it succeeds very well in several Places to the North of *Paris*, where proper Care is taken of its Management: so that I should advise such Persons who would try the Success of Vineyards in *England*, to procure Cuttings of this Grape from those Countries; but herein some Person of Integrity and Judgment should be employed to get them from such Vineyards where no other Sorts of Grapes are cultivated; which is very rare to find, unless in some particular Vineyards of the Citizens, who are very exact to keep up the Reputation of their Wines; nothing being more common than for the *Vignerons* to plant three or four Sorts of Grapes in the same Vineyard, and at the time of Vintage to mix them all together, which renders their Wines less delicate than in such Places where they have only this one true Sort of Grape. And here I would caution every one against mixing the Juice of more Grapes than one Sort, which will cause it to ferment at different Times, and in different Manners.

The Cuttings being thus provided (for I would always prefer these to Layers, or rooted Plants, for the Reasons given at the Beginning of the Article *Vitis*), about the Beginning of *April* is the best Season for Planting; when it will be proper to put the lower Ends of the Cuttings in Water about three Inches, setting them upright for six or eight Hours before they are used; then at the Centre of every cross Mark already made by a Line, to the Distance the Vines are designed, should be an Hole made with a Spade, or other Instrument, about a Foot deep; into each of which should be put one strong Cutting, placing it a little sloping;

then the Hole should be filled up with Earth, pressing it gently with the Feet to the Cutting, and raising a little Hill to each about three Inches, so as just to cover the uppermost Eye or Bud, which will prevent the Wind and Sun from drying any Part of the Cuttings; and this upper Eye only will shoot; the under ones most of them will push out Roots; so that this Shoot will be very strong and vigorous.

After they are thus planted, they will require no other Care until they shoot, except to keep the Ground clear from Weeds, which should be constantly observed; but as to Watering, or any other Trouble, there will be no Occasion for it, notwithstanding what some People have directed; for in *England* there is no Danger of their miscarrying by Drought. When the Cuttings begin to shoot, there should be a small Stick of about three Feet long stuck down by each, to which the Shoots should be fastened to prevent their breaking, or lying upon the Ground; so that as the Shoots advance, the Fastening should be renewed, and all small lateral Shoots (if there are any such produced) should be constantly displaced; and the Ground between the Vines always kept clean. This is the whole Management which is required the first Summer.

But at *Michaelmas*, when the Vines have done shooting, they should be pruned; for if they are left unpruned till Spring, their Shoots being tender (especially towards their upper Parts) will be in Danger of suffering, if the Winter should prove severe.

This Pruning is only to cut down all the Shoots to two Eyes; and if, after this is done, the Earth be drawn up in an Hill about each Plant,

Plant, it will still be a greater Defence against Frost.

At the Beginning of *March*, the Ground between the Vines should be well dug, to loosen it, and render it clean; but you should be careful not to dig deep close to the Vines, lest thereby their Roots should be cut or bruised; and at the same time the Earth should be again laid up in an Hill about each Plant; but there must be Care taken not to bury the two young Eyes of the former Year's Shoot, which were left to produce new Wood.

At the Beginning of *May*, when the Vines are shooting, there should be some Stakes fixed down to the Side of each Plant, which must be somewhat taller and stronger than those of the former Year; to these the two Shoots (if so many are produced) should be fastened, and all the small trailing or lateral Shoots should be constantly displaced, that the other Shoots may be stronger; and the Ground should also be kept very clear from Weeds, as before.

At *Michaelmas* these Vines should be pruned again, in the following manner: Those of them which have produced two strong Shoots of equal Vigour, must be cut down to three Eyes each; but in such as have one strong Shoot, and a weak one, the strong one must be shorten'd to three Eyes, and the weak one to two; and such Vines which have produced but one strong Shoot, should be shortened down to two Eyes also, in order to obtain more Wood against the succeeding Year.

In the Spring, about the Beginning of *March*, the Ground between the Vines should be again dug, as before; and two Stakes should be placed down by the Side of all such Vines as have two Shoots, at such Distance on each Side of

the Plant, as the Shoots will admit to be fastened thereto; and the Shoots should be drawn out on each Side to the Stakes, so as to make an Angle of about forty-five Degrees with the Stem; but by no means should they be bent down horizontally, as is by some practised; for the Branches, lying too near the Earth, are greatly injured by the Damps which arise from thence, but especially when they have Fruit, which is never so well tasted, nor so early ripe upon those Branches, as when they are a little more elevated.

In *May*, when the Vines begin to shoot, they must be carefully looked over, and all the weak dangling Shoots should be rubbed off as they are produced; and those Shoots which are produced from strong Eyes, should be fastened to the Stakes, to prevent their being broken off by the Wind. This Management should be repeated at least every three Weeks, from the Beginning of *May* to the End of *July*; by which means the Shoots which are trained up for the succeeding Year, will not only be stronger, but also better ripened, and prepared for Bearing, because they will have the Advantage of Sun and Air, which is absolutely necessary to prepare their Juices; whereas, if they are crowded by a Number of small dangling weak Branches, they will shade and exclude the Rays of the Sun from the other Shoots, and so, by detaining the Moisture a longer time among the Branches, occasion the Vessels of the young Wood to be of a larger Dimension; and hereby the crude Juice finds an easy Passage thro' them; so that the Shoots in Autumn seem to be mostly Pith, and are of a greenish immature

ture Nature; and where-ever this is observed, it is a sure Sign of a bad Quality in the Vines.

The Soil also should be constantly kept clean, because, if there are any Vegetables (either Weeds or Plants of other Kinds) growing between the Vines, it will detain the Dews longer, and by their Perspiration occasion a greater Moisture, than would be if the Ground were intirely clear; so that those who plant other Things between their Rows of Vines, are guilty of a great Error.

At *Michaelmas* the Vines should be pruned, which Season I approve of rather than the Spring (for Reasons given already); and this being the third Year from planting, the Vines will begin to produce Fruit: therefore they must be pruned accordingly. Now suppose the two Shoots of the former Year, which were shortened to three Eyes, have each of them produced too strong Branches the Summer past; then the uppermost of these Shoots upon each Branch should be shortened down to three good Eyes (never including the lower Eye, which is situate just above the former Year's Wood, which seldom produces any thing except a weak dangling Shoot); and the lower Shoots should be shortened down to two good Eyes each; these being designed to produce vigorous Shoots for the succeeding Year, and the former are designed to bear Fruit: but where the Vines are weak, and have not produced more than two or three Shoots the last Season, there should be but one of them left with three Eyes for Bearing; the rest must be shortened down to two, or if weak, to one good Eye, in order to obtain strong Shoots the following

Summer; for there is nothing more injurious to Vines than the leaving too much Wood upon them, especially while they are young, or the overbearing them, which will weaken them so much, as not to be recovered again to a good State in several Years, tho' they should be managed with all possible Skill.

In *March* the Ground between the Vines should be well dug, observing not to injure their Roots by digging too deep near them; but where there are small horizontal Roots produced on or near the Surface of the Ground, they should be pruned off close to the Place where they were produced; these being what the Vignerons call *Day-roots*, and are by no means necessary to be left on; and after having dug the Ground, the Stakes should be placed down in the following manner: On each Side of the Vine should be a Stake, put in at about sixteen Inches from the Root, to which the two Branches, which were pruned to three Eyes each, for Bearing, should be fastened (observing, as was before directed, not to draw them down too horizontally); then another taller Stake should be placed down near the Foot of the Vine, to which the two Shoots, which were pruned down to two Eyes, should be fastened, provided they are long enough for that Purpose; but if not, when their Eyes begin to shoot, these must be trained upright to the Stakes, to prevent their trailing on the Ground, or being broken by the Wind.

In *May* the Vines should be carefully looked over again, at which time all weak lateral Branches should be rubbed off as they are produced, and those Shoots which shew Fruit, must be fastened with

Bafs

Bafs to the Stakes, to prevent their being broken, until they are extended to three Joints beyond the Fruit, where they should be stopped : but the Shoots which are designed for Bearing the following Season, should be kept trained upright to the middle Stake ; by which Method the Fruit-branches will not shade these middle Shoots, nor will the middle Shoots shade the Fruit ; so that each will enjoy the Benefit of Sun and Air.

This Method should be repeated every Fortnight or three Weeks, from the Beginning of *May* to the Middle or Latter-end of *July*, which will always keep the Shoots in their right Position ; whereby their Leaves will not be inverted, which greatly retards the Growth of the Fruit ; and by keeping the Vines constantly clear for horizontal Shoots, the Fruit will not be crowded with Leaves, and shaded, but will have constantly the Advantage of Sun and Air equally, which is of great Consequence ; for where the Fruit is covered with these dangling Shoots in the Spring, and is afterwards exposed to the Air, either by diverting these of their Leaves, or else displacing their Branches intirely, as is often practised, the Fruit will become hard, and remain at a perfect Stand for three Weeks, and sometimes will never advance afterwards, as I have several times observed ; therefore there cannot be too much Care taken to keep them constantly in a kindly State of Growth, as the Vignerons abroad well know, though in *England* it is little regarded by the Generality of Gardeners, who, when their Grapes suffer by this Neglect, immediately complain of the Climate, or the Untowardness of the Season, which is too often a Cover for Neglects of this Nature. And

here I cannot help taking notice of the absurd Practice of those who pull off their Leaves from their Vines, which are placed near the Fruit, in order to let in the Rays of the Sun to ripen them ; not considering how much they expose their Fruit to the cold Dews, which fall plentifully in Autumn, which being imbibed by the Fruit, does greatly retard them : besides, no Fruit will ripen so well when intirely exposed to the Sun, as when they are gently screened with Leaves ; and by the pulling off these Leaves, which are absolutely necessary to prepare the Juices before they enter the Fruit, the gross Parts of which are perspired away by the Leaves, the Fruit must either be deprived of Nourishment, or else some of the gross Particles will enter with the more refined Parts of the Juice, and thereby render the Fruit worse than it would otherwise be, were the Leaves permitted to remain upon the Branches : for if the weak dangling Shoots are constantly displaced as they are produced, the Fruit will not be too much shaded by the Leaves which are upon the bearing Branches.

When the Fruit is ripe, if the Stalks of the Bunches are cut half through, a Fortnight before they are gathered, it will cause the Juice to be much better, because there will not be near so great a Quantity of Nourishment enter the Fruit ; whereby the watry Particles will have time to evaporate, and the Juice will be better digested. This is practised by some of the most curious Vignerons in the South of *France*, where they make excellent Wine. But if, after the Fruit be cut, it is hung up in a dry Room upon Strings, so as not to touch

touch each other for a Month before they are pressed, it will also greatly add to the Strength of the Wine, because in that time a great Quantity of the watery Parts of the Juice will evaporate. This is a constant Practice with some Persons, who inhabit in the *Tyrollese* on the Borders of *Italy*, where is made a most delicious rich Wine, as hath been attested by Dr. *Burnet*, in his Travels; and I have heard the same from several Gentlemen, who have travelled that Road since.

But, with all the Care that can possibly be taken, either in the Culture of the Vines, or in making the Wine, it will not be near so good while the Vineyard is young, as it will be after it has been planted ten or twelve Years; and it will be constantly mending until it is fifty Years old, as is attested by several curious Persons abroad, as also by the most skilful Wine-coopers at home, who can tell the Produce of a young Vineyard from that of an old one, after it is brought to *England*, by the Colour of the Wine. This Difference is very easily accounted for, from the different Structure of the Vessels of the Plants: those of young Vines, being larger, and of a looser Texture, easily admit of a larger Quantity of gross Nourishment to pass through them; whereas those of old Vines, which are more woody, are more closely constricted, and thereby the Juice is better strained in passing through them; which must consequently render it much better, though the Grapes from a young Vineyard will be larger, and afford a greater Quantity of Juice; so that People should not be discouraged, if their Wines at first are not so good as they would

wish; since afterward, when the Vineyard is a few Years older, the Wine may answer their Expectation. As to the fermenting and managing the Wine, that is treated of particularly under the Article of *Wines*, to which the Reader is desired to turn.

The Vineyard being now arrived to a bearing State, should be treated after the following manner: First, In the Pruning, there should never be too many Branches left upon a Root, nor those too long; for although, by doing of this, there may be a greater Quantity of Fruit produced, yet the Juice of these will never be so good as when there is a moderate Quantity of Fruit, which will be better nourished, and the Roots of the Plants not so much weakened, which is found to be of so bad Consequence to Vineyards, that when Gentlemen abroad let out Vineyards to Vignerons, there is always a Clause inserted in their Leases to direct how many Shoots shall be left upon each Vine, and the Number of Eyes to which the Branches must be shortened; because, were not the Vignerons thus tied down, they would overbear the Vines, so that in a few Years they would exhaust their Roots, and render them so weak, as not to be recovered again in several Years; and their Wine would be so bad, as to bring a Disreputation on the Vineyard, to the great Loss of the Proprietor.

The Number of Branches which the *Italians* generally agree to leave upon a strong Vine, are four; two of the strongest have four Eyes, and the two weaker are shortened down to two Eyes each; which is very different from the common Practice in *England*, where it is usual

usual to see six or eight Branches left upon each Root, and those, perhaps, left with six or eight Eyes to each; so that if these are fruitful, one Root must produce near four times the Number of Branches which the *Italians* ever permit; and consequently the Fruit will not be so well nourished, and the Roots will also be greatly weakened; as is the Case of all Sorts of Fruit-trees, when a greater Number of Fruit is left on than the Trees can nourish.

The next Thing is, constantly to keep the Ground perfectly clean between the Vines, never permitting any Sort of Plants or Weeds to grow there: the Ground should also be carefully dug every Spring, and every third Year should have some Manure, which should be of different Sorts, according to the Nature of the Ground, or which can be most conveniently procured.

If the Land is stiff, and inclinable to bind on the Surface, then Sea-sand or Sea-coal Ashes are either of them very good Manure for it; but if the Ground be loose and dry, then Lime is the best Manure for it. This must be spread thin upon the Surface of the Ground before it is dug, and in digging should be buried equally in every Part of the Vineyard. These are much preferable to any Sort of Dung for Vines, so that it will be worth the Expence to procure either of them: and as they will require manuring but every third Year, so, where the Vineyard is large, it may be divided into three equal Parts, each of which may be manured in its Turn; whereby the Expence will be but little every Year; whereas, when the Whole is manured together, it will add to

the Expence, and in many Places there cannot be a sufficient Quantity procured to manure a large Vineyard in one Year.

This Digging and Manuring should always be performed about the Beginning of *March*, at which time all the superficial or Day-roots, as they are called, must be cut off, but the larger Roots must not be injured by the Spade, &c. therefore the Ground close to the Stem of the Vines must not be dug too deep. After this is done, the Stakes should be placed down, one on each Side the Vines, at about sixteen Inches from their Stems, to which the longest bearing Branches should be fastened, and one Stake close to the Stem, to which the two shorter Branches should be trained upright, to furnish Wood for the succeeding Year.

In the Summer they must be carefully looked over, as before, rubbing off all weak, dangling Shoots, and training the good ones to the Stakes regularly, as they are produced; and those of them which have Fruit, should be stopped in *May*, about three Joints beyond the Bunches; but the upright Shoots, which are designed for bearing the following Year, must not be stopped till the Beginning of *July*, when they may be left about five Feet long; for if they are stopped sooner in the Year, it will cause them to shoot out many dangling Branches from the Sides of the Eyes, which will not only occasion more Trouble to displace them, but also will be injurious to the Eyes or Buds.

N. B. All this Summer-dressing should be performed with the Thumb and Finger, and not with Knives, because the Wounds made by Instruments in Summer do not

heal so soon as when stopped by gently nipping the leading Bud, which if done before the Shoot is become woody, it may be effected with great Ease, being very tender while young.

When a Vineyard is thus carefully dressed, it will afford as much Pleasure in viewing it as any Plantation of Trees or Shrubs whatever, the Rows being regular; and if the Stakes are exactly placed, and the upright Shoots stopped to an equal Height, there is nothing in Nature which will make a more beautiful Appearance; and during the Season that the Vines are in Flower, they emit a most grateful Scent, especially in a Morning and Evening; and when the Grapes begin to ripen, there will be a fresh Pleasure arising in viewing them.

But as the Beauty of Vineyards is owing to the regular Disposition of the Branches of the Vines, great Care should be taken in their Management, to train them regularly, and to provide every Year for new Wood to bear the succeeding Year, because the Wood which has produced Fruit, is commonly cut quite away, after the Fruit is gathered; or at least is shortened down to two Eyes, to force out Shoots for the next Year, where there is not a sufficient Number of Branches upon the Vine, of those trained upright; so that in Summer, when the Vines are in Perfection, there should be six upright Shoots trained for the next Year's Wood, and three or four bearing Branches, with Fruit on them; more than these ought never to be left upon one Vine, for the Reasons before given.

N. B. The *Auvernat*, or True *Burgundy* Grape, is valued in *France*

before any other Sort, because the Fruit does never grow very close upon the Bunches, so that they are more equally ripened; for which Reason it should also be preferred in *England*; though, in general, those Sorts are most esteemed with us, that have always close Bunches, which is certainly wrong; for it may be observed, that the Grapes upon such Bunches are commonly ripe on one Side, and green on the other, which is a bad Quality for such as are pressed to make Wine.

I shall now subjoin a few Sorts of Vines, which are preserved in some curious Gardens, more for the sake of Variety, than the Value of their Fruit. These are,

1. *VITIS sylvestris Virginiana*. *Park. Theat.* The wild *Virginian* Grape.

2. *VITIS vulpina dista, Virginiana alba*. *Pluk. Alm.* The *Fox-grape*, *vulgo*.

3. *VITIS alba dulcis, foliis variegatis*. The blotched-leaved Vine.

4. *VITIS alba dulcis, limbis foliorum argentatis*. The striped-leaved Vine.

5. *VITIS quinquefolia Canadensis scandens*. *Tourn.* The *Virginian* Vine, or *Common Creeper*.

The first and second Sorts grow in great Plenty in the Woods of *America*, where, I have been informed, are many other Sorts, some of which will produce Fruit very little inferior to most of our fine Sorts which are cultivated in *France*; notwithstanding which, it is generally thought impossible to make Wine in *America*; but this, I dare say, must proceed from a Want of Skill, rather than any bad Quality in the Soil or Climate: so that, instead of planting Vineyards on their loose rich Lands (as hath generally

generally been practised by the Inhabitants of those Countries), if they would plant them upon rising Ground, where the Bottom was rocky or hard near the Surface, I dare say they would have very good Success; for the great Fault complained of in those Countries, is, that the Grapes generally burst before they are fully ripe, which must certainly be occasioned by their having too much Nourishment; therefore, when they are planted on a poorer Soil, this will be, in part, remedied. Another Cause of this may proceed from the Moisture of the Air (occasioned by the Perspiration of Trees, &c.), which, being imbibed by the Fruit, may break their Skins. This, indeed, cannot be prevented until the Country is better cleared of the Timber; but however, this should caution People not to plant Vines in such Places where there are great Quantities of Woods, because of this Effect which it hath on the Grapes. But to return:

These two Sorts of Vines are preserved in the Gardens of those who are curious in Botany; but I have not seen either of them produce Fruit in this Country. These may be propagated by Layers, which will take Root in one Year, and may be taken off, and transplanted in the Spring where they are to remain, which should be against a warm Wall; because, if they are exposed to much Cold in Winter, they are often destroyed, especially while they are young.

Their Pruning and Management is the same with any other Sorts of Grapes, but only they should have fewer Shoots, and those shortened down very low; otherwise they will make very weak Shoots,

and never arrive to any considerable Strength; for which Reason they will not be capable of producing Fruit.

The two Sorts with striped Leaves are also preserved by those who are curious in collecting a Variety of Plants. These may be propagated as the other Kinds of Grapes, but are tender, and so must have a warm Situation, otherwise they will not thrive; nor will the Cuttings of these take Root so readily as those whose Leaves are plain: but as there is no very great Beauty in these Plants, they are scarcely worth cultivating, unless for Variety.

The fifth Sort was originally brought from *America*; but from its Hardiness, and being easy to propagate, is become as common as if it were a Native of this Country.

This Plant is chiefly cultivated in small Gardens near *London*, where it endures the Smoke better than most other Plants; and being a rampant Grower, is planted against high Walls and Buildings, which it will cover sooner than any other Sort of Plant, and in Summer will look green, which is what the Inhabitants of *London* are greatly pleased with. The Branches of this Plant will sometimes shoot twenty or thirty Feet long in one Summer, and send forth Roots from their Joints, whereby they fasten themselves to the Building where they are placed, so that they do not require much Trouble to support them.

The only Culture they require, is to cut out all the small weak Shoots in *March*, and shorten the strong ones to about ten Feet long, which will strengthen them against the succeeding Summer, and cause them to shoot vigorously.

This Plant may be propagated by Cuttings, which should be planted in the Spring upon a shady Border, where they will take Root freely, and if watered in dry Weather, will make a great Progress the succeeding Summer, and the Spring after may be transplanted where they are to remain, which may be almost in any Soil or Situation; for they are very hardy Plants.

VITIS IDÆA, The Bilberry, or Whortle-berry-bush.

The Characters are;

The Flower consists of one Leaf, which is shaped like a Pitcher; from whose Empalement arises the Pointal, fixed like a Nail in the Upper-part of the Flower, which afterward becomes a soft umbilicated Fruit, or Berry, full of Juice, in which are inclosed Seeds, for the most part, small.

The Species are;

1. VITIS IDÆA magna quibusdam, sive Myrtilis grandis. J. B. The great Bilberry-bush.

2. VITIS IDÆA foliis oblongis crenatis, fructu nigricante. C. B. P. Black Whorts, Whortle-berries or Bilberry.

3. VITIS IDÆA sempervirens, fructu rubro. J. B. Red Whorts or Whortle-berries.

4. VITIS IDÆA Æthiopica, buxi minoris folio, floribus albicantibus. H. A. Ethiopian Whortle-berry, with a lesser Box-leaf, and white Flowers.

5. VITIS IDÆA Americana, foliis subrotundis hirsutis, ex adverso nascentibus, floribus minimis herbaceis, fructu parvo rubro. American Whortle-berry, with roundish hairy Leaves growing by Pairs, small greenish Flowers, and a small red Fruit, vulgarly called St. Peters-wort.

The first and third Sorts w grow wild in *Yorkshire, Derbyshire, Westmorland,* and other Northern Counties of *England*, as also upon the *Alps*, and other lofty Mountains in several Parts of *Europe*; but cannot by Art be cultivated in Gardens near *London*, so as to thrive, and produce Fruit. The first commonly grows to the Height of three or four Feet, in its native Places of Growth, and produces great Quantities of Fruit, which the poor Inhabitants of these Countries gather, and sell in the Markets for Tarts, &c. The third Sort is a very humble Plant, seldom growing much taller than the dwarf *Dutch Box* (which is used for edging of Borders). This produces, in its native Places of Growth, large Quantities of red Fruit; but these will rarely grow in Gardens, unless planted in a strong cold Soil, and a shady Situation.

The second Sort is very common upon marshy or boggy Heaths, in divers Parts of *England*, and will grow to the Height of three or four Feet in such Places, and produces great Quantities of Fruit, which ripen in *July*, and are gathered by the poor People for the same Uses as the first Sort.

This is also very difficult to cultivate in Gardens: the only Method is, to take up some Plants in the Spring, from the Places of its Growth, with Balls of Earth to their Roots, and transplant them into a moist shady Part of the Garden, where, if the Soil be not too rich or warm, they will thrive tolerably well, provided the Ground is not dug or cleaned; for these Plants will grow best on such Places as are never cultivated. This Sort is directed by the College of Physicians to be used in Medicine.

The

The fourth Sort is a tender Plant, which is preserved in the Gardens of those who delight in preserving Exotic Plants. This is propagated by Layers, which should be laid down in the Spring, observing to make a little Slit in the Part which is laid in the Ground (in the manner as is practised in laying of Carnations); and in dry Weather they must be frequently watered, which will greatly facilitate their taking Root; and in the following Spring they may be cut off from the old Plants, and planted each into a separate Pot filled with strong fresh Earth, and placed upon a moderate Hot-bed, which will facilitate their taking fresh Root; but they must be shaded from the Sun with Mats, and frequently watered.

In the Summer these Plants may be exposed in the open Air, with other hardy Exotic Plants; and in Winter they must be placed in the Green-house, where they should have as much free Air as possible in mild Weather, and must be frequently watered; otherwise they will not thrive.

These Plants produce their Flowers in Winter and Spring; but rarely produce Fruit in this Country.

The fifth Sort grows to a Shrub of six or seven Feet high, and though a Native of America, yet will endure the severest Cold of our Climate in the open Air. It may easily be propagated by Layers or Suckers, which are generally produced in great Plenty from the Roots of the old Plants; these should be taken off either in Spring or Autumn, and planted out amongst other Shrubs of the same Growth, where they will add to the Diversity; but there is little Beauty in them; for their Flowers (which are produced in September)

are very small, and of a greenish Colour, so that unless a Person search for them, they may escape the Sight, being always situate amongst the Leaves.

These Flowers are succeeded by small red Fruit, which ripen in Winter, after the Leaves are fallen off; for which Reason they are more visible than the Flowers. This Fruit is not used in its native Country, it having very little Taste, and being so very small, cannot be worth the Trouble of gathering. I suppose this Shrub had the Name of *St. Peter's-wort* imposed on it before it produced either Flowers or Fruit in England, from the Resemblance which the Leaves of it have to those of *Achyron*, or *St. Peter's-wort*; for in other respects it differs widely from the Characters of that Genus.

VITIS SYLVESTRIS; *vide* Clematitis.

ULMARIA, Meadow-sweet, or Queen of the Meadow.

The Characters are;

It hath a Flower composed of several Leaves, which are placed in a circular Order, and expand in form of a Rose; out of whose Empalement rises the Pointal, which afterward becomes a Fruit, composed of many little membranaceous crooked Husks, gathered into an Head, each of which generally contains one Seed.

The Species are;

1. ULMARIA. *Clus. Hist.* Meadow-sweet.

2. ULMARIA *flore pleno. Jossieu.* Meadow-sweet, with a double Flower.

3. ULMARIA *foliis ex luteo variegatis.* Meadow-sweet with Leaves variegated with Yellow.

The first Sort grows wild in moist Meadows in most Parts of England, and flowers the Beginning of June, when it makes a fine Appearance amongst the Grass. It also grows

plentifully on the Sides of Ditches and Rivers, where, as it is not often mowed down, it continues much longer in Beauty, and the Stalks rise to a greater Height. The Flowers which are produced on the Tops of the Stalks, in form of an Umbel, are white, and smell very sweet. These, as also the Leaves and Roots, are used in Medicine. This Plant is esteemed to be cooling, drying, and binding; and also is sudorific and alexipharmic. The Preparations of this Plant are, the distilled Water of the Flowers and Leaves, and the Extract, which is by some much commended. The Flowers give an agreeable Flavour to Wine, and are sometimes used to add a Flavour to strong *Spanish Wines*, like that of the *Malvatic Wine*, which is made in the Island of *Candy*. These Flowers are proper to place in Basons to adorn Halls and Chambers; because they are of an agreeable Sweetness, which doth not offend the Head.

This Plant is seldom planted in Gardens, being so commonly found wild in the Fields; but in low moist Places in large Gardens if some of these Plants were placed, they would afford an agreeable Variety; and in such Places few other Plants, which are more valuable, will thrive.

The second Sort deserves a Place in every good Garden, for the sake of its fine double Flowers, which continue in Beauty a long time. This doth not differ from the common Sort in any thing, excepting that the Flowers are very double and large; so that when it is planted on a moist Soil, or is duly watered in dry Weather, it makes a fine Appearance for at least a Month, or in a cool Season near six Weeks; and as the Flowers have an agreeable Sweetness, they are a fine Ornament in Basons to place in Rooms.

These Plants are propagated by parting of their Roots, which should be done in Autumn, that they may be well rooted before the dry Weather comes on in the Spring, otherwise they will not flower very strong the following Summer. These Roots need not be parted oftener than every other Year, and then they should not be parted into small Heads; for as the Beauty of this Plant is to have many Stems of Flowers, so when the Roots are divided too much, there will be very few Stems produced, and consequently the Plants will make but a mean Appearance.

Where these Plants are placed in moist shady Borders, intermixed with other flowering Plants, they should be allowed good Room; for as their Roots spread pretty far in the Ground, so when they have but little Room, they will starve in Summer, unless they are plentifully watered, and the Soil be very good in which they are planted; for where-ever their Roots intermix with those of other Plants, there will be a great Struggle for the Mastery, and thereby both Sorts will be rendered weak: so that these should be planted two Feet asunder, and as much from any other Plants; and this will be room enough to dig the Ground between the Plants, which should always be carefully done those Years when the Plants are not removed; which will encourage the Roots, and cause them to flower very strong.

The Sort with strip'd Leaves is also preserved in some Gardens for the sake of Variety. This may be propagated by parting of the Roots in the same manner as the former Sort; but this must not have a rich Soil, for that will cause it to run plain.

ULMUS,

ULMUS, The Elm-tree.

The Characters are ;

The Flower consists of one Leaf, (which is shaped) like a Bell, having many Stamina (or Threads) in the Centre ; from the Bottom arises the Pointal, which afterward becomes a membranaceous or leafy Fruit, almost heart-shaped, in the Middle of which is placed a pear-shaped Seed-vessel, containing one Seed, for the most part, of the same Shape.

The Species are ;

1. **ULMUS vulgatissima**, folio lato scabro. Ger. Emac. The common rough-leaved Elm.

2. **ULMUS folio latissimo scabro**. Ger. Emac. The Witch-hazel, or broad-leaved Elm, by some unskilful Persons called *The British Elm*.

3. **ULMUS minor**, folio angusto scabro. Ger. Emac. The small-leaved or *English Elm*.

4. **ULMUS folio glabro**. Ger. Emac. The smooth-leaved or *Witch-elm*.

5. **ULMUS major Hollandica**, angustis & magis acuminatis samarris, folio latissimo scabro. Pluk. Alm. The *Dutch Elm*.

6. **ULMUS minor**, folio angusto scabro, elegantissime variegato. The *English Elm*, with beautiful striped Leaves.

7. **ULMUS folio glabro eleganter variegato**. The *Witch-elm*, with striped Leaves.

8. **ULMUS minor**, foliis flavescensibus. The yellow-leaved Elm.

9. **ULMUS major Hollandica**, angustis & magis acuminatis samarris, folio latissimo scabro eleganter variegato. The *Dutch Elm*, with striped Leaves.

10. **ULMUS minor**, folio angusta glabro. The smooth narrow-leav'd Elm, by some called the *Upright narrow-leav'd Elm*.

11. **ULMUS folio lato scabro**, cor-

tice cinereo glabro. The white-bark'd Elm, by some called the smooth Witch-elm, and by others, the *Irish Elm*.

12. **ULMUS folio lato scabro, angustis samarris**. The *French Elm*.

The four first-mentioned Sorts are very common in divers Parts of England, though it is generally believed neither of them were originally Natives of this Country ; but however that be, they have propagated themselves by Seeds and Suckers, which have arisen from the Roots of old Trees in such Plenty, as hardly to be rooted out, where they have long had Possession, especially in Hedge-rows, where there is Harbour for their Roots, which, when left undisturbed, will send forth a fresh Parcel of young Plants annually, from whence the People who supply the Nursery-men, gather them.

The fifth Sort is equally hardy, and almost as common in England as either of the former ; this is pretty quick of Growth while young, and will outstrip the common *English Elm* for several Years ; but after twenty or thirty Years Growth, the *English Elm* will get the better every Year ; and the Timber thereof being much preferable to that of the *Dutch Elm*, renders it more valuable for planting.

The Sorts with striped Leaves are preserved by those who are curious in collecting variegated Plants ; but they are not worth propagating, unless for the sake of Variety ; being of slower Growth, and, in most Peoples Judgment, less beautiful, than the plain Sorts.

There are some other Varieties of the Elm, which differ so little from the Sorts enumerated as scarcely to be distinguished ; wherefore it will be needless to mention them, be-

cause they are not so proper to make Plantations, as the other more common Sorts.

The tenth of these Sorts is very common in some Parts of *Hertfordshire*, and in *Cambridgeshire*, where there is scarce any other Sort of Elm to be seen. This makes a very handsome upright Tree, and retains its Leaves as late in the Autumn, as the common small-leav'd Elm, which is called the *Englisb Elm* by the Nursery-men near *London*.

The eleventh Sort is by some Persons prefer'd to most others, for the free Growth, and its retaining the Leaves longer than any other Sort. The Bark of this Tree is very smooth, and of an Ash-colour; the Leaves are of a lively Colour, and the Growth of the Tree is very regular and upright.

The twelfth Sort is not so much esteemed as either of the former; but it being a very hardy Kind, will grow in such Soils, where the former will not, for which some Persons cultivate it; tho' I think neither this nor the *Dutch Elm* worth planting, because when they are arrived to a considerable Size, they make a most detestable Appearance: their Branches growing very straggling, which have a thick rugged Bark, and their Leaves being very thinly placed on them, they look very disagreeable; and the Leaves of both these Sorts fall sooner in Autumn, than those of the common Elm.

These Plants may be either propagated by Layers or Suckers taken from the Roots of the old Trees, the latter of which is greatly practis'd in many Places; but as these are often cut up with very indifferent Roots, they very often miscarry, and render the Success doubtful; whereas those which are propagated by Layers are in no Hazard,

and will always make better Roots, and come on faster, than the other; for which Reasons this Method should be more universally practis'd. And since a small Compass of Ground filled with Stools of these Plants, will be sufficient to furnish a Nursery of a considerable Extent, with Layers to be transplanted, it is richly worth every Person's while, who would cultivate these Trees, to allot a Piece of Ground for this Purpose.

The best Soil for such a Nursery is a fresh Hazel Loam, neither too light and dry, nor over-moist and heavy; this Ground should be well trenched, and a little rotten Dung buried therein; and, in doing this, great Care should be taken to pick out all Roots of pernicious Weeds, which, if left in the Ground, would be very injurious to the Layers, and cannot afterwards be so easily rooted out; then having laid the Ground level, the Plants must be planted at about eight Feet asunder each way. The best Season for this Work is in Autumn, as soon as the Leaves begin to decay, that they may take Root before the dry Weather in the Spring comes on, whereby a great Expence of watering them will be saved; for if they are well settled in the Ground before the dry Weather, they will require little more than to mulch their Roots, to keep the Earth from drying.

These Plants should be permitted to grow rude two Years, during which time the Ground between should be carefully cleaned and dug every Spring; by this time they will be strongly rooted, and have made pretty strong Shoots, so that they may be laid in the Ground: the Manner of performing this being already described in the Article of *Layers*, I shall forbear repeating it in this Place.

When

When these Layers are well rooted, they should be taken off, and transplanted out into a Nursery, which should be upon a good Soil, and well prepared (as before for the Stools). The Plants should be planted in Rows four Feet asunder, and two Feet Distance Plant from Plant in the Rows. This should be done in Autumn, as soon as the Leaves begin to decay; and if there is some Mulch laid upon the Surface of the Ground about their Roots, it will preserve them from being hurt by Frost in Winter, and from drying Winds in Spring, and thereby secure them from all Hazard.

The following Summer the Ground between them should be constantly kept clean from Weeds; and in Autumn they should be pruned up, cutting off all strong lateral Shoots, which, if left on, would impede their upright Growth; but there must be some of the smaller Shoots left on to detain the Sap, in order to augment the Stems of the Trees; for where they are pruned up too naked, they are apt to grow up too slender to support themselves, so that their heads will recline to the Ground, and cause their Stems to grow crooked.

In this Nursery they may remain five or six Years, observing constantly to dig the Ground between them every Spring, and to trim them as before directed, which will promote their Growth, and render them strong enough to transplant out where they are to remain, in the time before-mentioned.

These Trees are very proper to plant in Hedge-rows, upon the Borders of Fields, where they will thrive much better than when planted in a Wood, or close Plantation, and their Shade will not be very injurious to whatever grows under them; but

when these Trees are transplanted out upon Banks after this manner, the Banks should be well wrought and cleared from all other Roots; otherwise the Plants, being taken from a better Soil, will not make much Progress in these Places. About *Michaelmas* will be a good Time for this Work, for the Reasons before assigned; but when they are planted, there should be some Stakes fixed in by them, to which they should be fastened, to prevent their being displaced by the Wind; and Part of their Heads should be taken off, before they are planted, which will also be of Use in preventing their being easily overturned by Winds; but by no means should their leading Shoot be stopped, nor their Branches too closely cut off; for if there are not some Shoots left on to draw and attract the Sap, they will be in Danger of miscarrying.

These Trees are also proper to plant at a Distance from a Garden or Building, to break the Violence of Winds, for which Purpose there is not any Tree more useful; for they may be trained up in form of an Hedge, keeping them cut every Year, which will cause them to grow very close and handsome, to the Height of forty or fifty Feet, and be a great Protection against the Fury of Winds; but they should not be planted too near a Garden, where Fruit-trees or other Plants are placed, because the Roots of the Elms run superficially near the Top of the Ground to a great Width, and will intermix with the Roots of the other Trees, and deprive them of Nourishment; nor should they be planted near Gravel or Grass-walks, which are designed to be well kept, because the Roots will run into them, and send forth Suckers in great Plenty, which will deface

the Walks, and render them unsightly.

But for large Gardens, where Shade is required, there is scarce any Tree so proper for that Purpose, being easy to remove when grown to a considerable Size, so that a Person who is willing to have his Plantations for Shade in a short time, may produce Trees of two Feet Circumference in their Trunk, which will be in no Danger of succeeding, provided they are removed with Care; and these will take Root, and grow again, almost as well as young Plants, which is what few other Sorts of Trees will do; but then they shou'd be such Trees as have been thus regularly trained up in a Nursery, and have good Roots, and not such as are taken out of Hedge-rows (as is by some practised), which seldom rise with any tolerable Roots, and consequently will often miscarry.

In planting of these Trees, great Care should be taken not to bury their Roots too deep, which is very injurious to them, especially if they are planted on a moist Loam or Clay, in which Case, if the Clay is near the Surface, it will be the best way to raise the Ground in an Hill, where each Tree is to be placed, which will advance their Roots above the Surface of the Ground, so that they will not be in Danger of rotting in Winter with Moisture.

When these Trees are propagated by Suckers taken from the Foot of old Trees, they are commonly laid into the Ground very close in Beds, where, in dry Weather, they may be frequently watered, to encourage their putting out Roots. In these Beds they are left two Years, by which time those that live will be well rooted (though a great many of them generally die); then they

should be transplanted into the Nursery, and managed as hath been directed for the Layers.

There are some who raise the Witch-elm from Seeds, which it generally produces in great Plenty, and are ripe in *April*. These should be sown upon a Bed of fresh loamy Earth, and gently covered; in dry Weather they should be watered, and if the Bed is shaded from the violent Heat of the Sun, it will be of great Service to the Seeds (for I always observe the Plants to come up better in the Shade, than when exposed to the Sun); when the Plants come up, they should be carefully cleared from Weeds, and after they have stood two Years in the Seed-bed, they will be fit to plant out into the Nursery, where they must be managed as the former.

Sometimes the common *English* Elm will produce Seeds; but it is not so constantly fruitful as the Witch-elm, which seldom fails to produce great Quantities, when they have arrived to a due Maturity, which Seeds will fall to the Ground; and when they light upon a Spot which is not disturbed, the Plants will come up in great Plenty.

The Timber of the common *English* Elm is generally preferred to the rest, though that of the Witch-elm is often as good, and is the largest Tree, when planted on a kindly Soil: but the *Dutch* Elm affords the worst Timber, and never will grow to the Stature of either of the other Sorts; so that this should not be cultivated for the Timber; therefore the best way to be sure of the Kinds which a Person would choose to propagate, is to have a Nursery of Stools, in order to furnish Layers; for when they are grubbed up from Hedge-rows, there will often be many Sorts intermixed, especially if the

the People who go about to gather them, do furnish them, because they take them indifferently where-ever they can procure them; so that when they are planted out thus blended together, there will be a considerable Difference in the Growths, which will deface the Plantation.

URTICA, The Nettle.

The Characters are;

It hath an apetalous Flower, consisting of many Stamina included in an Empalement; but these are barren; for the Embryoes are produced either on different Plants, or on different Parts of the same Plant, without any visible Flower, which after-ward become a bivalve Seed-vessel, sometimes gathered into round Heads, and at other times are small and hairy, inclosing several Seeds.

The Species are;

1. URTICA urens maxima. C. B. P. The greatest Stinging-nettle.

2. URTICA urens minor. C. B. P. The lesser Stinging-nettle.

3. URTICA urens, pilulas ferens, 1. Dioscoridis, semine lini. C. B. P. Pill-bearing Stinging-nettle, with a Seed like Flax.

4. URTICA altera pilulifera, parietariae foliis. H. R. Par. Another pill-bearing Stinging-nettle, with Leaves like Pellitory, commonly called Spanish Marjoram.

5. URTICA pilulifera, folio angustiori, caule viridi, Balearica. Salvad. Narrower-leaved pill-bearing Stinging-nettle from Majorca, with a green Stalk.

6. URTICA maxima racemosa Canadensis. H. R. Par. The greatest branching Nettle of Canady.

7. URTICA Canadensis, myrrbiddis folio. Hist. R. H. Canady Nettle, with a Leaf of Sweet Cicely.

8. URTICA racemosa Americana, amplo coryli folio. Plum. Cat. Branch-

ing American Nettle, with a large Hazel-leaf.

9. URTICA racemifera maxima Sinarum, foliis subtus argenteis lanugine villosis. Pluk. Amaltb. Greatest branching Nettle of China, with Leaves which are white and woolly underneath.

The first of these Sorts is a very common Weed upon the Sides of Banks, Ditches, and other uncultivated Places, where its Roots will spread and over-run the Ground, so that it should always be carefully extirpated from Gardens. It is sometimes used in Medicine; but may be easily procured from the Fields at almost any Season.

The second Sort is also a very common Weed in Gardens, and cultivated Fields; but it being an annual Plant, is not so difficult to eradicate as the former.

The third, fourth, and fifth Sorts are preserved in many Gardens for Variety; but the fourth, which is commonly called Spanish Marjoram, is the most common in English Gardens, where it is cultivated for making Sport: many ignorant Persons, taking it for a Sort of Marjoram, are often severely stung by smelling to it; and others put it in the Middle of Nosegays, amongst other Greens, which they present to Persons who are not acquainted with the Plant, and so, by smelling to it, they suffer in like manner as the former.

The third Sort is mentioned to grow wild in England; but the other two are brought from warmer Countries.

The five first Sorts may be easily propagated by sowing their Seeds, in March, upon a Bed of light rich Earth; and when the Plants are come up, they should be transplanted out into Beds, or the Borders

ders of the Pleasure-garden, interspersing them amongst other Plants, so that they may not be so easily discovered by Persons whom there is a Design to deceive, by gathering a Sprig from them to smell to; after the Plants have taken Root, they will require no farther Care, but only to keep them clear from Weeds; in *June* they will flower, and their Seeds will ripen in Autumn, which, if permitted to shed upon the Ground, will come up the following Spring, and flourish without any further Care.

The Seeds of the third Sort are sometimes used in Medicine.

The sixth Sort is very common in many *English* Gardens, where it is preserved more for the sake of Variety, than for any Beauty it hath. This hath an abiding Root, which sends forth a great Number of Shoots every Spring, which rise about three Feet high, and form a thick Tuft or Bush, which continues green till the Autumn, when the Shoots decay to the Root. This may be propagated by parting of the Root in the Spring, and may be planted in almost any Soil or Situation, and will endure the severest Cold of this Climate in the open Air.

The seventh Sort is also preserved in some curious Gardens, for the sake of Variety. The Leaves of this Plant are finely cut and jagged into many Parts, in some manner resembling those of Sweet Cicely. This is also a very hardy Plant, and may be treated as the former.

The eighth Sort was discovered by Father Plumier in *America*. This, being more impatient of Cold than the other, should be planted in Pots, and placed in Shelter in the Winter Season, otherwise it will not live in this Country. But as it is a Plant

of little Beauty, it is only preserved by some curious Persons for Variety.

The ninth Sort retains its Leaves all the Winter, which are very large and hoary underneath, but make an agreeable Variety in the Green-house, in the Winter-season. The Stems of this Plant rise four Feet high or more; and these often branch out at the Top, into Side-shoots; and the Flowers (which are like those of the common Nettle) are produced from the Wings of the Leaves. This Sort is too tender to live in the open Air in Winter; wherefore the Plants should be potted, and in Autumn removed into the Green-house; where, if they are secured from the Frost, and frequently refreshed with Water, they will thrive extremely well. In Summer they may be placed abroad in a sheltered Situation, and in dry Weather they must be plentifully watered; for they are very thirsty Plants. This may also be propagated by parting of the Roots, which should be done in *May*, when they are removed out of the Green-house; for at that Season this Plant is in its least Vigour, the Winter being the Time when it is most flourishing. The Seeds of this Plant were brought from *China*, where the Plant is called *Peama*.

UVA URSI, The *Spanish* Red-whort.

The Characters are;

It hath a globular bell-shaped Flower, consisting of one Leaf, from whose Empalement arises the Pointal, fixed like a Nail in the hinder Part of the Flower; which afterward becomes a soft Berry or Fruit of a spherical Form, inclosing hard Seeds, which are some plain, and others gibbous.

There is but one Species of this Plant at present known; viz.

Uva

UVA URSI. Clus. Hist. Spanish
Red-whort.

This Plant is very near a-kin to our common Whorts or Bilberries; it rises about a Foot high, and hath several flexible Branches, which are covered with a reddish Bark, somewhat like the young Branches of the Strawberry-tree: these are thinly beset with oblong stiff green Leaves, which are serrated on their Edges. The Flowers grow on the Top of the Branches, which are of a whitish bluish Colour; these are succeeded by red Berries, somewhat larger than those of our common Whorts, which have an acid Taste.

This Plant must be treated in the same manner as our *Vitis Idæa*, or Bilberry; which is, to procure the Plants with Balls of Earth to their Roots, from the Place of its native Growth; because the Seeds often fail, and when they do succeed, it will be a long time before the Plants will grow to any Size.

VULNERARIA, Woundwort.

The Characters are;

It hath a papilionaceous (or Pea-bloom) Flower, out of whose tubular and turgid Empalement arises the Pointal, which afterward becomes a short Pod filled with roundish Seeds. To these Notes must be added, That the Pod is inclosed in a membranous Bladder, which was before the Empalement.

The Species are;

1. *VULNERARIA rustica. J. B.* Rustic Woundwort, Kidney Vetch, or Ladies Finger.

2. *VULNERARIA rustica, flore albo. Inst. R. H.* Rustic Woundwort, with a white Flower.

3. *VULNERARIA flore purpurascens. Inst. R. H.* Rustic Woundwort, with a purplish Flower.

4. *VULNERARIA pentaphyllos. Inst. R. H.* Five-leav'd Woundwort.

5. *VULNERARIA Critica, flore parvo vario. Torræ. Cor.* Candy Woundwort, with a small variable Flower.

The first Sort grows wild on poor chalky Ground in divers Parts of England, but is rarely cultivated in Gardens. This sends forth several Stalks from the Root, which are about eight or nine Inches long, beset with hairy Leaves alternately, which are composed of four or five Pair of Lobes, terminated with an odd one. On the Top of the Stalks the Flowers are produced, which are small, and of a yellow Colour, collected together in a broad Head, which are succeeded by short Pods filled with roundish Seeds. This Plant flowers toward the End of May, and the Seeds are ripe in July.

The second Sort is a Variety of the first, from which it only differs in the Colour of its Flowers, which are white.

The third Sort is found wild in some Parts of Wales, from whence the Seeds and Plants have been procured by some curious Botanists, who preserve them in their Gardens. This Sort produces pretty purplish Flowers, collected into Heads, which make an agreeable Appearance.

The fourth Sort is found wild in Italy, Sicily, and some other warm Countries; but in England it is preserved in some curious Gardens for the sake of Variety. This is an annual Plant, which perishes with the first Approach of Winter. The Seeds of this Plant should be sown about the Middle of March, on a Bed of light Earth, in an open Situation, where they are designed to remain, because the Plants do not very well bear transplanting. Therefore the best Method is, to sow the Seeds in small Drills, made two Feet

Feet asunder; and when the Plants are come up, they should be thinned where they are too close, so as to leave them six or eight Inches asunder in the Rows, and then keep the Ground clean from Weeds, which is all the Culture they require. The Branches of this Plant spread flat on the Ground, and the Flowers are produced in large Bladders from the Wings of the Leaves. These appear in *June*, and the Seeds will ripen the End of *August*.

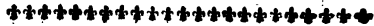
If some of these Seeds are sown, the Beginning of *September*, on a warm dry Border, the Plants will come up in Autumn, and live thro' the Winter (provided it is not very severe), and will flower early the following Summer, whereby good Seeds may be obtained; for when the Summers prove cold and wet, those Plants which come up from Seeds sown in the Spring, do not produce ripe Seeds, so that the *Species* may be lost, where there are not autumnal Plants.

The fifth Sort was discovered by Dr. *Tournefort* in the Island of *Candy*, from whence he sent the Seeds to the Royal Garden at *Paris*. This is also an annual Plant; wherefore it should be managed in the same manner as hath been directed for the former Sort.

The first, second, and third Sorts will abide two, and sometimes three Years, before their Roots decay; tho' they generally are in the greatest Vigour the second Year, for these rarely flower the same Year they are sown. The surest Method to have these Plants succeed in a Garden, is to sow their Seeds in Autumn as soon as they are ripe, on a Bed or Border of poor, dry, gravelly or chalky Soil, on which they will thrive much better than on a rich garden Earth. When the Plants are

come up, they should be thinned, leaving them six or eight Inches asunder; and afterward, if they are kept clear from Weeds, they will require no farther Care.

The first Sort was formerly much used by the *Germans*, as a Wound-herb, from whence it obtained its Name; but at present it is not in any Use.



WALKS in Gardens may be reduced under the three following Denominations, *viz.* *Gravel*, *Grass*, and *Sand*; these being the principal Walks which are made in the *English* Gardens at present; for *Shell-walks*, and some others, which were formerly made in Gardens, are now, by good Judges, rejected, as being neither useful or ornamental. Therefore I shall pass them over, and give Directions for making of *Gravel*, *Grass*, and *Sand* Walks.

In order to the laying *Gravel* Walks in Gardens, it will be very proper, that the Bottom of them be filled with some Lime-rubbish, or coarse *Gravel*, *Flint-stones*, or other rocky Stuff, which will be very serviceable in preventing Weeds from growing through the Superficies of *Gravel*; this Bottom should be laid eight or ten Inches thick, over which the Coat of *Gravel* should be six or eight, which *Gravel* should be fine, but yet not screened, because that spoils it. This should be laid on an Heap, rounding, so that the larger rough Stones may run down on the Sides, which being every

every now-and-then raked off, the Gravel by that means will be sufficiently fine.

After the Gravel has been laid to the Thickness above-mentioned, then the Walks must be raked true and level, from all great Drips as well as little Holes; by this means most of the Stones of the Walks will be raked under your Feet, which should rather be gently sprinkled back again, over the last Length that is raked, than buried (as is the Practice of many Gardeners); for by this means the Walk will lie much harder, and the coarsest Stones will very much contribute to its Firmness.

There is also a great Fault committed frequently, in laying Walks too round, and some to that Degree, that they cannot be walked on with that Ease and Pleasure that ought to be; and besides, this too great Rounding takes off much from the seeming Breadth of the Walk.

The common Allowance for a Gravel-walk of five Feet Breadth, is an Inch in the Crown; so that if a Walk be twenty Feet wide, according to this Proportion, it will be four Inches higher in the Middle than on each Side: and a Walk of twenty-five Feet will be five Inches; one of thirty Feet, six Inches; and so on.

When a Walk has been thus carefully laid, or rather after every Length or Part of it (which commonly is about fifteen Feet each), then it should be rolled well, both in Length, and also cross-ways: the Person who rolls it should wear Shoes with flat Heels, that he may not make Holes in the Walks; for when they are once made in a new Walk, it will not be easy to roll them out again.

In order to lay Gravel-walks firm, it will be necessary to give them three or four Water-rollings; that is, they must be rolled when it rains so very fast, that the Walks swim with Water; this will cause the Gravel to bind; so that when the Walks come to be dry, they will be as hard as a Terrace.

Iron-mould Gravel is accounted the best for Binding, or Gravel with a little binding Loam amongst it; which latter, though it be apt to stick to the Heels of Shoes in hot wet Weather, yet nothing binds better in dry Weather.

When the Gravel is over-sandy or sharp, Loam is frequently mixed with it, which, if they be cast together in Heaps, and well mixed, will bind like a Rock; whereas loose Gravel is as uncomfortable and uneasy to walk on, as any other Fault in a Walk can render it.

The best Gravel for Walks is such as abounds with smooth Pebbles (as is that dug at *Black-beath*), which, being mixed with a due Proportion of Loam, will bind like a Rock, and is never injured by wet or dry Weather; and the Pebbles, being smooth, are not so liable to be turned up, and loosened by the Feet in walking, as are those which are angular and rough; for where Walks are laid with such Gravel as is full of irregular Stones, they appear unsightly in a Day's time after Rolling, because the Stones will rise upon the Surface whenever they are walked upon; but the smooth Pebbles will remain handsome two or three Days without rolling.

The Width of these Walks must always be proportioned to their Length, and the Size of the Garden; but small Walks are everywhere disagreeable: so that if the Walks were only to be two hundred

Feet

Feet long, I should advise them to be made fourteen or fifteen Feet wide; for it is much better to have but few Walks in a Garden, and those to be spacious; than to make many small Walks, as is often praesid.

Grass-walks in a Garden are both ornamental and delightful, in Summer-time, and dry Weather.

These may be made either by laying them with Turf, or sowing them with Hay-feed, and raking them fine and level, which, with keeping them well rolled, and frequently mowed, will make the Grass fine.

These may be laid a little rounding, to cast off the Water the better; but the Slope must not be so great as to be discovered by the Eye: about a fourth Part of the Roundness allowed for Gravel-walks; will be sufficient for these; if in wet Ground; but if the Ground be dry, it is the best way to lay them quite level.

Sometimes there are Water-tables on each Side of these Walks; which are very good for draining them; and also for keeping the Grass and Weeds from mixing with the Borders; and besides, these Water-tables render the Walks the handsomer, and appear the more beautiful.

These Water-tables ought to be new-cut once or twice a Year, and this ought to be done by a straight Line, as exactly as possible.

The oftener these Walks are mowed and rolled in Summer, the thicker their Bottoms will be; and in Autumn the Grass should be kept very short, and well rolled; for if it be permitted to grow pretty long at this Season, the Blade will decay in Winter, and greatly injure their Roots. The Worm-casts must also be beat to Pieces with a

long Ash-pole, and so spread over the Grass; this the Gardeners call *Polling of a Walk*; which is done by brushing the Surface of the Ground strongly with a slender Pole; the oftener this is repeated, the better it is for the Grass; besides, it will destroy the Worm-casts, and render the Walks more beautiful.

Having given Directions for the making and keeping of Gravel and Grass-walks, I shall here add something relating to Sand-walks, which are now very frequently made in Gardens; as being less expensive in the making, and also in keeping, than either of the former; and in very large irregular Gardens, which are such as most Persons now esteem; this is a very great Article: for as the greatest Part of the Walks which are made in Gardens, twist about in an irregular manner, it would be very difficult to keep them handsome, if they were laid with Gravel. And as these Walks are for the most part shaded by Trees, the dripping of the Water from their Branches in hard Rains, would wash the Gravel in Holes, and render the Walks very unsightly. When these Wood-walks are Grass; they do not appear fightly, nor are they very proper for walking on; for after Rain they continue damp so long, that they become unhealthy to walk on; and the Grass generally grows spiry and weak for want of Air; and by the continual dropping of the Trees, will by degrees be destroyed. Therefore it is much better to lay these Walks with Sand, which will be dry and wholesome; and whenever they appear mossy, or any Weeds begin to grow on them, if they are shaved with a *Dutch Hoe* in dry Weather, and then raked over, it will destroy the Weeds and Moss, and make the Walks appear as fresh and

and handsome as if they had been new-laid.

Grass-walks of late Years have been very little esteemed, because they are so unfit for walking on; for in a Morning there is commonly a great Dew upon the Grass, as there is also late in the Evening, and after Rain they continue moist a long time; so that it is only in the Middle of the Day that these Walks can be used, which is a Time few Persons care to be in a Garden: and at most times there remains a Dampness, which frequently occasions Colds to such Persons as are tender; wherefore they are with good Reason disused at present. Besides, these Walks are not very beautiful, there being little Pleasure in viewing long narrow Slips of Grass, which is what most Grass-walks must be termed, being bounded either with Gravel or Borders on the Sides. And Grass never appears so beautiful, as when it is disposed into large irregular Pieces, and bounded with Trees.

Gravel-walks are very necessary near the House, because they are soon dry after Rain, and are proper for walking on, in all Seasons. But then these should be but few, and those ought to be large and magnificent, proportionable to the Grandeur of the House and Garden. The principal of these Walks should be elevated parallel with the House, so as to form a Terrace; this should extend itself each way, in proportion to the Width of the Garden; so that from this there may be a Communication with the Sand-walks, without going on the Grass; or there should be two Side-walks of Gravel to lead to them, so that there may be a dry Walk continued quite through the Gardens. But there is not a more ridiculous

Sight, than that of a strait Gravel-walk, leading to the Front of the House, intersecting the Grass, so as to cause it to appear like the stiff formal Grass-plots, frequently made in little Court-yards by Persons of low Taste.

In the modern way of laying out Gardens, the Walks are carried through Woods and Plantations, so that these are shady and convenient for walking in the middle of the Day. These are usually carried about, winding as much as the Ground will admit, so as to leave a sufficient Thickness of Wood to make the Walks private; and that the Persons who are walking in one Part of them, may not be seen by those who are in any of the other Parts. Where these Walks are contrived with Judgment, a small Extent of Ground will admit of a great many Turns; so that a Person may walk some Miles in a small Garden. But these Turns should be made as natural as possible, so as not to appear too much like a Work of Art, which will never please so long as the former.

The Breadth of these Walks must be proportioned to the Size of the Ground, which in a large Extent may be twelve or fourteen Feet wide, but in small Gardens five or six Feet will be sufficient. There are some Persons who allow a much greater Breadth to their Walks, than what I have assigned to the largest Gardens; but as these Walks are supposed to be shaded by Trees, so when they are made too broad, the Trees must be planted close to the Sides of the Walks; and then it will be a long time before they will afford a sufficient Shade, if the Trees are young. Therefore I imagine, the Width here allowed will by the most People be thought sufficient, especially

as the Walks are designed to wind as much as the Ground will allow, because the wider they are, the greater must be the Turns; otherwise the Walks will not be private for any small Distance. Besides, as it will be proper to line the Sides of these Walks with Honeyfuckles, Sweetbrier, Roses, and many other sweet-flowering Shrubs; the tall Trees should be placed four or five Feet from the Walk, to allow room for these. But as I shall particularly treat of the Method of laying out Wilderneses, and planting of them, in such a manner as to render them as nearly resembling a natural Wood as possible, under its proper Head; I shall add nothing more in this Place, except a few common Directions for making of these Sand-walks.

When the Ground is traced out in the manner as the Walks are designed, the Earth should be taken out of the Walks, and laid in the Quarters. The Depth of this must be proportioned to the Nature of the Soil; for where the Ground is dry, the Walks need not be elevated much above the Quarters; wherefore the Earth should be taken out four or five Inches deep in such Places; but where the Ground is wet, the Bottom of the Walks need not be more than two Inches below the Surface, that the Walks may be raised so high, as to throw off the Wet into the Quarters; which will render them more dry and healthy to walk on.

After the Earth is taken out to the intended Depth, the Bottom of the Walks should be laid with Rubbish, coarse Gravel, or whatever of the like Nature can be most readily procured. This should be laid three or four Inches thick, and beaten down as close as possible, to prevent

the Worms from working through it; then the Sand should be laid on about three or four Inches thick; and after treading it down as close as possible, it should be raked over, to level and smooth the Surface. In doing of this, the Whole should be laid a little rounding to throw off the Wet: but there will be no Necessity of observing any Exactness therein; for as the whole Ground is to have as little Appearance of Art as possible, the Rounding of these Walks should be as natural, and only so contrived, as that the Water may have free Passage off them.

The Sand with which these Walks are laid, should be such as will bind; otherwise it will be very troublesome to walk on them in dry Weather; for if the Sand be of a loose Nature, it will be moved with strong Gales of Wind, and in dry Weather will slide from under the Feet. If, after these Walks are laid, they are well rolled two or three times, it will settle them, and cause them to be firm. If the Sand is too much inclinable to Loam, it will also be attended with as ill Consequences, as that which is too loose: for this will stick to the Feet after every Rain; so that where Sand can be obtained of a middle Nature, it should always be preferred.

In some Countries where Sand cannot be easily procured, these Walks may be laid with Sea-shells well-pounded, so as to reduce them to a Powder, which will bind extremely well, provided they are now-and-then rolled. But where neither of these can be easily procured, Sea coal Ashes, or whatever else can be gotten, which will bind, and be dry to the Feet, may be used for this Purpose. And where any of these can only be had in small Quantities,

Quantities, the Walks should have a greater Share of Rubbish laid in their Bottom, and these spread thinly over them; and in most Places Rubbish, rough Stones, or coarse Gravel, may be easily procured.

WALLS.

In the building of Walls to accelerate the Ripening of Fruits, there have been many Contrivances for obtaining the greatest Warmth from the Sun; such as inclining the Walls to the Horizon, that the Rays may fall more directly upon them. Others have built Walls in Semicircles, thinking thereby to collect the Force of the Sun's Rays, and by this means to reflect them from one Side of the Half-circle to the other: and there are some who have built their Walls in Angles for the same Purpose. But neither of these Contrivances have succeeded according to the Expectations of the Persons who have practised them; for their Fruits have not ripened so well against either of these Walls, as against such as have been plain. For as to those Walls which are built inclining to the Horizon, tho' they have the Rays of the Sun almost perpendicular in the middle of the Day; yet in the Mornings and Evenings, the Rays fall more oblique on these Walls, than on those which are upright. And it is not the greatest Force of the Sun's Rays, in the middle of the Day, which is of so much Service to Fruits, as the long Continuance of the Sun on the Wall, or its strongest Force in the Morning to dry the Dew from off the Trees; for in the middle of the Day, when the Sun is greatly advanced above the Horizon, and the Air thoroughly warmed by his Influence, there will need no additional Heat to forward the Growth of the Fruit, and to ripen it in Perfection; because where-

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ever the Fruit is exposed too much to the Sun by the want of Leaves to shade it, and these Fruit happen to lie close to the Wall, as is sometimes the Case, they are never so fair or well-tasted, as those which are screen'd from the Sun by Leaves: for the violent Heat of the Sun in the middle of the Day, in very hot Weather, will cause many Fruits, which are too much exposed, to be mealy before they are ripe. And these inclining Walls are greatly exposed to hoary Frosts in Spring and Autumn, which are very destructive to Fruits, as also to Rain, Hail, &c. and the Dampness will remain a considerable time longer on these sloping Walls, than on those which are upright; so that these sloping Walls are by no means proper for Fruit.

As to those Walls which are built in Half-circles, or those in Angles, they are also bad; for the Wind, being drawn into the Areas of them, is reverberated from Side to Side, which renders the Air about the Fruit much colder than any in the Neighbourhood; wherefore instead of forwarding the Ripening of the Fruit, as they were intended, the Fruit will be much later ripe than against plain Walls built to the same Aspect, as I have several times observed; so that from all the several Trials which have yet been made of different-shaped Walls, it appears there are none so proper for Fruit as those which are built plain; and as these are also the least Expence to build, they should always be preferred.

According to the modern Taste in Gardening, there are very few Walls built round Gardens; which is certainly very right, not only with regard to the Pleasure of viewing the neighbouring Country from the Garden, but also in regard to the Ex-

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pence,

pence, 1. of building these Walls ; and, 2. if they are planted with Fruit, as is frequently practised, to maintain them will be a constant Charge, without receiving much Profit or Pleasure. For when there is too much Walling planted with Fruit-trees, they are seldom taken much care of ; so that the Quantity of Fruit produced will be small, and that ill-nourished and bad-tasted. Therefore the Quantity of Walling should be proportioned to the Fruit consumed in the Family. But as it will be necessary to inclose the Kitchen-garden, for the Security of the Plants, so, if that be walled round, it will contain as much Fruit as will be wanted in the Family ; because the Kitchen-garden is always proportioned to the Number of Persons maintained : and as the Kitchen-garden should always be placed out of Sight from the House, the Walls may be hid by Plantations of Trees, at some small Distance, which will be of Use in sheltering of the Fruit.

The best Aspect for Walls, in *England*, is, to have one Point to the Eastward of the South ; for these will enjoy the Benefit of the morning Sun, and will be less exposed to the West and South-west Winds (which are very injurious to Fruit in *England*) than those Walls which are built due South. I know there are many Persons who object to the turning of Walls the least Point to the East, on account of the Blights which they say come from the East in the Spring. But from many Years Experience and Observation, I can affirm, that Blights as often attack those Walls which are open to the South-west, as those which are built to any other Aspect : and I believe, whoever will be at the Trouble to observe for seven Years, which aspectted Walls suffer most

from Blights, will find those which are built with a Point to the Eastward of the South, as seldom blighted as those which are turned to any other Aspect. Therefore, in the Contrivance of a Kitchen-garden, there should be as great Length of these Walls built as the Situation of the Ground will admit.

The next best Aspect is due South, and the next to that South-east, which is preferable to the South-west for the Reasons before assigned. But as there will for the most part be South-west and West Walls in every Garden, these may be planted with some Sorts of Fruit, which do not require so much Heat to ripen them as those designed for the best Walls. But where-ever there are North Walls, it is hardly worth while to plant them with Fruit, because whatever Sorts of Fruit will ripen against them, will do much better in Espaliers, or on Standards.

Where Persons are very curious to have good Fruit, they erect a Trelase against their Walls, which projects about four Inches from them, to which they fasten their Trees ; which is an excellent Method, because the Fruit will be always at a proper Distance from the Walls, so as not to be injured by them, and will have all the Advantage of their Heat. And by this Method the Walls will not be injured by driving Nails into their Joints, which by every Year being drawn out, will force the Morter from between the Bricks, and thereby make Holes, in which Snails and other Vermin will harbour, and destroy the Fruit, and the Walls will be also greatly impaired.

These Trelases may be contrived according to the Sorts of Fruit which are planted against them. Those which are designed for Peaches, Nectarines,

Nectarines, and Apricocks (which for the most part produce their Fruit on the young Wood), should have their Rails three, or at most but four Inches asunder every Way. But for other Sorts of Fruit, which continue bearing on the old Wood, they may be five or six Inches apart; and those for Vines may be eight or nine Inches Distance. For as the Shoots of Vines are always trained at a much greater Distance than those of any other Sort of Fruit, the Trelases for these need not be near so close; especially as those must for Peaches and Nectarines, whose Shoots are generally shortened to about five or six Inches or less; so that, if the Rails are not pretty close, many of the short Branches cannot be fastened to them.

These Trelases may be made of any Sort of Timber, according to the Expence which the Owner is willing to bestow; but Fir is most commonly used for this Purpose, which, if well dried and painted, will last many Years; but if a Person will go to the Expence of Oak, it will last sound much longer. And if any one is unwilling to be at the Expence of either, then a Trelase may be made of Ash-poles, in the same manner as is practised in making Espaliers, with this Difference only, that every fourth upright Rail or Post should be very strong, and fastened with iron Hooks to the Wall, which will support the whole: and as these Rails must be laid much closer together than is generally practised for Espaliers, these strong upright Rails or Posts will not be farther distant than three Feet from each other. To these the cross Rails which are laid horizontally should be well nailed, which will secure them from being displaced, and also strengthen the Trelase; but to the other smaller upright Poles, they

need only be fastened with Wire. To these Trelases the Shoots of the Trees should be fastened with Osier-twigs, Rope-yarn, or any other soft Bandage; for they must not be nailed to it, because that will decay the Woodwork.

These Trelases need not be erected until the Trees are well spread and begin to bear Fruit plentifully; before which time the young Trees may be trained up against any ordinary low Espalier, made only of a few slender Ash-poles, or any other Sort of slender Sticks; by which Contrivance the Trelases will be new when the Trees come to Bearing, and will last many Years after the Trees have overspread them: whereas, when they are made before the Trees are planted, they will be half decayed before the Trees come to bearing Fruit.

Where these Trelases are intended to be made against new Walls, it will be proper to fasten some strong iron Hooks into the Wall as it is built, at the Distance which the upright Posts are intended to be placed; because when these are afterwards driven into the Wall, they displace the Morter in the Joints, and injure the Wall.

In the building of the Walls round a Kitchen-garden, the Insides, which are designed to be planted with Fruit-trees, should be made as plain as possible, so that the Piers should not project on those Sides above four Inches at most; and these should be placed about fourteen Feet asunder, in such Walls as are designed for Peach and Nectarine-trees; so that each Tree may be planted exactly in the Middle between the Piers, which will render them more sightly, and be better for the Trees. But where Apricocks, Plums, or Cherries, are to be planted, the Piers may be only

ten Feet asunder, and against every other Pier the Trees should be planted, which will allow them sufficient room to spread; and as the Trelase will project as forward as the Piers, the Branches of the Trees may be trained on a Plain. But when the Piers do not project more on the Inside of the Garden, they should be built stronger on the Outside, for the better supporting of the Walls.

The usual Thickness which Garden-walls are allowed, if built with Bricks, is thirteen Inches, which is one Brick and an half: but this should be proportionable to the Height; for if they are all built fourteen Feet high or more, as is often practised, then the Foundations of the Walls should be at least two Bricks and an half thick, and brought up level to the Surface of the Ground, of the same Thickness; then they should be set off two Inches on each Side, which will reduce them to two Bricks; and four or five Feet above the Ground, they may be diminished on each Side, to reduce them to the Thickness of a Brick and half, which must be continued to the Top of the Walls. And the Piers in these high Walls should also be proportionably stronger than is commonly allowed to lower Walls; for as these will be much more exposed to strong Gales of Wind, so if they are not well built, they will be in Danger of being blown down. Therefore the Piers of these Walls should be projected the Length of a Brick on their Backside, and the Thickness of a Brick on their Front; and if these are built about ten or twelve Feet asunder, they will greatly strengthen the Walls.

But there is no Necessity of building Walls higher than nine or ten Feet, unless it be for Pears, which, if properly managed, will spread

over a great Compass of Walling; but as only some of the latest Winter-pears require the Assistance of a Wall, there need no more but that Part of the Wall, where these are designed, to be built higher; for Peaches and Nectarines never require a Wall higher than nine or ten Feet, provided they are rightly managed; because whenever they are carried to a greater Height, the lower Part of the Wall is unfurnished with bearing Branches. And altho' Apricocks, Plums, and Cherries, will frequently grow higher; yet if they are planted at a proper Distance, and the Branches trained horizontally from the Bottom, they will not soon cover a Wall of this Height. And Vines may be kept as low as any Sort of Fruit; for when they are planted against low Walls, they must be treated somewhat after the same Manner as those in Vineyards, which is to cut out the greatest Part of the Wood which produced Fruit the preceding Year, and train in new Shoots for the next Year's Bearing, which are rarely left a Yard in Length, and will not require very high Walls.

If the Pears, which are designed to be planted are allowed a South-west Aspect, on which they will ripen very well, then the Wall to this Aspect should be built fourteen Feet high or more; for as these Trees spread very far, when on free Stocks, they should not be shortened and stopp'd in their Growth, which will prevent their Bearing, by causing them to send out a great Number of gross luxuriant Shoots, which will never produce Fruit. Therefore these should never be planted amongst other Sorts of Fruit-trees, which are of smaller Growth, because then the Walls must appear very unsightly, in having some Trees planted

planted more than double the Distance which the others require; so that there is no other Sort of Fruit which requires the Assistance of Walls to ripen their Fruit, which need so great room for spreading as Pears, except it be Figs; a few Trees of which may be planted against the same Walls where there is room; tho' these may be planted against the Back-walls of Offices or Stables, where there is Conveniency, because this Fruit is seldom coveted by Servants; and, being planted in Places which are much frequented, they will not be in so much Danger of being destroyed by Birds, as those which are in private Places. But I shall now proceed to give some Directions for the Building of Hot-walls, to promote the Ripening of Fruits, which is now pretty much practised in *England*.

In some Places these Walls are built at a very great Expence, and so contrived as to consume a great Quantity of Fuel; but where they are judiciously built, the first Expence will not be near so great, nor will the Charge of Fuel be very considerable; because there will be no Necessity of making Fires more than ten Weeks or three Months, beginning about the Middle of *January*, and ending by the Beginning of *May*, when there will be no want of Fires, if the Glasses are close shut every Night, or in bad Weather; for half an Hour's Sunshining on the Glasses, at this Season, will sufficiently warm the Air inclosed in the Glasses, for the Growth of any of our *European* Fruits.

There are some Persons who plant Vines and other Fruit-trees by the Sides of Stoves, and draw some of their Branches into the Stove, in order to obtain early Fruit; but this is by no means right, because

where the Stove is designed for the Ananas, the Air must be kept much warmer for them than is required for any of the other Fruits, so that they can never do well together; for when there is a sufficient Quantity of Air admitted, to promote the Growth of the other Fruit, the Ananas are starved for want of a proper Heat; and so, on the contrary, when the Stove is kept up to the proper Heat for the Ananas, it will be too hot for Fruit. And it will also be proper to have the Vines on a particular Wall by themselves, because these require to have a greater Share of Air admitted to them when they begin to shoot, than is proper for Peaches or Nectarines; so that it is much the better Method to have them separate.

The ordinary Height of these Hot-walls is about ten Feet, which will be sufficient for any of those Sorts of Fruits which are generally forced; for by this the Trees are commonly weakened in their Growth, so that they will not grow so vigorously as those which are always exposed to the open Air; and where there is not a Quantity of Walling planted sufficient to let one Part rest every Year, the Trees will never be very healthy, and will last but a few Years. The Quantity of Walling to produce early Fruit for a middling Family, can't be less than eighty or one hundred Feet in Length; so that where a Person is desirous to have their Fruit in Perfection, and the Trees to continue in a good Condition many Years, there should be three times this Quantity of Walling built; so that, by dividing it into three Parts, there will be two Years for the Trees to recover their Vigour between the Times of their being forced; whereby a greater Quantity of Bearing-

wood may be obtained, and the Fruit will be fairer, and in larger Quantities, than when they are forced every Year, or every other Year; and as the Glasses may be contrived so as to move from one to the other, the Expence of building the Walls so much longer will not be vastly great, because the Frames and Glasses will be the same as for one Year's Fruit.

The Foundations of these Walls should be made four Bricks and an half thick, in order to support the Flues; otherwise, if part of them rest on Brick-work, and the other Part on the Ground, they will settle unequally, and soon be out of Order; for where-ever there happen any Cracks in the Flues, thro' which the Smoke can make its Escape, it will prevent their Drawing; and if the Smoke gets within the Glasses, it will greatly injure the Fruit. This Thickness of Wall need not be continued more than six Inches above the Ground, where should be the Bottom of the first Flue, which will raise it above the Damps of the Earth: then the Walls may be set off four Inches on each Side, which will reduce it to the Thickness of three Bricks and an half, so that the Back-wall may be two Bricks thick, which is absolutely necessary to throw the Heat out more in Front; for when the Back-walls are built too thin, the Heat will escape thro' them. The Wall in Front, next to the Fruit, should be only four Inches thick: whereby there will be an Allowance of nine Inches for the Flues, which may be covered with ten Inch Tiles; for if they have half an Inch Bearing on each Side, it will be sufficient.

The Ovens in which the Fires are made, must be contrived on the Backside of Walls, which should be

in Number proportionable to the Length of the Walls. The Length usually allowed for each Fire to warm, is forty Feet, tho' they will do very well for fifty Feet: but I would not advise the Flues to be longer than this to each Fire; because when they are made too long, there is a Necessity of making the Fires so much stronger to warm them; which will occasion the Heat to be too violent near the Fires. These Ovens should be shedded over, to keep out the Wind and Rain, otherwise the Fires will not burn. Some People make these Sheds of Timber, but it is much better to build them of Brick, and tile them over; because the wooden Sheds will in a few Years decay, and afterwards will be a constant Charge to keep in Repair: and besides, they may be in Danger of firing, if great Care is not constantly taken of the Fires. As it is absolutely necessary to have the Ovens below the Foundation of the first Flues, there must be Steps down into the Sheds, to come to the Mouth of the Ovens to supply the Fuel. Therefore the Sheds should not be narrower than six Feet in the clear; for as the Steps will require three Feet Space, there should be at least three Feet more for the Person who attends the Fire to have room to turn himself to clear out the Ashes, and to put in the Fuel. Where the Length of Walling requires two Ovens, it will be proper to have them in the Middle included in one Shed, which will save Expence, and allow more room to attend the Fires; for in this Case the Sheds must be at least ten Feet long, and then they need not be more than six in Breadth. The Steps down into these should be at one End, so that the Door opening into the Sheds, will not be opposite

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to the Mouths of the Ovens: therefore the Fires will burn more regularly; for whenever the Doors are contrived to front the Mouth of the Ovens, if the Wind sets directly against them, it will cause the Fire to burn too fiercely, and the Fuel will be soon consumed.

These Ovens may be contrived in the same manner as those which are already described for Stoves: wherefore I shall not repeat it again in this Place; but must observe, that when the two Ovens are joined together, there should be a Partition-wall at least two Bricks thick between them, otherwise the Fires will soon destroy it; and if there should be the least Hole in the Wall, through which the Smoke of the two Fires can communicate, it will prevent their Drawing.

The lower Flue, thro' which the Smoke first passes from the Fire, may be two Feet and a half deep; the Back-wall should therefore be continued two Bricks thick as high as to the Top of this Flue; and then it may be set off to a Brick and half Thickness, which must be continued to the Top of the Wall. The second Flue, which should return over the first, may be made two Feet deep, the third a Foot and half, and the fourth one Foot deep; which four Flues, with their Coverings, will rise near eight Feet in Height; so that there will be about two Feet left for the fixing of the Frames at the Top to support the Glasses, and for coping the Wall. And these four Returns will be sufficient to warm the Air in the Frames; for the Smoke will have lost its Heat by the time it has passed thus far.

In the carrying up of these Walls, there should be some strong iron Hooks fastened at convenient Distances, which should project about

two Inches from the Wall, to which the Trelase must be fastened, which is to support the Trees. These Hooks should be long enough to fasten into the Back-wall; for the Wall in Front, being but four Inches thick, will not be strong enough to support the Trelase. But in placing of them, Care should be had not to lay them cross the Middle of the Flues, because they would obstruct the clearing the Flues of Soot, whenever there should be Occasion. So that the best way is to lay them just under the Tiles which cover each Flue, at about three Feet asunder, which will be near enough, provided the Hooks are made sufficiently strong. As the Flues must be well plastered with Loam on their Inside; so also should the Loam be spread under the Tiles which cover them to the Thickness of the Hooks, that the Flues may be very smooth; otherwise the Soot will hang to the iron Hooks, and stop the Smoke from passing. It will also be very proper to cover these Flues on the Side next the Trelase with Hop-bags, or some such coarse Cloth, in the same manner as hath been directed for the Stoves; which will make them so tight, that no Smoke will find its Way, which, without this Covering, it is very apt to do, through the Joints of Walls; especially when they are so thin as these must be built. And this Covering will also strengthen the Wall of the Flues, and join the whole Work together. If at each End of these Flues, there are small Arches turned in the Back-walls, in such a manner that there may be Holes opened to clean the Flues of Soot, whenever there is a Necessity for it, the Trouble will be much less than to open the Flues in Front; and there will be no Damage done to the Trees,

nor will the Flues be the least injured by this, which they must be, when they are opened in Front.

The Borders in Front of these Hot-walls should be about five Feet wide, which will make a sufficient Declivity for the sloping Glasses; and in these Borders there may be a Row of dwarf Peas planted to come early, or a Row of dwarf Kidney-beans, either of which will do very well; and if they are not planted too near the Trees, will not do them any Injury. On the Outside of these Borders should be low Walls erected, which should rise about four Inches above the Level of the Borders; upon which the Plate of Timber should be laid, whereon the sloping Glasses are to rest. And this Wall will keep up the Earth of the Border, as also preserve the Wood from rotting.

The Glasses which are designed to cover these Walls, must be divided into two Ranges; for as they must reach from the Ground-plate (just above the Level of the Border) to almost the Top of the Wall, they will be near twelve Feet long; which will be too great Length for single Frames, which, when they are more than six Feet long, are too heavy to move, especially if the Frames are made of a proper Strength to sustain the Glafs. These Frames should be contrived in such manner, as that the upper Row may slide down; and by making on one Side three small Holes in the Wood-work which supports the Frames, at about a Foot Distance, and having a small iron Pin to fix into them, the top Glasses may be let down one Foot, two Feet, or three Feet, according as there may be Occasion. The lower Row of Glasses may be contrived so as to take easily out: but as they must lie sloping, and

the upper Row must bear on them, they cannot be contrived to slide upwards, nor indeed will there be any Occasion of their Moving, because it is much better to let the Air in at the Top, than in the Front of the Trees.

The sloping Timbers which are to support the Glafs-frames, must be fastened at Bottom into the Ground-plate in the Front of the Border, and at the Top into strong iron Cramps fixed in the upper Part of the Wall for that Purpose. These Timbers should be made of Fir, which will not twist as Oak and some other Wood will, where it is laid in such Position. They must be made substantial, otherwise they will not last many Years, especially as they are designed to be moveable. On the Top of these should be fixed a strong Board, under which the upper Row of Glasses should run. The Use of this Board, is to secure the upper Part of the Glasses from being raised by the Winds, and also to keep the Wet from getting to the Trees. Therefore it should be joined as close as possible to the Wall, and should project about two Inches over the Glafs-frames; which will be enough to throw the Wet on the Glasses, and likewise to secure them fast down.

The Breadth of these Frames for the Glasses may be about three Feet, or a little more, according as the Divisions of the Length of the Wall will admit; for a small matter in their Width is of no Consequence, provided they are not too wide to be easily moved; for when they are wider than a Man can easily reach with his Arms to manage, they will be very troublesome to carry from one Place to another. The Bars of these Frames which are to support the Glafs, should be placed length-

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wife of the Frames; for when they are placed across, they stop the Moisture which is lodged on the Inside of the Glasses, and cause it to fall in Drops on the Border at every Bar; which will be very injurious to any Plants which are put there; and if it falls on the Trees, will greatly damage them, especially when they are in Blossom. The Lead, into which the Glasses of these Frames are fixed, should be very broad, and the Joints well cemented; otherwise the Wet will find an easy Passage through, and do great Damage to the Fruit.

At each End of the Range of Glasses, there will be an angular Space between the Glasses and the Wall, which must be closely stopped to prevent the Air from getting in, which might greatly injure the Fruit. These are by some Persons closely boarded up; but if they are closed with Glasses, so contrived as to open to let in Air at proper times, it will be of great Advantage; because, when the Wind may be too strong against the Front-glasses, one or both of these End-glasses may be opened, according to the Warmth of the Air inclosed; which will be often very useful to cool the Air, and to admit a small Quantity of fresh Air to the Fruit.

The Sorts of Fruit which are usually planted for Forcing, are Cherries, Plums, Peaches, Apricocks, and Nectarines. As for the Vines, I would propose they should be planted by themselves against a particular Wall; for as they will require more Air to be admitted to them when they begin to shoot, than any of the above-mentioned Fruits, they will not all succeed, if they are included in the same Frame. As to the others, they will do very well in the same Border, and will

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require the same Temperature of Warmth. The best of these Sorts to plant against these Hot-walls are those here mentioned.

Cherries.

The Early May, and May Duke.

Plums.

The Jean Hâtive, or White Primordian.

The Early Black Damask, or Morocco.

The great Damask Violet of Tours.

The Drap d'Or.

Peaches.

The Red Nutmeg

The Red Magdalin.

The Montauban.

Nectarines.

Fairchild's Early Nutmeg.

The Elruge.

Apricock.

The Masculine.

These being the Sorts which ripen early, are the most proper to plant against these Walls, although they are not so valuable as some other Sorts of these Fruits: yet as they ripen naturally three Weeks or a Month earlier in the Season, they will be very early ripe, when they are brought forward by artificial Warmth.

In the preparing of the Borders for planting of these Fruit-trees, there should be the same Care taken, as for those against open Borders; which being fully treated of, under the Article of *Planting*, I shall not repeat here. There must also be the same Care in training up of the Trees, when they shoot; but the Trelases need not be made against these Walls, until the Trees are grown large enough to spread, and produce a Quantity of Fruit; till which time they may be supported by any low ordinary Trelase, which will do very well till the time that the

the Trees will have Strength enough to force, which will not be until the fourth or fifth Year after planting, according to the Progress they have made; for if they are forced too young, it will weaken them so much, as that they seldom make vigorous Trees afterwards. Besides, the Quantity of Fruit which such young Trees produce, is not worth the Expence and Trouble of Forcing: for the Quantity of Fuel used, and the Trouble, will be the same for small Trees, which are not capable of producing more than six or eight Fruit each, as for those Trees which may produce three or four dozen. So that the greater time the Trees have to grow before they are forced, the better they will pay for the Trouble and Expence.

But it will be the best way not to have any of the Frames made, nor the Trelase or any other of the Woodwork, until the Trees are strong enough to force: for if these are done when the Walls are first built, as is by some Persons practised, they will be half decayed, before there is any Use for them. But then the Persons who are employed in making of the Trelase, must be very careful, in putting of it up, not to injure the Trees.

When the Trees have acquired Strength enough to produce a Quantity of Fruit, that Part which is designed to be forced the following Spring, should be carefully pruned at *Michaelmas*; when the very weak Shoots must either be intirely cut out, or pruned very short, because these, by being forced, will for the most part decay; and tho' some of them may be full of Flower-buds, yet these Shoots being weak, cannot nourish them; so that the Flowers having exhausted all the Sap, the Shoots die soon after, and rarely

produce any Fruit. The other more vigorous Shoots should also be shortened to a proper Length, after the same manner as is directed for those Trees in the open Air; with this Difference only, *viz.* That these which are designed for Forcing, should not have their Shoots left so long, because the Forcing of them will weaken them; and so consequently, should there be as great a Length of Branches, there will probably be a greater Number of Fruit on them; because, as these will be screened from the open Air, they will not be liable to Blasts; and the having too many Fruit on the Trees, will render them small, and also weaken the Trees too much. Then the Shoots should be all regularly fastened to the Trelase, at a proper Distance from each other, so that when the Branches shoot the following Spring, they may not overhang each other. The Reason for my advising these Trees to be pruned so early in the Season, is, that those Branches which are left on may enjoy the whole Nourishment of the Sap; so that the Buds will become very turgid during the Winter-season, and will be prepared to open when the Fires are set to work.

The Time for beginning to make the Fires is about the Middle or Latter-end of *January*, according as the Season is more or less favourable; for if the Trees are forced too early into Flower, they will be in some Danger of miscarrying, if the Weather should prove severe; so that it is by much the surest Method to begin about the time here directed, because there will be a Necessity of admitting fresh Air to the Trees when they are in Flower; which cannot be done with Safety, when they flower in very bad Weather. And those Trees which are forced into

into Flower by the Middle of *February*, will ripen their Fruit as early as most People will desire to eat them; for the Cherries will ripen early in *April*, and the Apricocks by the Beginning of *May*; and soon after, the Plums, Peaches, and Nectarines will be ripe.

There are some Persons who plant Strawberries in their Borders before their Fruit-trees, in order to have early Fruit, which often succeed very well: but where-ever this is practised, great Care should be taken to keep them from spreading over the Border, because these Plants will exhaust the principal Goodness of the Earth, and thereby injure the Trees; so that when it is designed to have Strawberries in these Borders, I would advise, that the Roots should be either planted in Pots, or singly at a good Distance on a shady Border of loamy Earth, one Year before they are designed to be forced; during which time the Runners should be diligently pulled off, to encourage the main Roots for Fruiting; and at *Michaelmas* these Plants may be transplanted, with large Balls of Earth to their Roots, into the Borders before the Fruit-trees which are to be forced the following Spring, so that they may have time to get new Root before that Season; and if these Plants are carefully watered when they begin to shew their Flower-buds, they will produce a good Quantity of Fruit, which will ripen the Latter-end of *April*, or the Beginning of *May*. But then I would also advise, that these Plants be taken away as soon as they have done Bearing, that they may not rob the Trees of their Nourishment.

Since I have mentioned this Method of having early Strawberries, I shall take the Liberty to insert another Method, which is often pra-

ctised to obtain this Fruit early in the Spring, though it doth not so properly come under this Article; which is, to train up the Plants either in Pots or Borders, after the manner before directed, for at least one Year or more; then, about the Beginning of *February*, there should be a moderate Hot-bed prepared, in Length proportionable to the Number of Plants designed to be forced; and the Breadth should be proportionable to the Width of the Frames which are designed to cover them. These Frames may be such as are used for common Hot-beds, to raise early Cucumbers, &c. This Hot-bed must be covered with fresh loamy Earth about eight Inches thick, into which the Strawberry-plants should be placed, with large Balls of Earth to their Roots, as close as they can conveniently be planted (for as they must be kept clear from Runners, they will not spread much during the time they remain in the Bed, which will be no longer, than until their Fruit is gone). Then they should be gently watered to settle the Earth to their Roots, which must be frequently repeated as the Earth becomes dry, otherwise they will produce but few Fruit. While the Nights continue cold, the Glasses of the Hot-bed should be covered with Mats, to preserve a kindly Warmth in the Beds; but in the Day-time, when the Weather is favourable, the Glasses should be raised to admit fresh Air to the Plants; for if they are too much drawn (especially when they begin to flower), they will not produce much Fruit. If the Season should continue long cold, and the Heat of the Beds should decline, it will be proper to lay some fresh Hot Dung round the Sides of the Beds to renew their Heat, being always care-
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ful not to make them too hot; for that will scorch their Roots, and prevent their Fruiting. If the Plants which are planted in these Beds are strong, and in a good Condition for Bearing; and Care be taken in transplanting of them to preserve good Balls of Earth to their Roots, as also to keep a due Temperature of Warmth in the Beds; they will produce ripe Fruit by the End of *April*, or the Beginning of *May*, in Plenty; and will continue bearing, until some of those in the open Air come in to succeed them.

The best Kinds of Strawberries to plant for Forcing, are the Wood, and the Scarlet; for the Hautboys grow too rampant for this Purpose.

But to return to the Subject of Hot-walls: What I have here inserted concerning the Forcing of Fruits, has been only to obtain these Fruits earlier in the Season, than they would naturally ripen against common Walls. But in some Parts of *England*, where most of our good Kinds of Fruit seldom ripen, it might be very well worth while to build some of these Walls, to obtain good Fruit from the best Kinds of Peaches, Plums, &c. especially in such Places where Fuel is plenty, because there the Expence will not be great after the first Building of the Walls. For I would not propose to have Coverings of Glass, excepting for a small Proportion of the Walls; the rest may have Frames of Canvas to shut over them, in the same manner as the Glasses are contrived; which will succeed very well, where proper Care is taken; for as there will not be Occasion to cover these Trees until the Latter-end of *February*, at which time also the Fires must be made, so before the Trees are in Flower, the Weather may be frequently warm enough to

open the Covers to admit Sun and Air to the Trees in the middle of the Day; for if these Covers are kept too closely shut, the Shoots of the Trees will draw very weak, and their Leaves will turn pale, for want of Light and Air. And as the Design of these Contrivances is only to bring the Trees six or eight Weeks earlier, than they would naturally come against common Walls; there will be no Necessity of making very large Fires, or keeping the Covers too closely over the Trees.

Instead of Canvas for these Covers, oiled Papers may be used, which should be done in the manner directed for raising of Melons, by pasting as many Sheets of Paper together, as will fit the Frames on which they are to be fixed; and when the Paste is dry, the Paper should be fastened into the Frames, and then the Oil rubbed over on the Outside with a Brush, which will soak through the Paper; and when the Paper is dry, the Covers may be used. This Paper will last very well one Season, and the Expence of repairing it will not be very great: wherefore these are to be preferred to the Canvas, because all Sorts of Plants will thrive much better under them, than they will under Canvas, or any other close Covering, which will not admit the Light so well through to the Plants.

The Frames designed for either Canvas or Paper, may be made much lighter than those for Glass; because these being very light, will not require much Strength to support them. And if these are well painted, and every Year, when their Use is over, carried into Shelter, they will last a long time; for they will not be wanted abroad longer than four or five Months, *viz.* from the Beginning of *February* to the End of

May; for after this time the Fruit will not require any Covering, the Trees being then full of Leaves; and the young Shoots will by that time have made such Progress, as to become a good Defence for the Fruit. But these Covers should not be too suddenly taken away, but by degrees the Trees should be inured to the open Air; otherwise the Change will be too great, and may occasion most of the Fruit to fall off, especially if cold Nights should follow.

By this Method Gentlemen may be supplied with most of the best Kinds of Fruit, in the Northern Parts of *England*; where, without some such Care, they can expect very little good Fruit in their Gardens. And as Coal is very plentiful in those Places, the Expence will be very little; therefore I am surprised, that most of the Gentlemen who live in the North, do not put this Method in Practice. That there are some few of these Walls built in the North, is well known; but then they are chiefly designed to produce a little early Fruit, more for Curiosity than any real Use: and these Walls are for the most part so ill-contrived, that four times the Fuel is expended, as will be required when the Walls are built after the manner here directed: and where the Heat is not pretty equally distributed through every Part of the Wall, some of the Trees will have too much Heat, while others will have little Benefit from the Fires.

There are some Persons who build their Hot-walls in such a manner, as to have the greatest Heat under the Border, near to the Roots of their Trees, supposing there is a Necessity of Heat to the Roots as well as the Branches; but this is a great Mistake, and the Fires must extreme-

ly injure the Roots of the Trees, by drying up the Moisture of the Earth, as also in scorching the tender Fibres of those Roots which lie near them. Therefore this Practice should not be continued; for it is much the better Method to elevate the first Flue nine Inches or a Foot above the Level of the Border, according as the Ground is dry or wet, than to place it the least below the Ground; which will only dry the Earth, and not warm the Air about the Trees, which is the only Use of artificial Heat; for it is very commonly practised to draw a Branch of a Vine, or other Fruit-tree, into a Stove, which Branch will produce its Fruit as early as if the whole Tree had been forced; when at the same time all the other Branches of the same Tree, which are exposed to the open Air, will not be the least forwarded, though they are all nourished by the same Root; which is a plain Proof, that there is no Necessity of adding any Warmth to the Roots of Fruit-trees, to have their Fruit earlier or better ripened.

I have also heard of some Walls which have been built for Forcing of Fruit, with one continued Chafin from their Bottoms to the Top; so that they have been like double Walls, with Places at proper Distances to make the Fires. But these can be of little Use; for if the Vents are open at their Tops to let out the Smoke, the Heat will also escape with it; for if the Smoke be not led about three or four times in Flues, in order to warm the Bricks, the Heat will pass off at the Top, without doing much Service to the Trees.

Where the Walls are planted with the best Kinds of Fruit, which are designed to ripen them in Perfection; if

if the Autumn should prove cold, or very wet, before the Fruit are ripe, it will be proper to put the Covers over the Trees; and if there are some slow Fires made to dry off the Damps, it will be of great Use to prevent the Fruit from growing mouldy, and to hasten their Ripening. But when this is practised, the Covers should be taken off whenever the Weather will admit of it, that the Fruit may enjoy the Benefit of the free Air, without which they will be insipid or ill-tasted.

Although, in the former Directions for Forcing of Trees, to have early Fruit, I have advised, That such Trees should have one or two Years Rest, in order to recover Vigour; yet that is not to be understood of these Trees, which are only designed to be brought forward enough to produce their Fruit in Perfection: for as the Fires are not designed to be made till the Middle or End of *February*, the Trees will not be weakened thereby, because they will be inured to the open Air long before their Fruit is ripe, and will have time to ripen their Shoots, and form their Buds, for the next Year's Bearing: therefore these Trees may be thus forced every Year, without doing them any Injury, provided the Trees are carefully managed.

In forcing Fruit-trees, People generally hang up Thermometers under their Glasses, for the better adjusting the Heat, and regulating the Fires. But when this is practised, they should be hung where the Sun can never shine on them; for one Hour's Sunshine upon the Ball of the Thermometer, in the Spring of the Year, will rarefy the Spirits so much, that they will rise to the Top of the Tube; when at the same time the circumambient Air may not be much more than of a temperate Heat.

But as the principal Use of these Thermometers is to regulate the Fires, they are seldom of much Use in the Day-time; because, if there be only one Hour's Sunshine in the Day on the Glasses, it will warm the Air sufficiently for the Production of *European* Fruits, without any additional Heat: wherefore there will rarely be any Occasion for continuing of the Fires in the Day. And if by the Fires in the Night the Air is warmed to the temperate Point marked on Mr. *Fowler's* Botanic Thermometers, the Fruit will thrive much better than in a greater Heat.

There are some Persons near *London*, who make it their Business to produce early Fruit to supply the Markets with; which they perform by the Heat of Dung only, having no Fire-walls in their Gardens. The Method which these People follow, is to have a good Quantity of new Dung laid in an Heap to warm (after the same manner as is practised for making of Hot-beds): when this Dung is in a proper Temperature of Heat, they lay it close on the Back-side of their Fruit-wall, about four Feet thick at the Bottom, and sloping to about ten Inches or a Foot thick at the Top. This Dung should be gently beat down with a Fork, to prevent the Heat from going off too soon; but it should not be trodden down too hard, lest that should prevent its Heating. The Outside of the Dung should be laid as smooth as possible, that the Wet may run off more easily; and if there is a Covering of Thatch, as is sometimes practised, it preserves the Dung from rotting too soon: by which means the Heat is continued the longer. The Time for laying this Dung to the Back of the Wall, is the same as for making the Fires, *i. e.* about the Middle or
End

End of *January*. This first Parcel of Dung will continue warm about a Month or five Weeks, when there should be a fresh Supply of new Dung prepared, and the old taken quite away, or mixed up with this new Dung, to renew the Heat; which, if it works kindly, will be sufficient to last the Season. These Walls are covered with Glasses or Canvas, in the same manner as the Fire-walls; and the Trees must be treated the same way: but there must be more Care taken to open the Glasses against these Walls, whenever the Weather will permit; otherwise the Steam of the Dung will occasion a great Dampness through the Wall; which, if pent in about the Trees, will be very pernicious to them, especially at the time they are in Flower.

By this Method some Gardeners have forced long Walls filled with old well-grown Fruit-trees, which have annually produced great Quantities of Fruit, and have well answered their Expence. But, as in many Parts of *England* it will be very difficult to procure a sufficient Quantity of new Dung for this Purpose, the Fire-walls are the most useful, and least expensive.

I have seen, in some Places, long Timber-fences erected to force Fruit-trees, by laying new Dung against the Backside, in the same manner as is practised for the Walls; but these are by no means proper, because the Steam of the Dung will easily get through every little Crack or Joint of the Boards, to the great Prejudice of the Trees: besides, the Boards will continue very damp, as long as any Moisture remains in the Dung, which will also be very injurious to them; and as these Boards will in a few Years decay, these will be the most expensive, if they are kept in

Repair for some Years, and will never answer the Design so well as Walls.

WALL-FLOWER; *vide* Leucocium.

WALNUT; *vide* Nux juglans.

WATER is one of the most considerable Requisites belonging to a Garden; if a Garden be without it, it brings a certain Mortality upon whatsoever is planted. By Waterings the great Droughts in Summer are allayed, which would infallibly burn up most Plants, had we not the Help of Water to qualify the excessive Heats; besides, as to noble Seats, the Beauty that Water will add, in making *Jets d'Eaux*, Canals, and Cascades, which are some of the noblest Ornaments of a Garden.

WILDERNESSES, if rightly situated, artfully contrived, and judiciously planted, are the greatest Ornaments to a fine Garden: but it is rare to see these so well executed in Gardens, as to afford the Owner due Pleasure (especially if he is a Person of an elegant Taste); for either they are so situated as to hinder a distant Prospect, or else are not judiciously planted: the latter of which is scarce ever to be found in any of our most magnificent Gardens, very few of their Designers ever studying the natural Growth of Plants, so as to place them in such manner, that they may not obstruct the Sight from the several Parts of the Plantation which are presented to the View: therefore I shall briefly set down what has occurred to me from time to time, when I have considered these Parts of Gardens, whereby a Person will be capable of forming an Idea of the true Beauties, which ought always to be studied in their Contrivance of Wilderesses.

I. Wil-

1. Wildernesses should always be proportioned to the Extent of the Gardens in which they are made, that they may correspond in Magnitude with the other Parts of the Garden; for it is very ridiculous to see a large Wilderness planted with tall Trees in a small Spot of Ground; and, on the other hand, nothing can be more absurd, than to see little paltry Squares or Quarters of Wilderness-work in a magnificent large Garden.

2. As to the Situation of Wildernesses, they should never be placed too near the Habitation, because the great Quantity of Moisture which is perspired from the Trees, will cause a damp unwholesome Air about the House, which is often of ill Consequence. Nor should they be situated so as to obstruct any distant Prospect of the Country, which should always be preserved wherever it can be obtained, there being nothing so agreeable to the Mind as an unconfined Prospect of the adjacent Country. But where the Sight is confined within the Limits of the Garden from its Situation, then there is nothing so agreeable to terminate the Prospect, as a beautiful Scene of the various Kinds of Trees judiciously planted; and if it is so contrived, that the Termination is planted circularly, with the Concave toward the Sight, it will have a much better Effect, than if it end in straight Lines or Angles, which are never so agreeable to the Mind.

3. The Plants should always be adapted to the Size of the Plantation; for it is very absurd to see tall Trees planted in small Squares of a little Garden; and so likewise, if, in large Designs, are planted nothing but small Shrubs, it will have a mean Appearance. It should also

be observed, never to plant Ever-greens amongst deciduous Trees, in the Middle of the Quarters; but always place the Ever-greens in a Wilderness, or a separate Part of the Wilderness by themselves, or round on the Borders of the Plantation, and that chiefly in Sight, because these afford a continual Pleasure both in Summer and Winter, when in the latter Season the deciduous Trees will not appear so agreeable.

4. The Walks must also be proportioned to the Size of the Ground, and not make large Walks in a small Wilderness (nor too many Walks, tho' smaller), whereby the greatest Part of the Ground is employed in Walks: nor should the grand Walks of a large Wilderness be too small, both of which are equally faulty. These Walks should not be entered immediately from those of the Pleasure-garden, but rather be led into by a small private Walk, which will render it more entertaining. Or if the large Walk be turned in form of a Serpent, so as not to shew its whole Extent, the Mind will be better pleased, than if the Whole were open to the View.

The usual Method of contriving Wildernesses is, to divide the whole Compass of Ground, either into Squares, Angles, Circles, or other Figures, making the Walks correspondent to them; planting the Sides of the Walks with Hedges of Lime, Elm, Hornbeam, &c. and the Quarters within are planted with various Kinds of Trees promiscuously without Order. But this can by no means be esteemed a judicious Method, because hereby there will be a great Expence in keeping the Hedges of a large Wilderness in good Order, which, instead of being beautiful, are rather the Reverse; for as these

these Parts of a Garden should, in a great measure, be designed from Nature, so whatever has the stiff Appearance of Art, does by no means correspond therewith. Besides, these Hedges are generally trained up so high, as to obstruct the Sight from the Trees in the Quarters, which ought never to be done.

In the next Place, the Walks are commonly made to intersect each other in Angles, which also shew too formal and trite for such Plantations, and are by no means comparable to such Walks as have the Appearance of Meanders or Labyrinths, where the Eye cannot discover more than twenty or thirty Feet in Length; and the more these Walks are turned, the greater Pleasure they will afford. These should now-and-then lead into an open circular Piece of Grass; in the Centre of which may be placed either an Obelisk, Statue, or Fountain; and if, in the Middle-part of the Wilderness, there be contrived a large Opening, in the Centre of which may be erected a Dome or Banqueting-house, surrounded with a green Plot of Grass, it will be a considerable Addition to the Beauty of the Place.

From the Sides of the Walks and Openings, the Trees should rise gradually one above another to the Middle of the Quarters, where should always be planted the largest growing Trees, so that the Heads of all the Trees will appear to the View; but their Stems will be hid from Sight: which will have a vastly different Effect from the common Method, where the Trees are planted large and small, without any Order, so that many times the largest are next to Sight, and small ones behind them, just according as it happens; in which manner the small

ones, being overhung and shaded, seldom thrive well.

But in order to plant a Wilderness with Judgment, the usual Growth of all the different Sorts of Trees should be well considered, that each may be placed according to the Magnitude to which they generally grow; otherwise, if they are at first planted one above another, as before directed, they will not continue to grow in this Order many Years; for some Sorts will greatly outgrow the others, and thereby render the Plantation less beautiful; but when they are placed according to their usual manner of growing, they will always continue nearly in the same Order, which renders them very entertaining to the Sight.

These Trees should also be allowed a proportionable Distance, according to their Growth, and not crowded so close as is commonly practised, whereby there are four times the Number of Trees planted which need be; and this close Planting causes them to aspire to a great Height; but then they want the noble Diffusion of Branches; which is vastly more agreeable to the Sight, than a Parcel of thin taper Stems, with scarcely any Heads, as is too often the Case in some of the largest Gardens in *England*; where, instead of looking at a noble Parabola of Trees, with their spreading globular Heads, a Parcel of naked Stems present themselves to View; and where the Trees are thus crowded, they never thrive half so well, nor will they continue half so long, as those which are allowed a proper Distance; for their Roots running and interfering with each other, will draw the Nourishment away faster than the Ground can supply them; which causes their

Leaves to be small, and, in dry Seasons, to decay, and fall off long before their usual Time, and thereby renders the Plantation less agreeable.

In the Distribution of these Plantations, in those Parts which are planted with deciduous Trees, may be planted, next the Walks or Openings, Roses, Honeyfuckles, *Spiræa Frutex*, and other Kinds of low-flowering Shrubs, which may be always kept very dwarf, and may be planted pretty close together; and at the Foot of them, near the Sides of the Walks, may be planted Primroses, Violets, Daffodils, and many other Sorts of Wood-flowers, not in a strait Line, but rather to appear accidental, as in a natural Wood. Behind the first Row of Shrubs should be planted *Syringa's*, *Cytisus's*, *Althæa Frutex*, *Mezereons*, and other flowering Shrubs of a middle Growth, which may be backed with *Laburnums*, *Lilacs*, *Guelder-roses*, and other flowering Shrubs of large Growth; these may be backed with many other Sorts of Trees, rising gradually to the Middle of the Quarters, from whence they should always slope down every Way to the Walks.

By this Distribution you will have the Pleasure of the flowering Shrubs near the Sight, whereby you will be regaled with their Scent, as you pass through the Walks; which is seldom observed by those who plant Wildernesses: for nothing is more common than to see *Roses*, *Honeyfuckles*, and other small-flowering Shrubs, placed in the Middle of large Quarters, under the Dropping and Shade of large Trees, where they seldom thrive; and if they do, the Pleasure of them is lost, because they are secluded from the Sight. If these Quarters are slightly dug

every Winter, it will keep the Ground clean from noxious Weeds, and be a great Benefit to the Trees: and the Expence of doing this, where Labour is cheap, cannot be very considerable, unless in very great Plantations.

But, beside these grand Walks and Openings (which should always be laid with Turf, and kept well mowed), there should be some smaller Serpentine-walks thro' the Middle of the Quarters, where Persons may retire for Privacy, in which there need be nothing but the Ground of the Place made level, or of Sand, and kept hoed to clear it from Weeds, which will be no great Trouble to do with a *Dutch Hoe*, which is broad, and will make great Riddance; and then rake them over to make them handsome. These Walks need not be very broad; but should be turned in such a manner as not to deviate far from the Middle of the Quarter; because there the Trees being largest, will afford the amplest Shade; six or eight Feet will be a sufficient Width for these Walks, in large Quarters; but in small ones four or five Feet will be full enough. By the Sides of these private Walks may also be scattered some Wood-flowers and Plants, which, if artfully planted, will have a very good Effect.

In the general Design for these Wildernesses, it should not be studied to make the several Parts correspondent; for that is so formal and stiff, as to be now quite rejected: the greater Diversity there is in the Distribution of these Parts, the more Pleasure they will afford; and since, according to this Method of Designing and Planting, the different Parts never will present themselves to the same View, it is no matter how different they are varied.

asunder;

asunder; that Part of them which is most in View from the House; or other Parts of the Garden, may be planted with Ever-greens; but the other Parts may be planted with deciduous Trees in the foregoing manner.

The Part planted with Ever-greens may be disposed in the following manner; viz. in the first Line next the green Walks, may be placed *Laurus Tinus*, *Boxes*, *Spurge-laurel*, *Juniper*, *Savin*, and other dwarf Ever-greens; behind these may be placed *Laurels*, *Hollies*, *Arbutus's*, and other Ever-greens of a larger Growth; next to these may be placed *Alaternus's*, *Phillyrea's*, *Yews*, *Cypress's*, *Virginian Cedars*, and other Trees of the same Growth; behind these may be planted *Norway* and *Silver-firs*, the true *Pine*, and other Sorts of the like Growth; and in the Middle should be planted *Scotch Pines*, *Pinafter*, and others of the largest-growing Ever-greens, which will afford a most delightful Prospect, if the different Shades of their Greens are curiously intermixed. And in order to render the Variety greater, there may be many Kinds of hardy Ever-greens obtained from the North Parts of *America*, as there are already some in *England*, which are very fit for this Purpose, and are mentioned in different Parts of this Book.

This Manner of separating the Ever-greens from the deciduous Trees will not only make a much better Appearance, but also cause them to thrive far beyond what they usually do when intermixed; therefore I should never advise any Person to plant them promiscuously together.

By what I have said concerning the planting the Trees in Rows, one behind another, according to

their different Growths, I would not have it understood, that I mean the placing them in strait Lines, which is too stiff and formal for these Plantations: all that is intended is, to place the Front-rows of Trees on each Side of the Walks, at an equal Distance from the Side of the Walks; but the Lines of Trees (especially the three first) must turn in the same manner as the Walks; those behind may be placed after any manner, provided Care be taken to allow each sufficient room to grow, and that there may appear no uneven Gaps in the Distance of their Heads; but that they may all rise gradually, so as to form an handsome Slope.

In small Gardens, where there is not room for these magnificent Wild-ernesses, there may be some rising Clumps of Ever-greens, so designed as to make the Ground appear much larger than it is in reality; and if in these there are some Serpentine-walks well contrived, it will greatly improve the Places, and deceive those who are unacquainted with the Ground, as to its Size. These Clumps or little Quarters of Ever-greens should be placed just beyond the plain Opening of Grass before the House, where the Eye will be carried from the plain Surface of Grass, to the regular Slope of Ever-greens, to the great Pleasure of the Beholder: but if there is a distant Prospect of the adjacent Country from the House, then this should not be obstructed, but rather a large Opening allowed for the View, bounded on each Side with these rising Clumps, which may be extended to half the Compass of the Ground: and on the Back-part from the Sight may be planted the several Kinds of flowering Shrubs, according to their different Growths, which will still add to the Variety. These small Quar-

ers should not be surrounded with Hedges, for the Reasons before given for the larger Plantations; nor should they be cut into Angles, or any other studied Figures, but be designed rather in a rural Manner, which is always preferable to the other for these Kinds of Plantations.

In Wildernesses there is but little Trouble or Expence after their first planting, which is an Addition to their Value; the only Labour required is, to mow and roll the large Grass-walks, and to keep the other Ground-walks free from Weeds: and in the Quarters, if the Weeds are hoed down two or three times in a Summer, it will still add to their Neatness. The Trees should also be pruned to cut out all dead Wood, or irregular Branches, where they cross each other, and just to preserve them within due Bounds; and, as was before observed, if the Ground be slightly dug between the Trees, it will greatly promote their Vigour. This being the whole Labour of a Wilderness, it is no Wonder they are so generally esteemed, especially when we consider the Pleasure they afford.

But lest any Person, by reading the foregoing Directions for making and planting of Wildernesses, should mistake my Meaning, so as to suppose I intended each Line of Trees be of the same Sort, I shall add to somewhat farther on this Subject, the better to clear what has been before advanced.

As to the planting of the Trees in Wildernesses, according to their different Growths, I do not thereby mean to have whole Lines of the same Sort of Tree, but as many different Sorts of Trees as the Soil or Situation will admit, observing to place those of the largest Growth toward the Inside of the Quarters,

where they are so situated as to have Openings round them. But if the Boundaries of the Quarters are at the Extremity of the Garden, and there are no Prospects beyond them worth enjoying; then the largest Trees should be placed next to the Boundaries, and the several Trees of lower Growth planted before them in form of a Slope. But by this I would not be understood to mean, that the Trees should all of them be so chosen and planted, as to form a regular even Slope, which would have too uniform an Appearance to be entertaining to the Sight. Therefore all that I design by this Method of Planting is, that every Tree may appear to the Sight at a proper Distance, that the Extent of the Plantation may be viewed; which is too frequently obstructed by planting large Trees near the Walks and Openings, and placing low Trees and Shrubs behind them.

In the planting of these Trees, there are two principal Things to be regarded. The first is, To dispose them in such a manner, that the different Colours of their Leaves may appear in some sort like the Lights and Shades in Pictures. The second is, That their different Manners of Growing may be considered, and so placed as to make so many irregular Breaks in the Plantation, as the Size of the Ground will admit, for Instance, by mixing some Trees, whose Heads grow in a pyramidal Form, amongst others whose Heads are globular or conical, which will make the Whole appear more picturesque and agreeable. But where the Plantation is very large, and is seen from a great Distance, there the Trees should be so planted, as that several Trees, whose Growth and the Colour of the Leaves appear the same, may be joined near each other, that

their Shades, and the Breaks which they make, may be distinguished; for when single Trees of each Sort are intermixed amongst others of different Kinds, they do not strike the Eye in large Plantations near so well as when many of a Kind appear in Clumps.

In Plantations of ever-green Trees, there may be a greater Diversity made in regard to their several Forms of Growth, than there can be amongst the deciduous Trees; because there are several Sorts of Ever-greens, which naturally grow in form of Pyramids; and there are others which grow in form of Cones, and some which spread and extend their Branches in various irregular Figures: and these are also of very different Shades; so that when they are properly disposed, they will make a beautiful Appearance; especially in the Winter-season, when other Trees are destitute of Leaves. But that any Person who is desirous to make one of these Plantations, may not commit a Blunder, by not knowing the different Forms of the Growths of these Trees, I shall here mention some of the most known Ever-greens, distinguishing them according to their Growths.

1. Pyramidal ever-green Trees.

1. Common or Spruce Firr.

2. Silver Firr.

3. Cornish long-con'd Firr.

4. Balm of Gilead Firr.

5. Lord Weymouth's Firr.

6. Cedar of Virginia.

7. ~~of~~ of Carolina.

8. ~~of~~ of Bermudas.

9. Cypress.

10. Conical ever-green Trees.

1. Matured Pine.

2. Scotch Pine.

3. Pinaster, or Wild Pine.

4. Cluster Pine.

5. Jersey Pine.

1. Strawberry-tree.

2. Ilex.

3. Bays.

4. Cork-tree.

5. Spreading ever-green Trees,

1. Alaternus's.

2. Phillyrea's.

3. Holly.

4. Cedar of Libanus.

5. Laurel.

6. Laurel-leaf'd Tulip-tree.

7. Tamarisk.

8. Laurus Tinus.

Although I have advised, in the former Directions, not to mix ever-green Trees with those which lose their Leaves; yet by that I did not intend intirely to separate them in all Plantations, but only to avoid the confused manner of planting them together, which is too often practised by unskilful Persons, many times to the great Prejudice of the Trees; because several of the Ever-greens will be starved, if they are planted too near some Sorts of deciduous Trees: besides, the Soil will rarely suit all the Sorts which are thus injudiciously mixed together; so that if some of the Sorts are such as the Soil is naturally disposed to nourish, the others, which require a very different Soil, will not thrive amongst them.

The best Situation for most of the largest ever-green Trees is, to plant them in open Groves, where they will thrive much better, than if they are crowded too close together; and if these Groves are judiciously plac'd, they will be great Ornaments to large Gardens.

In the planting of very large Wilderneses, there should be Care had to fill up the Ground on each Side of the private Serpentine-walks, with Shrubs and Underwood, in such a manner, as that where the Walks twist so much, as in some Places to

be but a small Distance apart, the Wood may be so thick as to prevent the Seeing from one Walk to the other. This must be more particularly regarded in small Gardens; where there should be as much Walking contrived, as the Ground will possibly admit. On each Side of these private Walks should be planted a good Number of the different Sorts of Honeysuckles, which may be encouraged to climb up the Trees, and to grow rude over the adjoining Bushes. There should also be some Sweetbrier, Roses, and other sweet Shrubs planted, which will perfume the Walks in an Evening, or after Showers of Rain.

Under the large Trees may be planted Hazel, berry-bearing Alder, Laurels, *Laurus Tinus*, and such other Shrubs as will grow under Shade; and if some of the common climbing Plants be placed so as to grow up the larger Trees, in the manner they are often observed in Woods, they will have a very good Effect to the Eye, and be serviceable in thickening of the Quarters, where they are narrow. And if there are a good Number of low Shrubs, and Plants, such as naturally grow in Woods, scattered up and down in the Quarters under the Trees, they will appear much better than either the common Weeds, which naturally grow there, or the Ground lying bare, as it many times does in large Wilderness-quarters.

The smaller Serpentine-walks, which lead through the Quarters of the Plantations, must be proportioned according to the Size of the Ground; if the Quarters are very large, then the Walks may be seven or eight Feet wide, to admit of two Persons walking abreast; but in smaller Gardens, where there are desired as many Walks as can be

conveniently made, four Feet in Width will be sufficient. For it will be necessary to have the Divisions between the Walks double or treble the Width of the Walks; otherwise it will be very difficult to get the Shrubs and Underwood thick enough to render the Walks private.

If the Ground where these Wildernesses are designed to be made, is very uneven, it will still add a Variety to the Plantation, as it will also when there are very different Soils; because then a judicious Planter will adapt the several Sorts of Trees and Plants to the Soils in which they delight to grow; so that there may be a greater Variety of Sorts planted, and they will thrive much better, than on a level Ground; and the Walks, by being twisted about, may be so contrived, as to be as easy to walk on, as those on the most level Spot.

If the Ground where these Wildernesses are designed to be made, hath large Trees already growing on it, they will be a great Advantage; by affording a present Shade; for the Walks may be twisted about in such a manner, as that the Trees may not interfere with them; and then by trenching and clearing the Ground round the Outfides of the Quarters, it will be fit to receive flowering Shrubs, and other Trees, to face the other larger Trees; which, if carefully performed, will render the Plantation very beautiful: and if under these Trees the Ground is carefully cleared and trenched, it will improve the Growth of the Trees; and many Under-shrubs and Wood-plants may be planted to thicken up the Quarters, so as to make the Walks private.

All Trees and Shrubs which are planted in these Wildernesses, are to be suffered to grow rude, and not to have

have any other pruning, than is absolutely necessary to prevent their spreading over the Walks, or too much overbearing the neighbouring Trees or Shrubs, so that they may have an equal Advantage of the open Air; by which means there will be little Expence in keeping large Plantations of this Kind, especially after the Trees and Shrubs are well rooted in the Ground; for they will in a great measure prevent the Growth of Weeds, by overshadowing the Ground with their Branches; and there is nothing more ornamental in Gardens, when they are judiciously contrived.

Where-ever there are large Woods so situated, as that they may be taken into the Design of the Garden, they may, at an easy Expence, be rendered very beautiful, by only cutting away unsightly Trees and Shrubs, and adding some flowering Trees, and sweet-smelling Shrubs, in proper Places, and opening Walks through the different Parts, which may be twisted about after an easy natural manner, so as to shew as little of Art as possible. If to this there are added some large Openings, in such Places where there are some good Trees, which may be varied in their Figures, and some little Buildings, Obelisks, Vases, Urns, &c. placed properly in them, it will add greatly to their Magnificence.

In laying out of these Walks thro' Woods, there should be a great Regard had to the neighbouring Country; so as where-ever there are any distant Objects which appear to the Sight, there should be Openings, to which the Serpentine-walks should lead, from whence the Objects may be viewed; which will be an agreeable Surprize to Strangers, after having traversed through many of

these Walks, to be led to a fine Prospect of the adjacent Country; where a Village, Church, or some other remarkable Object, may appear to the Sight; or perhaps a River, or other large Body of Water, either of which will have a very agreeable Effect.

But as there is no laying down Rules which can suit with every Situation, the Designing of these Wildernesses must be left to the Judgment of the Owner, or some other Person of a good Taste, who should be a little conversant with the Situation, before he begins to execute, lest many irreparable Mistakes should be made, by destroying of Trees; which has too often happened, when these Works have been directed by unskilful Persons, or by others who have not taken time to consider enough the adjoining Country, so as to bring as many Objects to View as can possibly be obtained. Therefore I shall not add any farther Directions, since those inserted in this Place will be sufficient Instructions for the right laying out and planting any of these kinds of Work.

SWEET-WILLIAMS; *vide* Caryophyllus barbatus.

WILLOW; *vide* Salix.

WILLOW, The *French*; *vide* Chamænerion.

WINE.

We have already given the Reader an Account of the Management of Vineyards in *England*; as also the Method of pressing the Grapes, and making the Wine; as it hath been practised by some curious Persons, who have made Wine in this Country: but as the Spirit for planting of Vineyards in *England* has of late Years increased, I have inserted in this Place the different Methods practised in the several Countries abroad, for making

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ing their Wines; and shall first begin with the *Italian Wines*, particularly those of *Cbianti*, which are the most esteemed.

The Season for gathering the Grapes, and making the Wine, is very uncertain, depending upon the Weather that has been the preceding Spring and Summer, which makes it sooner or later 15 or 20 Days in *Cbianti*: when the Season has been good, they begin to cut their Grapes about *Michaelmas*, and in the Plains a Week or ten Days sooner. In this they every-where govern themselves according to the Ripeness of their Grapes, and the Prospect of the Weather, aiming to have a perfect dry Season to do it in.

The Grapes being of a due Ripeness, and the Weather warm and dry, as soon as the Sun or Wind has consum'd the Dew that was on them, they cut them, and put them into Piggins, and carry them, if at a Distance, on Mules, or, if near, between two Men, to the Wine vat; and then either bruising them to Mash, in the said Piggins, with a Club, throw them directly therein, or else into a Vessel resembling a very large Hopper, with a Grate lengthwise; then Boards being placed over the Vat, a Lad with his Feet treads them out, the Juice, Husks, Stones, and Stalks all passing thro' the Grate into the Vat; and so they continue to do, till the Vat (which usually contains from four to five Tuns, sometimes eight, ten, nay, as far as fifteen or twenty in some large Vineyards, in which there are sometimes several of them) is full; when immediately, or sometimes in a few Hours before they fill it, it will set a boiling, which raises the Husks, Stalks, and Stones, to the Top; and these make a thick Crust; and thus it continues boiling for many Days,

more or less, according to the Strength of it, till it be fit to be drawn off, which is to be distinguished by the Palate, wherein the greatest Skill in making Wine consists. The low Wines of the Plains are ready in about ten Days, those of the Hills in about fifteen, of the Mountains in *Cbianti* eighteen or twenty, and sometimes more, in the Hastening or Retarding whereof the Weather has some Share; so that when they are near ready, they taste them every eight Hours.

The more the Wines boil, the drier they will be, the Colour deeper; and the less, the sweeter and paler: and what is said above, is to be understood of Red-wines, which are the chief Produce of this Country; whilst to make their strong White-wines or Muscadines, they gather their Grapes carefully, and lay them three or four Days, or more, in the Sun, taking care to carry them within-doors, or under Shelters in the Night-time, that no Dew may fall on them.

When they are put in the Vat, they let them boil but little, five or six Days at most, and then put them into the Cask, shifting them from one Cask to another, twice or thrice, to make them become fine; and for the *Verdea*, or *White Florence*, as it is called, they draw it off from the Vat almost as soon as it begins to boil, and has raised the Crust; and then letting it boil in the Cask into which they have drawn it, thirty-six Hours, or, at most, two Days, they shift it into another, and so in a few Hours into a third and fourth, to check and prevent its Fermentation, which gives it the Sweetness it has; but then it is never perfectly fine; tho' some People both in *Italy* and *England*, especially among the Women, are very fond of it.

N. B. Those Grapes at the End of the Bunches are weaker in Quality, as well as less ripe, than those that grow nigher to the Stalk; and therefore some extremely curious Persons, to make a small Quantity of very choice Wines, cut them off, and make a Wine by itself, which is much inferior to that which is made of the upper Part of the Bunch. This Practice, though attended with Trouble, may be recommended for a larger Parcel, in such Years as the Grapes are badly ripe, to have some Wine, at least, in Perfection.

N. B. Those Persons who value themselves on making the best Wines, and endeavour to keep up the Reputation of their Vineyards and Cellars, in cutting their Grapes, leave the unripe, or those which are infected with Rottiness, together, till the last, and with them make a Vat or more by themselves; of Vin Scauro, or Refuse Wine, which serves for common Use; for which also they mix Water with the Bottom of their Vats, and the Husks, &c. and make a pleasant, brisk Drink, much preferable to Water-Cyder; but the Weather once coming in warm, turns it eager and undrinkable.

When any Wines are boiling in the Vat, it raises a Warmth in the Room, which is accounted good in many Distempers, especially for such as have a Weakness in any of their Limbs, to put them into a Vat of boiling Wine; and the Husks, &c. that come out of the Vat, are esteemed very good for the like Purpose.

When the Wines are found to be ready, they proceed to draw them off, which are now properly called *Wines* (before which they are termed *Mosto*, i. e. in *English*, *Wort*); for which Purpose, within three or four Inches of the Bottom of the

Vat, there is a Cock fixed therein; when in small Barrels they carry and put it into the large Butts, which, in *Chianti*, hold, some of them, seven or eight Tuns, but generally two or three Tuns, made of thick Chestnut, the Staves being better than an Inch and an half thick, and more than twice as high as they are long, which they never wash; but having left a Gallon or two, or, it may be, three or four, of Wine in them, when they draw it off the Spring or Summer before, when they are about filling them again, to clear them out, they send in a Lad at the Door which is made in the Head of the Cask, to do it with a Sponge, and to wash it with some new Wine; and this without wiping off any of the *Argol*, which they think preserves the Wine the better.

In these Casks, which last many Years (and have *Argol* in them of the Thickness sometimes of three or four Inches), they let them remain till they have an Opportunity of selling them, taking care to keep them full quite to the Bung, with a wooden Stopper. This is what they practise in *Chianti*, where the best Wines are made, and whence, from those Butts, they are drawn into Flasks, and carried, at the Expence of about a Crown for a Mule-load, to *Florence*, in order for Exportation; but in other Places they draw them off into less Casks, of which Wines, except some *Carniguanos*, and those of *Val d'Arno*, few or none are exported, but serve for the Consumption of the Country. Some of these have a pleasant Flavour and Briskness, though of no great Body, many of which will not keep the Summer over, except in cool Cellars, in the Places where made; such is the nice Nature of this Country Wines in general. Nor
are

are the choicest *Cbianti's* exempt: for at two Seasons of the Year, the Beginnings of *June* and *September*, the one when the Grapes are in Flower, and the other when they begin to ripen, some even of the best Wines are apt to change, especially at this latter Season; not that they turn eager, but take a most unpleasing Taste, which renders them unfit not only for Drinking, but even to make Vinegar of; and is called the *Settembrine*. And what is most strange is, that one Cask drawn out of the same Vat shall be infected, and another not, but be perfectly good; and yet both have been kept in the same Cellar.

As this Change happens not to Wine in Flasks, tho' that will turn eager, I am apt to attribute it to some Fault in filling the Cask, which must always be kept full, and which, either by letting alone too long, till the Decrease be too great, and the Pan of Scum that there naturally is on all Wine, being thereby too much dilated, is subject to break, or else being broken by hasty filling up, gives it that insipid Taste of a rotten Vine-leaf.

But against this there is a very strong Objection, that this Defect seizes the Wine at a particular Season, in *September*, over which if it gets, it will hold good for many Years.

Therefore the Case is worthy the Inquiry of the Naturalists, whilst it is evident, at least for the first Year after it is made, Wines in general are more or less affected by the Circumstances wherein the Vines or Grapes at that time are; and if they get well over the Time of the Grapes flowering, will keep good till that of their beginning to ripen.

As for the Time that the Wines are fit to drink, the poorer sort of

People drink that of the Plains almost as soon as drawn off; but from the 11th of *November* may be said to be its proper Season.

Those of the Hills are a very pleasant Drink about *Christmas*, and during the Spring; but till *June* the *Cbianti's* are not esteemed to be fit for Drinking, though they are fit for Exportation in Butts in *December*, and in the Flasks and Chests about the Beginning of *February*: if sooner shipped off in that manner, tho' apparently fine, there will be a Sediment in the Flasks.

The Art of brewing Wines (further than the throwing into each great Butt the Quantity of two or three Hatfuls of the choicest Grapes they had preserved, and laid on Mats in the Sun for that Purpose, which were picked from the Stalks, and are esteemed proper for their Wines to feed on, and which they call *Governo*) was not known in *Cbianti* (though the Hosts here practised something like it, mixing the small Wines of this Country with the strong ones of other Parts; and fining their White-wines with Ising-glass, Whites of Eggs, Lime, and the like; and were thought to put Alum into their Red-wines to preserve them, and promote a Thirst in their Guests), till, on the breaking out of the first *French War*, an *English* Merchant from *Bordeaux* came into these Parts, with a View to accommodate the Wines which were made in the best Parts of *Cbianti*, and were naturally of a true bright Ruby, with a pleasant Flavour, and a silky Softness, to the *English* Palates; then in Love with the deep-coloured rough Clarets; who instructed them first in the making of Black-wines, with the *L'Abrusco*, or *Wild Grapes*; which, being mixed with the *Cbianti's*, gave them a deeper Colour, and

and a rougher Taste; and being liked in *England*, gave the first Occasion to great Quantities being sent thither every Year in Casks: in the making of which, the said Gentleman was the first that instructed them; for before, their Casks were, as above-related, very unwieldy. This put them also (there being a Demand for their Wines) upon increasing and enlarging their Cultivations, and making some of them in such Places, as the Exposition was not very proper for; as also to cultivate in Vineyards the said *L'Abrusca*, or *Wild Grape*, and which certainly was the most proper to mix with their other Grapes in the Vat, boiling them together. Thus all succeeded pretty well, till the Year 1607. When the Vintage proving very bad, and there being a great Demand of their Wines for *England*, by mixing the low Wines with the high ones of *Chianti*, which that Season were not very good, they brought these Wines into such a Disreputation, that they have never been able to regain their Credit, though they have since, many times, had those that are good.

Whether it be, that the Taste of the People is run upon *Portugal* Wines, or some other Cause, they have never been able, as I said, to recover it so as to have any considerable Quantity exported in Casks from these Parts; and the Person that first directed the Affair, had the Dissatisfaction to see his Project miscarry, after it had in a manner succeeded, and himself reaped considerable Benefit thereby.

At present, therefore, what goes for *England* is chiefly in Chests, and no more Black-wines, as used to be formerly, and these are sent just as they are made; but still in *Chianti*, as they have Cultivations of

the *Brusco Grape* (which, however, is much different from the wild one, and becomes much larger and more generous), they continue to mix them with their other Grapes, which gives the great Colour as well as a Roughness to their Wines, and is agreeable enough to the *English* Taste.

The Manner of making Wine in Champagne, and how it may be propagated in other Provinces, to bring it to Perfection.

Wine is so delicate a Liquor, and an Aliment so proper to give Strength, and to preserve Health, if used with Moderation, that one may very well wonder, that in most of the Provinces of *France* they make it with so much Negligence, in all those Places where it might be excellent.

The *Champaignois* are exempted from this Reproach; and, whether it be from a Delicacy of Taste, or a Desire of making an Advantage of their Wines, or a Facility in rendering them better, they have been always more industrious to make them more exquisite, than those of the other Provinces of the Kingdom.

It is true, it is scarce sixty Years since they have studied to make pale Wine, which is very near White; but before, their Red-wine was made with more Care and Neatness, than any other of the Wines of the Kingdom.

I shall not enter upon the antient or modern Dispute, as to the Preference between the Wines of *Champagne* and *Burgundy*: I shall content myself with taking notice of all that the People of *Champagne* have invented, to give the Fineness and

Agree-

Agreeableness to their Wines; and by the Observations that may be made therefrom, it will be easy to see, that the same may be imitated in other Provinces, so as to come pretty near that Lightness and Exquisite-ness.

If these Essays shall give Hopes of Success for the future, the Wines of those Provinces might be brought to Perfection by degrees, where they might be delicious, and where they are but too common, because they have never studied to give them that Fineness.

To make an excellent Wine of the first Pressing, having first well examined the Maturity of the Grapes, you ought to endeavour not to gather them but on Days that are very dewy, and in hot Years, after a little Rain, when you can be so happy as to have it. As the Grapes are not ripe till toward the End of *September*, and sometimes the Beginning of *October*, Dew is rarely wanting in Vintage-time. This Dew gives the Grapes a Flower or Farina on the Outside, which they call *Azur*, and inwardly a Freshness, which is the Cause that it does not heat very easily, and that the Wine is not coloured.

It is very opportune, if there chances to be a misty Day in dry Years, which now-and-then happens: the Wine is not only thence more white and delicate, but the Quantity is by much the greater, being augmented by near one fourth Part. A private Person, who has but twelve Pieces of Wine, in gathering his Vintage in a Morning, which has the Sun without Dew, will have sixteen or seventeen, if the Morning be misty; and fourteen or fifteen, if it has no Mist, but yet has a good Dew. The Reason of this is, that the Dew, and, above all, the Mist, renders the

Grapes tender, so that the Whole, in a manner, turns into Wine.

The Wine produced from the Grapes that have not been warmed the Moment they are cut, will still remain much paler; whereas when the Sun has warmed the Substance of the Grape, it will become more red by the Motion of the Parts; but the Quantity will be lessened either by reason of Transpiration, or because the Rind has been thickened and hardened by the Sun, whereby it yields its Juice with more Difficulty. This, Experience has taught, is of so much the more Concern, by how much the more certain it is.

They agree in *Champaigne*, that the Wine which they call *River Wine*, is ordinarily paler than that of the Mountains, but they do not give the Reason for it: I believe the Vineyards that are near a River enjoy all the Night a fresh Air, which the River exhales; whereas the Vineyards of Mountains don't respire, during the Night; that Warmth which proceeds from the Exhalations of the Earth, and it is that which makes the Colour more or less; moreover, when the Years are very hot, they cannot, either to those of the River, or of the Mountains, warrant the Colour; and when the Years are cold, neither the Wines of the Mountains, nor those of the Rivers, are coloured: the Reason is the same, because the Wines of the Rivers are more soft, forward, and sooner fit for drinking, than the others that are harder, more hardy, and later fit. They call the Wines of the River, *Auvaille, Ay, Epernay, Camierres, Pierry*, as *Fluery, Damery, Vanteuil*, and others; but *Verzenay, Sillery, St. Tiberry, Mailly, Rilly*, and some others, are of the Mountains; these latter Wines keep as well as the first, and in good Years they keep

keep equally well in Bottles for five or six Years.

They gather not all the Grapes without Distinction, nor at all Hours in the Day, but they choose the ripest and bluest; those are the best, and make the most exquisite Wine, whose Berries grow not too close together, but are a little separated, whereby they ripen perfectly well: for those that are close joined together, never ripen thoroughly. They cut them with a small crooked Knife, with as much Neatness, and as little of the Tail, as they can; and they lay them very gently on the Baskets, so as not to bruise one Grape.

With thirty Grape-gatherers they will run over a Vineyard of thirty Arents in three or four Hours, to make one first Pressing of ten or twelve Pieces.

In wet Years, great Care should be taken not to put any Grape that is spoiled into the Baskets; and at all times you must be very careful to cut away the rotten Grapes, or those that are bruised, or quite dried up; but you must never stone them.

They begin the gathering of Grapes half an Hour after Sun-rising: if the Sun is not clouded, and it is a little hot, about nine or ten o'Clock they leave off gathering, and make their *Sac*, which is one of the first pressings; because after this Hour the Grape being warm, the Wine will be of a red Colour or Teint; and will be a long while very heady.

Upon these Occasions they get a great Number of Gatherers, to be able to make up a *Sac* for a Pressing in two or three Hours: if it be overcast, they may gather the whole Day, because the Grape will preserve its Freshness upon the Stock.

The Gatherers and the Pressers ought to take great Care, that the

Grapes be neither foul nor heated when they are pressed; and also, that the Grapes have their Flower under the Press.

When the Press is near the Vineyard, it is easy to prevent the Wine from having a Colour, because the Grapes may be carried gently and neatly in a little time; but when they are two or three Leagues off, they being obliged to send the Grapes in Casks, and in Carts, to press it as soon as may be, it is hardly to be avoided but that the Wine will be coloured, except in very moist and cold Years.

This is a certain Principle, that when the Grapes are cut, the sooner they are pressed, the more pale and delicate is the Wine; for by how much the more the Wine stands upon the *Marc*, the redder it is; so that it is of great Importance to hasten the Gathering and Pressing of the Grapes.

When the Grapes have been put under the Press, or on the *Marc*, they put three great Rods or Poles of ten or twelve Inches round upon them, one at either End in Length, and the third in the Middle on the same Side. These at the Extremities serve to describe the Lines which they ought to follow with their Cutting-shovels, in cutting the *Marc*, the Substance squeezed on two Sides. After the Cut is made, they lay upon these Poles, and on the Grapes, Planks of the Size of the Press; and upon these Planks, Half-beams of eight or nine Inches square, which they call *Moyaux*, at a Foot Distance, one from the other; they put four or five Rows of these *Moyaux* across one upon another, which elevates it with the Bag about four or five Feet; and they let down upon the Whole three or four great Beams of an immense Weight, which are placed in the

the Middle of the Press across, and borne up at one End by two strong Side-beams, which are sunk fifteen or twenty Feet into the Ground, and which are fastened to the Bases which cross them: at the other End there is a *Cage*, as they call it, or a Wheel with a Screw to raise or lower these great Beams upon the *Moyaux*, and thus to press the Grapes. Then they presently raise, by means of a Screw, the End of the Trees on the Side of the Wheel, or of the Cage, which lowers the other End of the Cheeks or Side-beams; then they drive with a great Mallet two or four great wooden Quoins between the Notch which is in the Side-beams or Cheeks, and these Beams are also lowered to keep them in their Position, and to prevent them from rising; and after this they lower the other End by the Aid of the Screw, which serves also to raise it.

They use in these Presses large Steel Shovels about a Foot in Breadth, and one and an half in Depth, very heavy and sharp at the Bottom, to cut the *Marc* of the Grapes easily at the four Sides.

The first time they lower the great Beams upon the Grapes, they call the Wine that runs out, the *Wine of Goutte*, because it is the finest and most exquisite in the Grape. This Wine is very thin, and has not Body enough; they call the first Pressing *L'Abaissement*. This must be done with a great deal of Dexterity and Briskness, that the Beams may be raised immediately, to send back to the Middle instantly the Grapes which are slipped to the Sides all round about, to press them briskly the second or third time. They call these two other Lowerings of the Beams, the first and second Cutting: they must be done in less than an

Hour, if you would have the Wine very pale, because Time is not to be given to the Grapes to heat, nor the Liquor to remain upon the *Marc*.

They ordinarily mingle the Wine of the *Abaissement*, or Lowering, with that of the first and second Cut; and sometimes, but very rarely, with that of the third, according as the Years are more or less hot; and thence they call a Wine of the first Pressing, Fine.

Some preserve one or two *Carsaux* of the first Taste, which is that of the Lowering, by itself; but it is too small or thin, and has not a sufficient Body for Wine.

There are some skilful Persons, who affirm that the Lowerings of the Wines ought not to be mixed but with those of the first Cut, because that is much more delicate than that of the second and third; and that, besides, there is time enough to mingle them afterwards, if they are found to be too fine, and pale enough; and the rather, because there is no Remedy, if it be done at the first.

At every Cut they raise the great Beams, and they take away all the *Moyaux* with the Planks, and the Rods that are immediately upon the Grapes, or upon the *Marc*. With these Steel Cutting-shovels they cut the *Marc* on four Sides, and they cast down with their wooden Shovels that which is cut, and they spread it even all over the Square to the End, that it may not disperse so easily; that is to say, in those Presses which they call *Etiquets*, they take care, that the Wheel which is upon the Middle, may be made to bear, especially upon the Rammer, over all the Breadth, in such manner that the Bag may be equal.

The second Cut is more plentiful than the Lowering and the first, because the Grapes begin to be well bruised, and they do not slip so much to the Sides.

The Wine strains from the Press into a Puncheon, having the Head staved out, or some other large Vessel prepared for that Purpose, and sunk into the Ground on the Fore-side to receive it. It appears to be drawn a little upon the Red; but it loses this little of its Colour according as it is boiling, and as it clarifies itself in the Tun; and it remains perfectly white, especially when they have pressed the two first Cuts with much Dispatch; but principally when they have gathered the Grapes during the Dew, or in a shady Time. Although these Wines are white, they call them grey, because they are made only of black Grapes.

If the Year be hot, and the Wine of the third Cut has a Colour, it must be mingled, not with that of the foregoing, but with that of the fourth, and sometimes, though but very rarely, with that of the fifth. They are not in so much Haste for these Cuts as for the first; they make an Interval of a good Half-hour between the one and the other. The Wine that comes thence has more of Colour than this, which they call the *Partridge's Eye*, or, the *Wine of the Cut*: it is a strong Wine, pleasant, fine, good for an Ordinary; but is better when it is old.

When the Wine of the fourth Cut is too deep, they don't mingle it with Wine of the Cut; but they observe to mingle it with Wine of the fifth, sixth, or seventh Cut, which they call *Wine of the Press*, which is too red, pretty hard, but fit for Household-drinking: but when they are not in Haste, they leave an Interval of an Hour and an half be-

tween every one of the three last Cuts; as much to give time to the Wine to strain insensibly, as to give the Pressers time to sleep, or to rest themselves; for the Fatigue is very great, they being obliged to carry it on, Night and Day, for about three Weeks. The Pressers of *Champaigne* press the Grapes so hard, that after they have done, the *Marc* is as hard as a Stone. They put this *Marc* into old Casks, with the Heads out, and they sell it to People, who draw from it an *Aqua Vitæ* of a very bad Taste, which they call the *Aqua Vitæ* of *Ainnes*; but it is good for a great many Purposes.

Those who have many Vineyards, also make two, three, or four first Pressings of fine Wine, by choosing always the most delicate and ripest Grapes for their Firsts. These are always much superior the one to the other for Goodness and for Price; so that if the Wine of one of the first Pressings sells for six hundred Livres a *Quintal*, that of the second will not sell for above four hundred and fifty, and that of the third two hundred and fifty, although all the Wines are of one and the same Vineyard.

In every first Pressing there are ordinarily two-thirds of fine Wine, one half-third of Wine of the Cut, and one half-third of the Wine of the Press: thus one *Cuvée* of five or six Pieces of Wine will consist of nine or ten of Fine, three or four of *Taille*, and two or three of the Press.

Of the common black Grapes, which remain after one second or third *Cuvée*, they make one with those that are not very ripe, and which they call *Verderons*. They make of the Whole a Wine pretty high-coloured, which they sell to the Country-

Country-people, or that serves for their Domestic: they also leave these Grapes two whole Days in a great Tub, before they press them, to the end that the Wine may be the redder; and they mingle all that comes from the different *Tailles* of this Vintage.

The white Grapes do not come into this *Cuvée*; they leave them upon the Stock till towards *All Saints Day*, or sometimes till towards the eighth or tenth of *November*, at which time the Mornings are cold, to make of it a *Vin-Bourra*, as they call it (*i. e.* a new and sweet White-wine, that has not worked), which they sell while it is quite hot.

This Wine is still the better when the Grapes have borne the white Frosts of *October* and *November*, or at least very cold Mornings. A little Rottenness in these Grapes does no Harm; you need only take care to give the Wine Leave to throw out the Filth by the Ferment, and purify.

This White-wine may be mingled with the Wine of the *Taille*, if you will, if you have not an Opportunity of selling it presently after it is boiled. This makes a very good Wine to drink, is pretty pale, and has a good Body.

All these fine Wines ought to be put into a new Cask, as also should those of the *Taille*; but the Red-wines, the Green, and those of the Press, may be put into an old Cask, though it ought to be a good one.

You must never rub the Tuns over with Brimstone; you should only wash them in common Water, a little while before they are filled, and give them time to drain well: some Handfuls of Flowers or Peach-leaves may be mingled with the Water; and they pretend, that this will do the Wine Good.

In *Champaigne* they rarely put it in any thing but Pieces [*Carteux*] and Cades.

The River Measure is different from that of the Mountains. The Pieces of the Rivers contain about two hundred and ten *Paris* Pints (a *Paris* Pint is equal to an *English* Quart), the *Carteux* an hundred and ten; the Pieces of the Mountains contain about two hundred and forty Pints, at the least two hundred and thirty *Paris* Measure, and the *Carteux* an hundred and fifteen, or an hundred and twenty.

They mark regularly, with Chalk, every Piece, and every *Carteux*, which denotes the first, second, or third *Cuvée*; the Wine of the Cutting of the Press, the White-wine, and the Green; they also write the Name of the Vineyard from whence the Grapes came.

Some few Years since, some private Persons in *Champaigne* have attempted to make Wine as red as that of *Burgundy*, and they have succeeded pretty well as to the Colour; but, in my Opinion, these Sorts of Wines do not come up to those of *Burgundy*, in that they are not so soft, nor so agreeable to the Palate: nevertheless many Persons call for these Wines; and some esteem them the best.

And as those grey Wines are a little fallen, there was made, the last Year, a great deal of Red in *Champaigne*. These Wines do well for *Flanders*, where they are frequently sold for those of *Burgundy*.

Of all these Wines, there is none better for Health, nor more agreeable to the Palate, than the grey Wine of *Champaigne*, of the Colour of a *Partridge's Eye*, or the Wines of the two first *Tailles* of a first Pressing in pretty hot Years.

This

This Wine has a Body, a Tartness, an Headiness, a Balsamicness or Perfume, a Quickness and Delicateness, that exceeds all the most exquisite ones of *Burgundy*.

And that which should engage one to drink it, is its Lightness, which makes it strain and pass quicker through the Body than any other Wine in the Kingdom. It is a Mistake to be of Opinion, that the Wine of *Champaigne* can give the Gout. I have scarcely ever seen one gouty Person in this whole Province; and there need be no better Proof.

To make good Wine in *Champaigne*, the black Grapes ought to be gathered in the Heat of the Day. Care is to be taken to choose them well, and not to mingle with them the Grapes of the Vine-Arbour, nor the Green ones, or those that are partly rotten; to let them be two Days in one Tub, where the Liquor grows red by the Heat that it contracts there. Some Hours before it is put into the Press, it ought to be trampled with the Feet, and the Juice to be mingled with the *Marc*: without this, the Wine will not be of a sufficient Redness. If it be let stand more than two Days in the Tub, it will taste too much of the Stone: if it be mingled with the Wine of the Press, it will be too thick, too hard, and too unpleasant.

If they would continue to make good Red-wine in *Champaigne*, they must trample the Grapes as in *Burgundy*, and leave them for three, four, or five Days in one Tub: but as the red Wine of *Champaigne* never equals the Goodness of that of *Burgundy*, the Reputation of the grey Wines will sink in a short time, and the Public will insensibly lose the Relish of it, which will bring an infinite Detriment to the Province.

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The Wine of the first Pressing being finished, and the Vessels marked, they set them in a Row in a Cellar or Court-yard. Those who have a great deal of Wine, and are good Oeconomists, take great Care to gather the Scum that comes out of every Vessel, while the Wines ferment, by the means of a kind of tin Funnel, made bending downwards, which lets the Scum fall into a wooden Bowl, which is placed between two Casks; they afterwards put these Scums into the Wines of the Press; but nevertheless there are but few that use this Piece of Oeconomy.

They let their grey Wines stand to ferment in the Casks ten or twelve Days, because these Wines throw out their Ferment so much the more or less slowly, by how much they have more or less Warmth, or as the Years are more or less hot.

After the Wine has done fermenting, they stop up the Vessels at the great Bung-hole and leave on the Side forward an Opening, about the Bigness of a *French Farthing*, by which one may put in his Finger; this they call *le Broqueleur*: and they stop this up ten or twelve Days after, with a wooden Peg of about two Inches long, for the more readily taking it out, and putting it in.

All the while the Wines are fermenting, the Vessels are to be kept almost full, to give them an Opportunity of casting out all that is impure. In order for this they must be filled up for three Days, within two Fingers of the Bung; after they have been bung'd up, they must be filled up every eighth Day, at the little Hole, for the Space of two or three Weeks more; and after that, once a Day for fifteen Days during one Month or two; and after that,

once every two Months, as long as the Wine remains in the Vault, if it be there for Years.

When the Wines have not Body enough, or are too green, as it often happens in moist, cold Years, and when they have too much Liquor, as in hot and dry Years; three Weeks after the Wines have been made, they must be rolled in the Casks five or six Turns, to mingle them well with the Lees; and this must be continued every eight Days, for three or four Weeks. This Mingling of the Lee with the Wine, being repeated, will strengthen, soften, and render it more forward, making it fit to drink in as short time, as if it had been transported from one Place to another.

These Wines must be let stand in the Cellar till towards the tenth of *April*, when they carry them down into the Vault; but as soon as it begins to be cold, they are to be carried up again into the Cellar: it is of Consequence to be observed, upon this Subject, that the Wines ought always to be in cool Places, and never to suffer the Heat. And as the Vaults are cool in the Summer, and warm in the Winter, as soon as it begins to be hot, the Wines must be carried down, whether they be in Pieces, or in Bottles, into the Vaults; and when it begins to be cold, they must be carried up into the Cellar.

There has been nothing better invented, and more useful, than the Manner of drawing off Wines: Certain Experience convinces, that it is the Lee that spoils Wines; and that they are never better, nor more lively, than when they have been well drawn off, whether you would bottle or keep it in the Pieces. It ought always to be drawn off out of one Vessel into another, at least

twice into another Vessel well washed, leaving the Lee in the former.

You should draw off the Wines the first time towards the Middle of *December*, the second towards the Middle of *February*, and to fine them in *March* or *April*, eight Days or thereabouts before you bottle it. For every Piece of Wine you must have of Iinglass, that is the whitest, of the Weight of a Crown of Gold, weighing two Deniers fifteen Grains, or sixty-three Grains. They take so many times the Weight of a Crown of Gold as they have Pieces of Wine to draw off: they put this Quantity of Iinglass into one, or two Pints of the same Wine in a Bucket for a Day or two, to give it time to dissolve: others put it into a Glass, or a Pint of Water, according to the Quantity, in order to hasten its dissolving, which is always difficult to be done; some mix it in a Chopin or Pint of Spirit of Wine, or excellent *Aqua Vina*: when the Iinglass is grown fast, they handle it well to divide and distribute it; then, when the Parts begin to separate, they put into the Bucket, or the Vessel, in which this Dissolution is made, so many Pints of Wine as they have Casks or Pieces to draw off; then they handle the Iinglass well again, and pass it through a Strainer, the Holes of which should be very small. They often pour in of the same Wine to dilute it well; and when there remains nothing in the Strainer, they pass all the Liquor over again thro' a Linen Cloth, and squeeze it very well; after which, they put one good Pint or less into each Cask, and half into each *Carteau*.

They stir the Wine in the Piece with a Stick about the Middle, without suffering the Stick to go and lower.

lower. It is sufficient to stir the Wine for the Space of three or four Minutes.

A certain private Person has newly contrived a quicker Method of dissolving this Isinglass: After it has been steeped one Day in Water, he melts it in a Skillet upon the Fire, and reduces it to a Ball, like a Bit of Paste; and afterwards puts it into the Wine, where it distributes itself with less Difficulty. After what manner soever it be dissolved, Care ought to be taken, not to put in too much Liquor, and not to put more than a proportionable Quantity of Water or Wine to that of the Isinglass.

The Isinglass works its Effect ordinarily in two or three Days; though sometimes it does not clarify the Wine in six or eight; but nevertheless you must wait till the Wine is clear before you change the Vessel. In the Winter the Seasons are oftentimes so improper for this, that there is a Necessity of putting Isinglass a second time into the Piece, but then you must not put in more than the Quantity before-mentioned: but when it freezes, or the Weather is clear and cold, the Wine will clarify itself perfectly well, and in fewer Days: it has a Colour more lively and brilliant, than when it is fined and drawn off in faint, moist Weather.

As soon as the Wines are clear, they are to be drawn off, and the Vessels changed. Four or five new Casks are sufficient to draw off two or three hundred Pieces of Wine; for when they have emptied one Piece, they take out the Lee, and put it into the old Casks, wash it, and it serves to draw off another into it.

Nothing is more curious than their Contrivance in *Champaigne*, to

shift their Wines without displacing their Casks. They have a leathern Pipe, like a Gut; four or five Feet long, and about six or seven Inches in Circumference, well sewed with a double Seam, that the Wine may not run through: there is at both Ends a Cannon or Pipe of Wood, about ten or twelve Inches long, about six or seven in Circumference at one End, and about four at the other. The great End of each Pipe is set in a leathern Pipe, and well bounded with strong Twine on the Outside, that the Wine may not run out: they take out the Bung which is at the Bottom of the Tun that they would fill, and drive the Wood of the Pipe in with a wooden Mallet, which they beat upon a sort of Chin-cloth, that is to each of these Pipes, which is raised about two Inches from an Inch or less of the great End, and which loses itself insensibly in going toward the small End: they set a large Siphon of Metal below the Cask they would empty, and also put into this Siphon the small End of the other Pipe of Wood, which is fastened to the other leathern Pipe, and afterwards open the Siphon; and without the Help of any Person, almost the Half of the full Vessel passes into the empty one by the Weight of the Liquor; and when it is come near the Level, and will run no longer, they have recourse to a kind of Bellows, of a very particular Construction, to force the Wine from the Cask they would empty, to pass into that they would fill.

These kinds of Bellows are about three Feet long, and a Foot and half broad; and are made and shaped in the common manner to about four Inches of the small End; but from this Distance the Bellows have three or four Inches in Breadth.

In the Inside of this Place, the Air passes only through one great Hole of an Inch Bore: near this Hole, on the Side of the small End of the Bellows, there is a Piece of Leather, like a Tongue or Sucker of a Pump, which is fastened there, and lies close against the Side of the Hole and the Mouth, when the Bellows is lifted up to take in the Air; and the Air which has passed once through this Hole, and which has entered into the Cask, cannot return back into the Bellows, which takes not back a new Air, but by those Holes below to fill it again.

The End of the Bellows is different from that of others, being closely shut up with a Nozzle of Wood of a Foot long, which is jointed in, glued, and very strongly fastened, by good Pegs at the End of the Bellows, to conduct the Air downwards. This Nozzle is round and thick without, about nine or ten Inches in Circumference at the Top, and diminishes insensibly towards the small End, that it may enter conveniently into the Vessels by the Bung-hole, and also to shut it up so close, that the Air can neither get in nor out any way.

This Nozzle enters for this Purpose two Inches, near the Level at the End of the Bellows, and is made in an Half-round at the Top, that it may be beaten in with a wooden Mallet, and forced into the Cask: there is, about two Fingers Length below the Upper-end of this Nozzle, an Hook or Brace of Iron of a Foot long, passing through an iron Ring, which is fastened with Nails to the Nozzle, in order by this Hook to fasten the Bellows to the Hoops of the Cask, without which the Force of the Air would drive the Bellows out again by the Bung hole, and the Operation of

emptying the broathed Vessel would not be performed.

The Mechanism of these Bellows, thus described, is easy to be conceived: the Air enters by the Holes below in the common manner: it advances towards the End, according to the Degree that the Bellows are pressed: there it meets with a Pipe that causes it to descend downwards; but to hinder it from rising up again, as it would do, when the Bellows were opened to give it a new Air, there is in this Space a Sucker or Tongue of Leather, which, as has been said, is the Inside of the Hole at about three or four Inches from the End of the Bellows which shut up the Hole according as you would have it take in again a new Air; this new Air pushes still gently, in pressing the Bellows in the Pipe, because this Tongue opens according as it is forced by the Air: thus there continually enters a new Air into the Cask, without being able to get out, because it finds itself close stopped by the same Pipe that carries the Air into it, and the Tongue hinders it from getting up again.

The Force of this Air, which continually pushes in pressing strongly the Bellows, presses equally the Superficies of the Wine over the whole Length of the Piece, without causing the least Agitation in the Wine; and the Force causes it to pass down in the Pipe of Leather, and from thence into the other Cask that is to be filled; where it rises, because the Air is driven towards the Bung-hole, which is open.

The Bellows push all the Wine in the Cask to about ten or twelve Pints, or thereabouts; which is known when they perceive the Wine to hiss in the Spibon; at which time they take from the two Casks the two Pipes that have been forced into

into them, and which are joined together by the leathern Pipe, and firmly stop up the Hole at the Bottom of the Piece with a Bung of Oak made round, a little sloping, and drive it with a Mallet. From the other Cask that has been emptied, they pull out the Cannon or Pipe of Wood from the Fountain of Metal, and leave it to drain gently some Pints of clear Wine into a Vessel that receives it.

They observe attentively, every Moment, in a clear Glass, if the Wine be neat; and when they perceive but the least Thicken, without waiting till it appears foul, they stop the Fountain, and take it away immediately, and turn out into a Bucket that little Wine that remains in the Piece. That clear Wine which has drained out of the Fountain, they put into the Cask that they have been filling: they use for this Purpose a Funnel of Tin, the Tail of which is above a Foot long, to the end that the Wine that passes through it, may not cause any Agitation in that of the Piece; and that there may not any Filth pass into the Wine, there is, towards the Bottom of the Funnel, a tin Plate pierced through with small Holes, which prevents any thing gross from passing through into the Piece.

They put together, into a separate Cask, all the Remainders of the empty Pieces: presently after they have emptied one, which they do in less than half an Hour, they wash it with a Bucket of Water, let it stand to drain some Moments, and then fill it with another that is to be drawn off.

After the Wine has been emptied out of one Vessel into another the first time, they draw it off a second time, at the time we have before-mentioned: sometimes they are

obliged to do it a third time, to give it a lively Colour, if it has it not already; but four Days before they change the Cask, they give it a *Frizure*, as they call it, and put in it one third-part of ordinary Ringlats.

The most experienced Persons shift their fine Wines out of one Vessel into another, as often as they change its Place, as well when they carry it down into the Vault, as up into the Cellar, according to the different Seasons: I have known when, in four Years time, they have drawn it off twelve or thirteen times; and they pretend, that this is that which preserves and sustains the Wine, and that it has been the finer and more delicate.

Their Opinion is, That the Wine is continually forming a fine Lee, which gives it the Colour; and that to preserve it of a good White, it must be often shifted out of one Vessel into another, if it be not put into Bottles; and that there is no Reason to fear, that the Wine will be weakened by this means, because the oftener it is removed, the oftener you give it a new Vigour; and the oftener it is drawn off, the more lively and brilliant is the Colour.

And although I have said, they should not brimstone their Casks, they do not fail to use a Match of Brimstone the first time that they change the Vessels; they mingle a Piece of thick linen Cloth in the melted Brimstone, and they cut off a Bit for each Cask of fine Wine about the Bigness of one's little Finger, and one as big again for every Piece of common Wine; they light it, and put it into the Bung of the Piece that they empty, before they have recourse to the Bellows; according as the Wine descends, it draws along

with it a small Scent of the Brimstone, which is not very strong, so as to make it perceivable, and that only leaves what will give it a Liveliness of Colour. The same may be done the second time, when they change the Cask, if it has not taken the Scent the first time; otherwise it ought to be drawn off the second time without a Match, to cause it to lose the Scent of the Brimstone, which it ought never to have.

The Wines that are thus clear and fine, keep well in the Cask for two or three Years, and hold their Goodness in the Vaults and Cellars, but especially the Mountain Wines that have a good Body: those of the River lose their Quality in Wood, and they ought to be drank in the first or second Year, or else they must be put into Bottles. This Wine will keep very well four, five, or six Years in Glass Bottles.

The Use of round Bottles is very common in *Champaigne*: they having plenty of Wood in the Province, have there set up very good Glass-houses, which they seldom make use of but in making these Bottles, which are about six Inches high, and four or five in the Neck. These Bottles contain ordinarily a *Paris* Pint, or half a Glass less. They sell them commonly for twelve or fifteen *Francs* an Hundred. They have a certain Quantity in every House. Before they enter upon a Piece of Wine to drink, they put it into Bottles well washed and drain'd, in order to have the Wine of one Piece equally good.

When they have a mind to draw off a Piece of Wine into Bottles, they put in a little Siphon of Metal into the Cask, which is bent downwards to strain it into the Bottle, under which there is a Tub or Bucket to catch the Wine that shall

run over. They stop up every Bottle carefully with a good well-chosen Cork that is not worm-eaten, but is solid and close. These Sorts of fine Corks cost fifty or sixty *Sols* a hundred. There cannot be too much Care taken in the choosing Corks, lest the Wine spoil in some of the Bottles, when the Corks are defective; therefore great Care should be taken in the choosing them, when you would draw off fine Wines into Bottles, whether it be for keeping, or to be sent abroad.

When Bottles are used that have been made use of before, they should be washed with Leaden-shot, and a little Water, to fetch off the Filth that shall remain on the Bottom of the Bottles; but it is much better, in the room of them, to use small Nails, because they perfectly take off all that which sticks to the Glass.

When all the Bottles, that suffice to empty one Cask, are filled, they tie the Mouth of the Bottle over to the Neck with a strong Packthread; and if it be a fine Wine, they commonly seal it with *Spanish* Wax, that the Wine may not be changed, nor the Bottles, by the Domestic; and some Persons have their Coats of Arms made on the Bottles, which does not enhance the Price above thirty *Sols per Cent*.

When all the Bottles are well-stopp'd, ty'd down, and seal'd, they ought to be set either in a Vault or Cellar, upon Sand two or three Fingers Depth, and laid sideways, leaning against one another; when they are set upright, they form a white Flower upon the Wine at the Top, in the small empty Space that is between the Top of the Mouth of the Bottle and the Wine; for the Bottles ought never to be filled up to the Top, but there must be left a small empty Space of about half an

Inch

Inch between the Wine and the End of the Cork.

If this was not done, the Wine would set a working in the different Seasons of the Year, and break a great Number of Bottles; and it does, notwithstanding, break a great many, in spite of all the Caution that can be taken; and more especially, when the Wine has a great deal of Heat, or is a little tart.

In some Years the Wine grows ropy in the Bottles, even in the Vaults, so as to rope when it is poured out, as if it had Oil, so that it cannot be drank. This is a Malady that seizes the Wine that has stood several Months without being removed from one Place to another: if it be set in the Air, it will lose more of its Ropiness, than it will if left in the Vault: it will recover itself in eight Days, if set in a very airy Granary, better than it will oftentimes do in Months in a Vault.

When one is obliged to drink a ropy Wine, if he shake the Bottle strongly for the Space of half a Quarter of an Hour, and then uncork it immediately after he has done shaking it, the Bottle being inclined a little on the Side, will cast out presently half a Glass of Froth or Scum, and the rest of the Wine will be drinkable, whereas otherwise it would not be so.

For about twenty Years last-past, the Goût of the French has been determined for a frothy Wine; and this they used to love, as one may say, even to Distraction. They have begun a little to come off from that for the three last Years. Their Sentiments are much divided as to the Opinion of this Kind of Wine: some believe that it proceeds from the Force of the Drugs that they put in it, which makes it froth so

strongly: others attribute it to the Tartness of the Wines, because the greatest Part that do froth are extremely tart: others attribute this Effect to the Moon, according to the Times in which these Wines are bottled.

It is true, there are a great many Wine-merchants, who, seeing the great Fondness that there is for their frothy Wines, oftentimes put in Alum, Spirit of Wine, and Pigeons Dung, and a great many other Drugs, to make it froth extremely; but it is certain, by Experience, that the Wine froths when it is any time bottled from the Vintage to the Month of *May*. There are some who pretend, that the nearer the Vintage-time the Wine is produced, when it is bottled, the more it froths. Many do not agree in this Opinion; but nothing is more certain, than that there is no time in which the Wine froths more than about the End of the second Quarter of the Month of *March*, and this always happens towards the *Holy Week*. There does not need any Artifice at all; one may always be sure to have Wine perfectly frothy, when it is bottled from the tenth to the fourteenth of the Month of *March*: of this there is such reiterated Experience, that it cannot be doubted.

It is good to know, that the Wine does not froth presently after it is put in Bottles. It must be at least six Weeks, and sometimes six Months, before it froths well. If it is to be transported, you must give it near a Month of the Vault, especially in the Summer, to recover its Remove.

But as Wines (especially the Mountain Wines) are not ordinarily bottled in the *Holy Week*, because they are then too green, or have too much Hardness, especially if the Year has been cold and moist, or too

much Liquor express'd, if the Year has been hot; the most sure and advantageous way to have exquisite Wine, which is perfectly frothy, is not to bottle it till the Rise of the Sap of *August*. It is certain, by Experience, that it froths excessively, when it is bottled from the tenth to the fourteenth of *August*; and as it has then lost either the Tartness or Greenness of its Liquor, one may be assured in either Bottles to have the ripest and most frothy Wine.

There has been another Experiment tried, which is, not to bottle the Mountain Wine till the *Holy Week* of the second Year, that is, eighteen Months after the Vintage; and it has been found, that it froths sufficiently, but less by half than that which has been bottled in the Rising of the Sap of *March* the Year before.

It is not believed, that the River-wine, which has a less Body than that of the Mountains, can froth so much in the second Year.

When one would have Wine that will not froth at all, it should be bottled in *October* or *November*, the Year after the Vintage. If it be bottled in *June* or *July*, it will froth slightly; though but a little, if any thing at all.

To find in the Wine of *Champagne* all the Merit that it ought to have, it should be taken out of the Vault not above half a quarter of an Hour before it is drunk, and it must be put into a Bucket, with two or three Pounds of Ice; the Cork should be opened, and put in again lightly; which if it be not done, the Wine will break the Bottle, or will not grow cool, if it were not unstopped; and it would evaporate itself, if it remained quite open. When the Bottle has been half a Quarter of an Hour in this Ice, it

must be taken out, because the Ice would otherwise chill it too much, and make it lose its Briskness. This Wine will be excellently good, and of a delicious Flavour, when it has been a little affected by the Ice; but great Care must be used, that it may not be either too much or too little.

As these Wines, especially those of the same Year, work continually in the Vaults and Cellars, and still more in Bottles than in the Pieces, according to the different Seasons, and the divers Impressions of the Air, it ought not to be surprising, if the same Wine, especially the new, oftentimes appears different in Taste. We find a Wine potable in *January* and *February*, which will seem hard in *March* and *April*, because of the rising of the Sap, which agitates it more; the same Wine in *June* and *July* will appear entirely soft, and in *August* and *September* we shall find it hard again, of which one shall not be able to perceive any thing during the preceding Months, because the rising of the Sap in *August* will put the Parts in a great Motion. This Effect Motion will have on the River-wines of the Year; but oftentimes the Wines of two Years from the Mountains will appear more mellow, more or less exquisite, more or less forward, according to the different Motions it has received by the different Impressions of the Air, which will vary more sensibly in the different Seasons of the Year.

There ought to be a very great Attention to keep the Wine continually in cool Places; nothing does it more Hurt than Heat: it is therefore of the greatest Importance to have good Cellars, and excellent Vaults. No Part of the World has so good Vaults as those in *Champagne*,

which is the Reason it is so difficult to find any-where else so good Wines as those of this Province.

Those who would lay up a Stock of Wine, and are able to keep it two or three Years, or whose Business it is to send it into other far distant Provinces, or to foreign Countries, ought to choose the Mountain Wine; for as it has more Body, it will better bear Transportation than those of the River; and besides, the *English*, the *Flemings*, the *Dutch*, the *Danes*, and the *Scotch*, desire these strong Wines, which can bear the Transportation, and hold good for two or three Years, which the River-wines will not do.

The most noble River-wines are those of *Auwillers*, *Ay*, *Epernay*, *Piery*, *Cumieris*: Those of the Mountain are, of *Sillery*, *Verzenay*, *Taissy*, *Mailly*; and above all, those of *St. Thierry* have the most Reputation: The last has for a long time had the greatest Name, and been the most call'd for; and one may venture to say, that it comes nothing behind the best Wines of *Champaigne*.

By all the Observations which have been made on what is practis'd in this Province, in cultivating and ordering the Vines, and in fining off the Wines, in bottling and carrying them up and down into Cellars and Vaults, and from Vaults to Cellars, it will be found, that even Persons of good Taste, in the Province of *Burgundy*, *Berry*, *Languedoc*, and *Provence*, who are yet very curious and delicate in making Wines, especially for their own Tables, know not so well how to bring it to Perfection as those who are accustomed to make it in this Province; for tho' their Wines have not the Tartness

of those of *Champaigne*, yet they are able to make them more clear, fine, and light. They might therefore try if they would not be preserved better in drawing them off from their Lee, than in letting them lie on it, according to their usual Custom, which some are of Opinion is absolutely wrong. They should choose and pick, in the Fresh of the Morning, their finest black Grapes, and those whose Berries adhere the least together, because they are the ripest; and they should observe to leave as little Stalk to them as may be; and with regard to Pressing, which they are usually faulty in, they should immediately, as soon as carried, trample every Load of Grapes successively as they are brought in; and, collecting the first, must put it in new Casks of a less Size: and when they have finished treading the Remainder of each Carriage, they should put them into the common Vats; but let them not remain there so many Days as they are generally used to do, that so their common Wines may be thinner, and less strong. By this Management, they might make four, five, or six Pieces of fine Wine, more or less, according as they shall find it good; and then they should take the same Care as has been said those of *Champaigne* do: and if they would be content now with a less Produce, they would have a far greater Quantity the following Years, and would be continually bringing it to a still greater Perfection, as they improved more and more in Experience. In those Countries where they can conveniently have Presses, they should make them.

Their Wines would be more delicate, more light, and less colour'd, by this Attention; and with half the

the Fining, would be better for Transportation, in drawing them from the *Liee*, and especially if they are put into Bottles.

There are some Districts or Cantons in the South Provinces of the Kingdom, where the Earth is very fine, which would produce exquisite Wine: it would not, indeed, have the Tartness which those of *Champaigne* have; but then it would have another very pleasing Flavour that those have not.

All these Observations, which we have made, will be of great Use to those Persons who would improve their Wines, or desire to drink delicious Liquor: but such Persons must remember, that they ought above all this to study to have good Vaults; and those which are coolest in the Summer, and warmest in the Winter, are ever the best.

It may seem to many Persons in this Country, that we have been too prolix in the Account we have given; but these Observations are not designed for those who are acquainted with the Practice already, but for such Persons as are wholly ignorant of these Things, and who are so far from taking any Pains in the ordering their Wines, that it is a Trouble to them to conceive the greatest Part of those Things which I have taken notice of, to be necessary; and who cannot be persuaded, but that they observe every thing requisite to the proper Management of Wines, as exactly as those of *Champaigne* do.

This Method practised in the making Wine in Burgundy,

The Grapes being come to Maturity, the Magistrates give Notice a few Days before by a Trumper to the Town, of the time they have appointed and fixed for gathering

the Vintage. *Volnet* begins first, a Day before *Pomard*, and afterward all the little Hills gather their Vintage indifferently; for after the Town of *Beaune* has gathered their Vintage one single Day, the Vintage is opened for all the other Vineyards on the Side of *Burgundy*. It will be seen by-and-by, why *Beaune* decides the Vintage of *Volnet* and *Pomard*. It will scarce be believed, that all the Hills from *Chamberry* to *Chagny* should have their Vintage gathered in the Space of four or five Days; and also it is scarce credible, what a vast Number of *Mountaineers* from every Part come to labour in this Work.

It will be proper here to observe, that in this great Extent the Vineyards produce but one Kind of Grapes, which they call *Noirons*; the Berries of which are black when they are ripe, and quite round: the Plain and the Backsides produce only a Sort of Grape, of which the Berries are bigger, and a little longer, which they call *Gamet*.

Those who would make excellent Wines, never cut the Grapes till after the Sun has dried up the Dew which has fallen in the Night-time; for this Moistness, altho' it be but a rarefied Air, cools the Grapes, which being cast into the first Vat, suspends, and oftentimes hinders, the Fermentation. Those covetous Persons, who are more desirous of the Quantity than the Quality, use not these Precautions; but, on the other hand, those who would make excellent Wines, do not put into the same Vat any Grapes but those of the same Vine; but almost all the particular Persons, who have an hundred Perches of Vineyard in different Cantons, mingle their Grapes the one with the other, because the strong helps the weak, and the good mends

mends that which is worse; and, in a word, that they may make the Vat the larger. The Choice of the Caatons from whence the Wine is produced, depends on the Discernment that the Courtiers or Commissioners ought to have, when they taste the Wines that they would send into other Countries, and that which the *English* Gentlemen ought to recommend to their Commissioners, who furnish them with Wine for their drinking.

The Grapes, being put into the fermenting Vat, throw up a great Scum, which, by the Agitation, makes to the Ears a continual Trembling, a little Cluttering, and spreads abroad such a Scent, as is capable of intoxicating, and perfumes the Houses, and spreads itself all over the Town.

They do not let the Grapes lie still in the Vat; they stir them and disturb them: the Labourers trample them briskly three different times, for the Space of two Hours each time. And to give a clear Idea of the Manner of treating the Grapes in the Vat; as soon as they begin to ferment in the Vat, they tread them for two Hours at the least; six Hours after they tread them again for a long time as before; and six Hours after that they tread them the third time; and after that, they put them under the Press.

It must be observed, that the Grapes of *Volnet*, of *Pomard*, and *Beaune*, being fermented in the Vat in the Field, cannot be let stand above twelve or eighteen Hours there; those of *Pomard* a little less; those of *Beaune* so long, or a little longer, according to the Delicateness of the Ground, and the Heat of the Grapes: for there are Vineyards behind the Hills of *Beaune*, the Grapes of which do not begin to ferment till after they have been

eight or ten Days in the Vat. *Note further*; That, to give a Colour to the Wine, this depends on the Time, more or less, that it is left in the Vat. As for Example, The Wines of *Volnet* have the Colour of a Partridge's Eye. This is the Cause they do not leave the Grapes of this Ground but a very little time in the Vat; and if they should let them be there but a little longer than they ought, the Wine would lose its Delicacy, and would taste of the Grape-stone, or the Stalks.

After the Grapes have been, according to their Quality, more or less time in the Vat, and have been trodden, there swims over a Liquor that they call *Surmout*. They have Casks of six-score Pots, or half Hogheads of sixty Pots, ranged upon Chantiers, or Stillings for Hogheads, into which, by equal Portions, they cast this first Running; and afterwards they put the Grapes that remain on the Press, when the *Surmout* has been drawn off: and when these have been well-pressed, all the Liquor that comes from them is equally distributed into those Pieces where they have already put the unpressed Wine: and then they open the Press, and afterwards with a Planer they cut the pressed Marc three or four Fingers Thickness round about, and put the Parings in the Middle, and afterward press it again; then they cut it again, and press it the third time; and all the Liquors of these different Pressings are equally distributed into the Tuns till they are full.

Upon which it ought to be observed, that the unpressed Wine is the most light, delicate, and least-coloured Liquor; that which comes of the first Cut of the Press the most racy; and that which comes from the second and third Cut of the Press

is more hardy, red, and green; so that these three Sorts of Qualities, being united, make a Wine much better, more durable, and better-colour'd.

All these Pieces or Tuns being full, they leave the Bung open, and the Wine in a Fury shakes and agitates itself in such a manner, that it sends all over the Cellar Fumes that will intoxicate, and which are in such Motion, that a lighted Candle being carried thither, will be extinguished: and if this Wine be put in an Essay, and be shaken a little with the Hand, and you stop the Neck with your Thumb, the Essay will break in a thousand Pieces.

In *Burgundy*, that which they call an Essay, is a little round Bottle, in Length about three or four Inches, and about two in Circumference, which grows less all of a sudden at the Top, in order to form a little Neck open, having a little Rim to receive the Wine and the Cork.

The Wine having cast its Fire and Scum out of the Casks, eight Days after they fill them up again; and stop them up with a Vine-leaf, which they spread over the Bung: and lest the Vapours of the Wine should move this Leaf out of its Place, they lay a little Stone upon it, to keep it down; because if they should put upon it a Seal, or a Bung, the Wine, not having Air, would push the Head of the Casks out. Five or six Days they seal it, and near the Bung they bore an Hole, and stop the Hole which the Gimlet has made in the Tun with a little Bit of round pointed Wood, which they call a Faucet, which they take out from time to time, to let the Spirits evaporate; which Precaution prevents the Wine from bursting the Vessel.

This is the Time when at *Beaune*

are to be seen Merchants from all the Corners of *Europe*, who come to secure the best Vats for their Kings, Princes, and Masters.

The Commissioners and their Wine-conners proves the Wines, although they are not yet drinkable. The Commissioners are the public Managers; to which all those who would have the Wines of *Burgundy*, address themselves either by Letters, or in Person. These are the Judges, which from time out of Mind, from Father to Son, have certain Experience of all the Vaults; who know the Climates, Closes, and the Cantons, from which they are produced, and all the good Cellars; to whom it is sufficient to write what Quantity of Wine one would have, and of what District or Canton one would have it; and provided they have the Purchase-money paid in the Space of the current Year, one may be sure to be well served.

These Managers having received all the Commissions from private Persons, go to the Citizens, and fill their Essays of the different Vats, which they find in good Cellars; and with the Tickets that they tie to the Neck of every little Bottle, with the Name of the Vat, or the Quantity of the Pieces of Wine which they contain, they carry them to their Houses, and them be unstopp'd; they examine and attend them carefully, and by the different Changes, Taste, and Colour, they see the future Colours and Qualities of the Wines that are in the Tuns from which the Essays are taken. They also make yet another Proof with the Wine which is in the Essays: they take Glasses, upon which they put a sinking Paper, which they spread, and which juts out over the Glasses, and press their Finger to make a Concavity; which may contain a fourth

fourth Part of a Glass of Wine. The Liquor passes by little and little, and filters through the Paper, and strains Drop by Drop in an imperceptible manner into the Glass which receives it. By the Sight of the Wine which passes through this Paper, they make good Conjectures, founded upon a long Experience concern'g the destinated Taste, of the Colour, and the Lastingness of the Colour of the Wines they have proved.

The Commissioners having made their Purchases according to the Orders which they have received from their Correspondents and Merchants, they make Preparations to send them according to their Orders; and as to the Price of the Purchase, they cannot deceive any Person without running great Risques; for if they should make those who send for these Wines pay more for them than they can buy them for in the Cellar, they would expose themselves to Hanging by an Arret of the Parliament of Burgundy, who have made a Law for the assuring the Fidelity of Commerce of those Wines; which orders, That the Commissioners shall take one *Sol per Livre* for as much as comes to sixty *Livres*; and for what exceeds this Sum, they shall not take more than six *Deniers per Livre*. Thus a private Person, who shall receive for six hundred *Livres* of Wine French Money, shall pay three *Livres* to the Commissioner, for what he shall have sent above sixty *Livres*; and for the five hundred and forty which are over and above, for which he is to pay the Commissioner, he shall not demand more than six *Deniers per Livre*, which will be the Sum of twelve *Livres six Sols*; which being added to the three *Livres* above, make the Sum of fifteen *Livres ten*

Sols; a Sum which would amount to twelve or thirteen Shillings, according to the Exchange: and for this small Profit, the Commissioner is obliged to advance his Money to the Citizens of whom he buys the Wines; and that too, when he does not receive his Payment from the Persons to whom they are sent, as it sometimes happens; and the Commissioner that shall be convicted of taking more, whether by Books or other Proofs, will be punished, as has been said above.

The Commissioners having purchased and proved their Wines, according to the Orders they have received, they cause the Tuns to be new-hooped, and put Bars surrounded with Pins of Wood of the Aspen-tree, and mark them with the Town-Mark: and it ought to be observed, that no other Country has a Right to imitate or counterfeit their second Hooping; and for the greater Surety, they put upon every Cask the Fire-mark, which is a B on the Top, two Inches in Length, with the Cypher of the Year in which the Casks were sent from *Beaune* to go to any other Place.

These are the Precautions that are taken at *Beaune*, by which these Wines that come from thence cannot be mistaken: a Caution otherwise not very necessary, since they manifest themselves so plainly by their Delicacy, and their Superiority above all other Wines in the Universe: they are besides very beneficial and proper to establish and to preserve Health; in this surpassing the Wines of *Champaigne*, which flatten the Taste, and grate the Palate, but which weaken and extenuate, enervate, and render dull, as one may say, the most healthful Bodies; and which also, according to sad Experience, and the Writings

of the Learned, which I have read, breed the Gravel, the Gout, and the Stone.

The first Article of the Wines of Primarcour, or the Forward Wines.

We call that the Wine of *Primarcour*, which will not keep good more than one Year, or that can be kept but a few Months in the second Year.

The first Wine of *Primarcour* grows at *Volnet*, which is a Village situated about three Miles from *Beaune*, upon a Descent of a Mile in Height at least, and two Miles in Length on the Side which is exposed to the rising Sun. This Village, as well as *Pomard*, have their Dependence on the City of *Beaune*: since the Citizens have been their Lords, as I have said before, these two Plots of Vineyards have been obliged to receive the Law of their Vintages from the Magistrates and Sages named for this Purpose.

This Hill produces the finest, most lively, and most delicate Wine of *Burgundy*. The Bunches of Grapes of the Vineyards of *Volnet* are very small, as well as the Berries; the Branches rise scarce above three Feet high through the whole Year; the Grapes of it are so delicate, that they won't bear the Vat more than twelve, sixteen, or eighteen Hours; for if they be suffered to stand longer, they would take the Taste of the Stalk.

The Wine is in Colour a little deeper than the Eye of a Partridge; it is full of Fire, strong, light; it is almost all Spirit; it is, in short, the most excellent of all *Burgundy*, which by reason of its Violence is not traded in; but its intoxicating Quality is soon dissipated. The Duration of this Wine is from one Vintage to another, though it perishes at the

Beginning of the *Dog-days*; after which it changes its Colour, and is turned: but yet I doubt not but that it would keep longer in very cold Vaults. The smell of their Vats is drawn from a Canton of Vineyards, that is called *Ghampan*.

Pomard is the second Plot of Vineyards of the *Primarcour*: it is situate between *Volnet* and *Beaune*, not quite so high as the first, and a little higher than *Beaune*. It produces a Wine that has a little more Body than the preceding, and it is of the Colour of Fire, and has a great deal of Perfume and Balsam: it will hold good some Months longer than that of *Volnet*: it is more merchantable, and better for Health: if it be kept above a Year, it fattens, ropes, it waxes, and becomes of the Colour of the Skin of an Onion. The best Vat is that of *Commaraire*, that will sometimes keep eighteen Months; but that is according as the Year is.

The City of *Beaune* contains one very considerable Plot of Vineyards; it consists only of four Hills, which are about four Miles in Length from *Pomard* to *Savigny*. The first of these Hills is called *St. Desire*, the second the *Montée Rouge*, the third *Les Greves*, and the fourth the *Fontain* of *Marcomney*. These different Soils produce Wines which participate of those of *Volnet* and *Pomard*; without the Faults of them; they have a little more Colour, many good Qualities, and Lastingness.

The Wines of *Beaune* last some more, and some less; but they don't last above two Years: they are sweeter, more agreeable, and more merchantable, than the two preceding, and much better for Health. The Colour of these Wines is not equal, because that depends much upon the Manner of making them; or that they let it remain more or

lets

less Hours in the Vat, according as the Climate is more or less delicate where it is made. There are in these four Hills certain inclosed Cantons, which are in great Reputation. The *Foies*, the *Cras*, the *Groves*, as also the *King's Inclosures*, are very delicious.

Aisse is the fourth Vineyard of the *Primeur*; it is situated upon the Declivity of an Hill about three Miles from *Beaune*. This Valley is an Ascent so gentle, that one can scarce perceive one ascends, till one has come to the Top of it. This little Village produces Wines of an extreme Delicacy: they are less brisk than the former, but of a Taste more flattering: the Colour is a little more soft, and less sparkling, but fine; and, like the Hill that produces it, the Wine is too little elevated, and too much declining: it partakes neither of the Firmness, nor of the Stiffness, of the Wines of the Height of the Hills: it has all the Tenderness, nothing of the Hardness, and of consequence is subject, in a little while, to grow ropy, and to take the bad Quality of Sweetness; nevertheless it is sent to foreign Countries; but it requires much Choice and Judgment.

Pernand, which is between the last Vineyard and the grand Vineyard of *Savigny*, is of a greater Extent; but is of small Account, the Wines being not very delicate: they are of the Quality of the precedent Vineyards, but harder and firmer, because they are produced upon an Hill that is higher and steeper. There are some Vats very delicious, and these go into other Countries; but under the Name of *Beaune* Wine.

Chassagne is not very considerable for its Extent, but is of greater Reputation for its Wines. This, in my Opinion, would be more fit for

England, because it would better bear Carriage by Land and Sea: It is extremely strong, full of Fire, and heady. It is commonly tart, which renders it more durable than the others: but if Persons have Skill and Leisure to bottle it in the proper time, and to drink it when its Tartness begins to fall, it is one of the noblest Wines in the World. If I had the Office of providing the King's Wine, I would go into *Burgundy* to choose it; and in choosing the Wine of this Climate, I should be likely to succeed. This is the only Wine that one may leave in Bottles without Fear of its becoming ropy, or changing its Colour, or growing eager, or turning. The longer you keep it, the better it is.

It is more balmy and nourishing, but nevertheless you may not prescribe above three Years for the Bounds of its Duration. It will be fit for drinking at the End of the second Year; sometimes it lasts four Years, when the Vintage has been very good.

This is in the Rank of Wines in the *Primeur*, though its Duration is a great deal longer.

Savigny is a great Extent of Ground between *Beaune* and *Pernand*, situated in a Valley formed by the Separation of two Mountains. As the Hills that compose this Vineyard are open to the rising Sun by a great Space, and as they are shut up as they approach to the setting Side, they participate of the Rays of the Sun on one Side obliquely, and on the other directly. This Soil produces excellent strong racy Wines, which have both Body and Delicacy, when they have been drawn out into Bottles; but they must be visited now-and-then so as not to let slip the time when they should be drank. This would be a very

very good Wine for England; it will keep as well, and better than *Chassagne*: it is not so delicate, nor so brisk; but it is more oily, and very good for Health.

Auxey is pretty near of the same Situation, in a Corner, between two Hills, which open themselves to *Mulsault*, or as far as *St. Romain*, where may be seen high Mountains crowned with very high Rocks. This Vineyard produces Wines more red and stronger than those of *Saigny*, but they have not the Reputation of them. These Wines have more Body than the preceding, and ought to be the Drink of all those Gentlemen that would not shorten their Days by drinking those heady sparkling Wines, an Excess in which is so dangerous.

The second Article, of the Wines de Garde, or those which will keep a good while.

Nuis is a very small Village, about nine Miles from *Beaune*, in the Road to *Dijon*. The Territory of this Village contains between four and five Miles in Extent. All those Gentlemen that love the most delicate and healthful Drinks, have the Wines of the Hills of *Nuis* for their Tables. These Wines are at first very rough, sharp, and tart: they require to be kept till their second, third, fourth, and fifth Year; and when their Roughness and their Hardness is gone, their Tartness being fallen, there comes in their place a Perfume and Balminess very delicious. They are of a deep velvet Colour, and yet neat and brilliant. *Leavis* the XIVth drank no other Wine.

The Clove of *Vongoot* is situated a League from *Nuis* on the Side of *Dijon*; it appertains intirely to the

Monks of the famous Abbey of *Cîteaux*, built between the *Saône* and this Hill. The Wine which it produces, comes nearer to that of *Chassagne* than to any other. It is very excellent, and is drank in foreign Countries.

Chambertin produces, to my Liking, the most valuable Wine of all *Burgundy*. It is situated between *Dijon* and *Nuis*. It contains the Qualities of all the other Wines, without their Faults. This is what one need be but little solicitous about. I have drank it six Years after it has been produced, and it poured troubled and thick into the Glass, but grew clear immediately, and by its Motion recovered its Spirits, and a Colour the most lively and neat: and they also sell it as dear again as the other Wines of *Burgundy*. It was sold the last Vintage but one, for forty and forty-two Pounds Sterling the *Chantier*, when the Wines of *Volnet*, *Pomard*, and *Beaune*, sold for not above twenty Pounds Sterling a *Quart*, which contains, as I have said before, four hundred and eighty *Paris* Pints.

The third Article, of White-wines.

Before I begin to treat on White-wine, it is proper to let you know, that it is made from a masculine Kind of Grape. This has two Qualities, that the Grapes of the other have not. The first is this: that if the Vintage be late, and that the white Fruits and great Cold come, it resists the Hoar-frosts; while the black Grapes grow sour, withered, and shrivelled immediately.

The second is, that as soon as these white Grapes are cut, they must be put into the Prefs without entering the Vat, and without being trod as the black Grapes are; for if they

they were put there, they would give only a livid, ruddy, yellowish Lignor. I thought myself obliged to acquaint the Public with that.

Mussault is, after *Beaune* and *Nuis*, the largest Vineyard of *Burgundy* in Extent; its Wines are generally approved in *Germany* and the *Low-Countries*, and throughout all *France*; I know not whether they are so in *England* or not. The Wines which this Soil produces, in all hot and dry Years, are delicious, sparkling, agreeable, warm, and beneficial: they are not dear; and if they are well-chosen, they would be an Honour to *England*, and Pleasure to those that drink them. When they are kept a Year and an half, they sometimes grow yellow and eager.

Puligny is a Vineyard next to *Mussault*, but much more in the Plains, which produces the best White-wines: they are, within a very little, of the same Quality with the Wines of *Mussault*; but their Fame is not divulged, and the Name is almost unknown.

Mosse, of which I have spoken in the Article of the first Wines, produces also excellent Wines.

Morabet is a little Plot of Ground between *Chassagne* and *Puligny*, in the Plain, which is in the Possession of one Vein of Earth, which renders its Soil wholly of the same Kind: it produces a White-wine the most curious and most delicious in *France*; there is no Wine of *Cote Rotie*, *Muscet*, nor *Frontignan*, that equals it. It produces but a very small Quantity, and it sells very dear; and, in order to have a small Quantity of it, it ought to be bespoken a Year before; because this Wine is always bespoken before it is made. But great Caution is to be taken not to be deceived; for the neighbouring Vineyards of this Close

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partake a little of the Quality, and oftentimes pass for *Morabet*, and therefore it will be absolutely necessary to have a faithful Correspondent. This Wine has those Qualities that neither the *Latin* nor the *French* Tongue can express: I have drank of it six or seven Years old, and am not able to describe its Delicacy and Excellence.

I am now going to treat concerning all the Vineyards of the *Upper Burgundy*; those who have passed the grand Road that leads from *Dijon* to *Lyons*, the Length of the Hills, will do Justice to my Exactness; and I desire those that have not been there, to believe that this Relation is agreeable to Truth.

I have an hundred times heard Boasting of the Wines of many Hills near *Auxerre*, to which they give the Name of the Wine of *Burgundy*: it is true, those Hills are in *Burgundy*, but they are ninety Miles distant from the true Hills, of which I spoke just now, which only produce these Wines of *Burgundy* which are in Reputation, and which they drink after two Manners, by the Nose, and by the Mouth, either both at once, or separately; both at once, in that when one drinks them, the Pleasure which he has in the Smell vies with the Relish it has on the Palate; and separately, so that a Person that has been used to drink it, may know whether it be true *Burgundy* or not, by the Smell, or sweet Odour. The good Tasters taste it by their Nose, before they put it to their Mouths; and all the other Climates of *Burgundy*, as those of *Chablis* and *Auxerre*, have no such Quality as the true Wines of *Burgundy* have, although they are really made and produced there.

It remains for me to relate how these Wines may be brought to *England*.

land. It has always been the Custom to bring those Wines from *Burgundy* in their Casks; but as the Carriage is long, and there is oftentimes a Risque run, so the Carriers, as well by Land as by Sea, are not always faithful; for notwithstanding all the Precaution that can be taken to hinder them from drinking the Wine, they will always find out Stratagems to do it. If it be packed up in Casks with Straw, and linen Cloths, this is but a feeble Obstacle to their Industry: and for all this Precaution, if the Cask happens to leak by the Way, this will be at the Peril and Loss of the Purchaser. If these Wines be put into double Casks, this Precaution will have no better Success than the foregoing, and it is exposed to the same Risque; and the Casks at the Vintages are a great Prejudice to these delicate Wines, because this gives the full Scope to the Spirits to evaporate; and of consequence they will cause a great Diminution of the Quality of the Wine.

It ought to be brought in Bottles from *Beaune* to *London*: for this Purpose, some Agent, who buys the Wines by Order of the Person, should be addressed to, to draw it out into Bottles, and to send it in Cases into *England*. These Cases being filled, need but be carried by Land above ninety Miles to *Auxerre*, where they may be embarked on the River *Yonne*, which passes into the River *Seine*, and from thence to *Paris*, and afterwards to *Rouen*, where are Vessels which pass very often to *London*.

If one would have them come from *Beaune* to *Calais* by Land, that will also be easy; for there are Carriers that go thither very frequently, who would go very willingly, provided they could have

Cases enough to load their Wagons.

The Agents of *Beaune* would also be very well pleased to bottle the Wine that they were ordered to buy, provided their Correspondents would give Orders for enough to make a Carriage: as for Example, if two or three Persons would join to give Orders for a thousand Bottles, this would be a complete Carriage: and as those of *Volnet* draw their Wine into Bottles at the End of *December*, a Person that would have five hundred Bottles of *Chassagne* or *Nuis*, ought to join with another that would have the like Quantity. The Agent might bottle up these Wines a Year after the Vintage, either more or less; and the Purchasers might receive the Wines of *Burgundy* exquisite and delicious, and in like manner all other Wines that they have a mind to have. As to the Price of the Wines of *Beaune*, *Volnet*, *Pomard*, *Chassagne*, and *Nuis*, it is pretty near equal, or at most the Difference is not very great. A *Quint* of *Volnet* Wine contains four hundred and eighty *Paris* Pints, which will make five hundred Bottles, and will cost in the Country, some Years, ten, twelve, fourteen, or eighteen, and at most twenty *Livres Sterling*: The Carriage may cost from *Calais* to *London* a very small Matter: so that, taking the Years one with another, the dearest Wine of *Burgundy*, except that of *Chambertin*, which is the dearest, would scarce, in *London*, stand in fourteen or fifteen *Sols* a Bottle, the Entry not being reckoned in.

The Method of making Wine in Provence.

The Delicateness of the Taste of Grapes is not always a certain Proof

of their Goodness for making Wine: it is not always with these Grapes so agreeable to the Taste that the best Wines are made: we should not be surpris'd, that our Wines are not the most exquisite, since we do not observe any Rule in the Choice of the Grapes, which ought to be done. It is certain, that the Juice of Grapes of different Kinds cannot but produce a confus'd Mixture, which suffers divers Alterations in the Casks, by the different Fermentations, which the sulphureous Particles of the Grapes excite there, by which they suffer themselves to be very easily opened at the Approach of the Heat. This is what happens to Wines which have been made of a Mixture of many Kinds of wild Grapes. Experience informs us, that Wine drawn from such Grapes is very subject to ferment and grow foul, as soon as the Heats of the Spring begin to approach, which does not happen in the Winter, when the Coldness of the Air holds it, as it were, bound and embarrassed by the sulphureous Particles of the Wine. It is the same thing in the Juice of the Grapes called *Claretos*, *Plan Estrean*, *Pignolets*, &c. when they are mingled in two great a Quantity with the others. The common Fault of our Wines is, that they cannot be kept the Year throughout; they are apt to grow foul, or turn, as it is called, upon the least Transport.

The greatest Part of our Citizens believe it to be the Fault of the Soil, principally the Vineyards planted in the Places where Plaster, or transparent Stone, is made, under which is contained all the Extent of Ground, which begins from *R. P. Capucins*, as far as *Aguilles*, which they commonly call *Puyblanc*, i. e. White Country. But how many Vineyards

have we planted in different Soils, that are subject to the same Vice? It is generally agreed, that the Soil which they call [*Gris*] Grey, is the best for Vineyards: nevertheless, it is found, that the Quarter of *Molieres*, of *Repentance de Barret*, of *Montaignez*, are not exempt from this Vice. I am of the Opinion, that it proceeds from the Mixture of too great a Quantity of different Sorts of Grapes. I cannot deny, after Experience, but the Nature of the Soil, the Culture, and the Dung they use, contribute very much to this Vice, which is what I shall hereafter examine into.

Therefore it is necessary to know, what Grapes are fit to make good Wine, that may be in a Condition to be kept without being foul, or turning, and how to make it.

It is very true, that a Person cannot make from one Vineyard a great Quantity of Wine, that shall be at the same time good in Quality. A Vineyard ought to be planted on those high Grounds or Hills, which are expos'd either to the South or South-west; and the Soil ought to be a Sort of Brown, or approaching to it. Those which we call *Arpielo*, *Malausene*, *Saveon*, are Soils which are scarce proper to nourish Stalks that will produce Grapes for making good Wine. The Vineyards which are round about the *Peres Augustines Reformez*, commonly called *Saint Pierre*, are planted in a Soil of *Saveon* aforesaid, very unfit for producing Grapes of a delicate Relish, or for making good Wine.

The Entrance into the Territory of *Tbalant* is, for the most part, a Soil which our Country-people call *Malausene*; and also the Wines that they produce are none of the best.

Those Grapes ought to be chosen, which grow upon Stalks that

are planted in a Soil somewhat rocky.

After the Culture, it is very certain, that good Wine cannot be drawn from Grapes that have too much Nourishment, and of which the Sap has not attained the last Degree of Concoction or Ripeness.

Those which we call *Ollieros*, which are commonly dunged, and which they cultivate with Pains, do give a great Quantity of Grapes; but their great Nourishment is an Obstacle to their making good Wine. Those which we call *Open Vineyards*, are to be preferred to them.

We ought also to prefer the Grapes of old Vineyards to those of young ones. The proper Vineyards for making good Wine, are those which have been planted twenty-five or thirty Years; the older they are, the more proper they are for making good Wine; and till the Vineyard has been made seven or eight Years, good Wine ought not to be expected from it.

As to the Choice of Grapes, we ought to mix some of the best Sorts that we have. These Kinds are, of the white Grapes, the *Aragnan*, the *Reudeillat*, the *Paseau Blanc*, the *Efrani*, the *Uni*, the *Aubree*; of the black, the *Catalan*, the *Bouteillan*, the *Uni Negré*. The Must that is drawn from these Grapes ought to ferment in the Vat at least three Weeks; when the Husks must be separated from the Must. It is a common Error in this Village, not to let the Wine ferment long enough.

It ought to be noted, that the Proportion which should be kept between the Quantity of these Kinds is different, according to the Design which every one has of keeping these Wines.

The black Grapes, and above all

the *Catalan* and the *Bouteillan*, should make more than half the Quantity of all the rest.

Those that desire to have a Wine of a deeper Red, should take a greater Quantity of black Grapes, and ought to let them stand a longer time in the Vat, if they have Occasion to change the Wine from time to time.

They make White-wine of the Grapes they call *Aubier*, *Uni*, *Roudeillat*, *Aragnan*, *Pignolet*. If they would have Wine proper to keep in the Heat of the Summer, they ought to use none but *Uni*, *Aubier*, and *Aragnan*.

Nobody is ignorant, that we have Wines that are made but of one Species of Grapes; as that of *Muscats* Wine, and *Claret*: for the first, they make use of *Muscats*, as well white as red; for the second, of the Grapes they call *Claretto*.

They keep these Grapes with us during the whole Winter, and some Part of the Spring, hanging upon a Beam in a Room. All Sorts of Grapes are not fit for keeping; those Kinds that are called *Pendoulans*, or *Rin de Pansé*, *le Land de Pouëre*, *le Verdau*, are the best for this Purpose; the *Aragnan* and *Efrani* are so likewise; also the *Claretto*, the *Muscats*, and the red *Uni*: the *Barbaroux* and the *Espaguin*, the *Taslier* and the *Roudeillat*, will not keep so long. They ought to be gathered full-ripe, and before the Rains, and none to be chosen but those that grow upon old Stocks.

Nobody is ignorant, that the Juice of Grapes fermented in the Vat, and made into Wine, is a Liqueur so precious and delicious, that it furnishes us with a medicinal Aliment, and an alimantal Physic; the Virtue of which is perceived both in the Body and Spirit. It is not without Reason that it is called *Lac Senile*, i. e.

Old Mens Milk, &c. and Fomes Ingenii, the Tinder of Wit, by Homer, &c.

Wine is different in Virtue, and Delicacy of Taste. The Difference proceeds for the most part from the different Nature of the Grapes with which it is made, the different Degree of their Maturity, and the Diversity of the Soil where the Vineyards are planted; and also the different Culture of the Vineyards, and the Preparation of the Wine; to which may be added, the Difference of the Climates, according to the greater or lesser Degree of Heat.

The Romans, as we learn from *Pliny*, were very curious in searching after the most excellent Wines; all their Differences consisted in the Places where they were made: as the *Sestianum*, the *Cæcubum*, the *Falernum*, the *Gauranum*, the *Fauslianum*, the *Albanum*, the *Surrentinum*, the *Massicum*, which were the most delicate Wines of Italy in the time of *Pliny*. Among the Wines of Greece, they esteemed the *Maronean*, the *Thasian*, the *Cretan*, the *Coan*, the *Cbian*, the *Lesbian*, the *Icarian*, the *Sinyrean*, &c. Their luxurious Taste carried them in Search of the Wines of Asia, as that of Mount *Libanus*, and others, as may be seen in *Pliny*.

It is to be noted, that the Romans had their most excellent Wines from *Campania*, which is now called *Terre de Labour*, a Province of the Kingdom of *Naples*. Those of the other Parts of *Italy* did not come near these last in point of Excellency. The *Falernian*, the *Gauranian*, and *Massic*, were made from Vineyards planted on the Hills round about *Mandragon*, at the Foot of which passes the River *Garigliano*, antiently called the *Iris*. The *Cæcuban*, which differs nothing from the *Falernian* but in Age (this is that which

the *Latins* call the Length of Time which the Wines are able to preserve their Strength), was produced in the *Terre de Labour*, as were the *Fanlanum* and *Amylum* near *Gatta*, the *Suessanum* of *Suessa Pometia*, a maritim Territory of the Kingdom of *Naples*; the *Calenum* about the Town of the *Terre de Labour*; and also many others, with which that Province furnishes the City of *Rome*.

These Wines, which are very excellent in their Nature, acquired rather by Age, than by Art, a Degree of Perfection to which none of the other common Wines of *Italy* can attain.

The last, which the *Greeks* call *Oligophora*, and the *Latins* *Tenuia* and *Paucifera*, are very easily preserved by the Cold, or rather by a fresh Air, and grow eager by Heat. Those also which the *Greeks* call *Polyphora*, or *Multifera* and *Vinosa*, become more vigorous and spirituous by the Heat.

The Grapes of which the first are made, abound in crude Phlegm; the sulphureous Parts of the Must are more dilated. The last, on the contrary, are drawn from Grapes that are more ripe; of which the Must, or the sulphureous Parts which compose it, are concentrated and fixed by the Evaporation of the humid Parts which dilate it. To this may be added, the abundance of the Sulphur of these last, which is the Cause of the true Strength of these Wines; and it is by being opened that they acquire this Spirituousness. It was only to procure this Opening, that the Antients invented the preparing these Wines in the manner I am going to express.

Pliny informs us, That in the Year 633, from the Foundation of *Rome*, they lodged their Tuns full of Wine in Places covered, which were exposed

posed to the North, such as we now call Cellars.

On the contrary, those Casks which were filled with vigorous and spirituous Wine, such as *Polyborum*, were set in an open Place, and exposed to the Rain and the Sun, and all the Injuries of the Weather: those which contained Wines of less Strength, were kept under Covert: those which were full of a weak Wine, were put into an hollow Place, and covered with Earth.

Galen, in his Book *de Antidosis*. Chap. III. and in the *Treatise of Vines*, that is ascribed to him, remarks very much to the Purpose, That the Wines of the first Order, or *Polybora*, were preserved two or three Years in these cold Places; but if they let them lie there too long, they grew eager, if they did not remove them to warmer Places; as they used to practise in *Asia*, before the *Romans* had any Knowledge of it: and it was by this means that the People of *Asia*, as well as the *Romans* and *Greeks*, attained to the Art of making Wines keep so long.

The most ancient *Epocha* of the Preparation of these Wines among the *Romans* (as *Pliny* says) was about the Year of *Rome* 633. This Author, who lived a long time after in *Vespasian's* time, assures us, That these Wines had been kept for the Space of an hundred Years, and that they grew thick to the Consistence of Honey; so that they could not be drank without mingling them with Water.

He also adds, *Quo generosius est vinum, eo magis vetustate crassifit; i. e.* By how much more generous the Wine is, by so much the more it grows thick by Age: the same that is seen in our Days in the *Spanish* Wines.

This Thickness of the Wines, of

which I am speaking, is less extraordinary than that of the Wines of *Asia*, of which *Galen* speaks in his Book of *Respiration*; which being inclosed in large Flasks, and suspended near the Fire of their Chimneys, acquire, by the Evaporation of the Humidity, the Hardness of Salt. What *Aristotle* says of the Wines of *Arcadia*, exposed to the Fire and the Smoke, is yet more surprising: *Ita exsiccat in utribus, ut dera sum bibatur; i. e.* So dried in the Bottles, that it is scraped off to be drank: it was so solid, that they were forced to scrape the Flasks to drink it, and could not drink it without diluting it with Water.

The *Romans* prepared their Wines after the following manner: They took the Must that had run from the Grapes that had been trod; they put them into a wooden Vat, of which the Staves had been bound together by Hoops, or flexible Bands.

After the Wine had been fermented all the time necessary for separating the grossest Impurities, they drew it out of the Vat to put it into the Casks, where it continued to ferment; and to assist the Depuration, they mingled as much Plaster, or Chalk, or Clay, or Powder of Marble, or of Pitch, or of Salt, or of Resin, or of Lee of new Wine, or of Sea-water, or of Myrrh, or of aromatic Herbs, as they judged necessary; every Country having its particular Mixture. And this is what the *Latins* call *Conditura Vinorum*.

They left the Wine in the Casks until the Spring following: also many left them till the second or third Year, according to the Nature of the Wine and the Country; afterwards they drew it out, to put it into earthen Vessels, which they smeared on the Inside with melted Pitch, and marked on the Outside the Name of the

the Place from whence the Wine was made, and that of the *Roman Consuls*, in whose Consulate it was made. The *Latins* called this changing of the Wine from Casks to earthen Vessels, *Diffusio Vinorum*, or *Vina defendere*.

They had two different Sorts of Vessels; the one the *Amphora*, and the other the *Cadus*. *Pancirollus* and others say, the *Amphora* was of a square or cubic Figure; as to the Contents, Authors are not agreed, but most supposed they held about eighty Pounds of Liquor. This Vessel was contracted at the Neck. After it was filled with Wine, they stopped the Mouth close with Cork. The *Cadus* was of the Figure of a Pine-apple, which is supposed to contain half as much more as the *Amphora*. These Vessels, being stopped, were carried into a Room exposed to the South, situated in the highest Story of the Country-house where the Wine had been prepared. This Place was called *Apotheca*.

It was to dissipate the superfluous Humidity of the Wine, that they exposed these Vessels to the Heat of the Sun, and to that of the Fire, and of the Smoke, which has given to this Place the Name of *Fumarium*, because of the Smoke which was gathered by the Funnel through which the Smoke of the Fire was carried off, when it was lighted below.

These Wines could be kept for two hundred Years, and would, as has been said, arrive at the Consistence of Honey; during which, *Adhuc Vina ducentis fere annis jam in speciem redacta mellis asperi; etenim hæc natura vini in vetustate est*, says *Pliny*, Lib. xiv. cap. 4. So that it is troublesome to drink this Wine because of its Thickness; and, in order to render it drinkable, they diluted it with warm Water, to give

it a Fluidity, and afterwards they passed it through a Strainer; and this they called *Saccatio Vinorum*, as *Martial* says,

*Turbida sollicito transmittere Cæcuba
sacco.*

It is true, they had other Wines of the same Nature, which they did not pass through a Strainer; as the *Massicum*, which they only exposed during a Night to the Air, to procure a Fluidity and Depuration; as *Horace* says, Lib. ii. Sat. 4.

*Massica si celo suppones vina sereno,
Nocturna, si quid crassi est, tenuabitur
aura;*

*Et decedet odor veruis inimicus: at
illa*

*Integrum perdunt lixo viticata sape-
rem.*

This lukewarm Wine had been very disagreeable to drink, if they had not cooled it with Ice or Snow, whether in mingling it with the Wine, or setting the Bottles in Ice: the most luxurious mingled the Snow with the Wine, and passed it through a silver Strainer, which *Paulus the Jurisconsult* calls *Colum Vinorum*.

Of making Wine in Orleans.

The Grapes being cut, and carried from the Vineyard to the Press, they tread them either in a Scuttle, which they place there, or in a Vat, when the gathering of the Vintage is finished; or, in fine, they cast them into a Trough of a Wine-press to be bruised. Sometimes also they carry them directly to the Press; but this is when they would make Wine fit for present drinking, and that it is not at all fermented in the Vat.

Those who make use of a Scuttle to bruise their Grapes, cannot possibly tread the Grapes well, or at least they will be a long time in doing it, and have a great deal more Trouble, in that they are obliged to raise up with all their Strength, the Puncteons that they tread, to cast them into the Vat with the *Marc*, in order to work it all together.

The Manner of bruising the Grapes in the Vat when it is filled, is much worse than the first; in that notwithstanding all the Precaution that can be taken, and whatever time is allowed to endeavour to do this Work well, it is absolutely impossible it should succeed well; for when the Wine has been tunned as much as it ought, and they have put it on the Press with its *Marc*, there will be a Part of the Grapes that have not been half bruised; and this causes the *Marc* to yield less Wine, and there is not all the Colour that it might have; and therefore the Grapes ought never to be bruised this way, when it can be done otherwise.

But if this is a Loss to the Citizens, not to draw from the *Marc* all the Wine which is ought to yield, if all the Grapes had been well bruised; yet it affords an Advantage to the *Vignerons*, in that his Drink will be so much the better.

As there is an Inconvenience in treading the Grapes, either in a Scuttle, or a Vat, as I shall make appear, it will be better to make use of a Trough for a Wine-press; this is, without Contradiction, the best way to bruise the Grapes.

And besides, a Wine-press Trough will serve for four Panners, when the other will not serve for two; if they make use of a Scuttle; for according to the Measure that the Grapes are bruised in the Wine-press

Trough, the Wine falling into the Vat does not rise above the Grapes, by which it may be more easily known whether the Grapes have been well or ill tread before the *Marc* is turned into the Vat; or it is a great deal more easy to push it with the Foot, when the Trap-door of this Trough is lifted up, than to lift it up thence with bodily Strength; as they are obliged to do, when they tread in a Scuttle.

This Trough ought to be set in a kind of Litter, and placed upon or over the Vat; but when the Covering of the Structure where the Press is, is low, it must be placed over the Middle of the Press without a Litter; then there will be a little more Trouble, because it must be emptied into the Vat with a Bucket or Scuttle; but this is no great matter; there are Hands enough to do this Work.

The Grapes having been trodden, as before, the *Marc* may be thrown into the Vat, either with the Grape and Skins, or separated the one from the other: this depends on the Manner after which one would make the Wine.

When the Grape is tunned with the Skins and the Wine, it may produce two different Effects, the one of which will be good, and the other bad.

When it has been tunned a considerable time, the Wine is less green, less subject to be ropy, and better for keeping, than if it were done off-hand, or fit for present drinking.

But if the Grape be tunned too much, it takes from it much of its Quality, because it leaves an Hardness, which renders it not fit for drinking for above a Year in certain Lands; and in others it never loses the Taste of the Grape-stone; and when with this Excess of the Vat it has a Colour as red as Ox-blood, it

is a Wine which they call *Gresset*, or *Matin*; and it is commonly said, it is better to keep than to drink.

When a Wine has this Fault, one cannot render it drinkable, but by mingling it with good dry new White-wine.

Then it is this Excess of the Vat that renders our Wines hard, and makes them diseasted without any Distinction, although all our Wines are not made after this manner. But it is an easy matter to avoid this Fault, which renders our Wine contemptible.

There are those who tun the Grape-stone with the Skin, and would give to their Wine only that Degree of the Vat, which it ought to have, not to be strong, to draw it out from time to time by a Pipe, or by some little Hole which they make in the Vat; but this I do not approve of, for Reasons to be given in the following Article.

Others make use of a Vine-prop, or some other Piece of Wood, which they thrust into the Vat, from whence they draw it out quick, and let it drop into a Glass, where they examine if it have Colour enough, and if it makes a Circle of Scum, and boils and bubbles, which they call *Faire la roue*: others watch till the *Marc* is risen to such an Height, and make a Judgment by that.

As for myself, I am of the Opinion, that it would be a surer way to thrust one's Hand a pretty Way into the Vat (which I suppose to be raised, and to have been worked), to take from thence an Handful of the *Marc*, and to put it to one's Nose, as the Dyers do, to judge of the Disposition of their Vats: then one may know if the Wine be made, and if it has Colour enough.

When it smells sweet, you should let it work a little longer in the Vat,

until it has lost that Smell, and has a strong Scent that affects the Nose: then it ought to be taken; for one Quarter of an Hour at most is sufficient to force it.

A Wine taken in its proper Degree of the Vat will never taste of the Grape-stone; it will be always fit to drink, and will keep good for many Years.

I agree also, that the Wine that has been tunned too much, becomes tart and harsh, and that this is what takes away its Quality; and as it is the Grape-stone, and not the Skin, that causes this Tartness and Harshness, the Means to prevent this Inconvenience is, in being very careful as to the Degree of the Vat that is given to the Wine.

But as one may often be deceived in giving it too much or too little of the Vat, I think the surest way would be to ston the Grapes when they are trampled, before they are put into the Vat.

This Work would not be so much Trouble as it may be imagined; for one Stoner would suffice to employ one Treader, let him tread as fast as he can.

When the Grapes are bruised in a Wine-press Trough, several may employ themselves in stoning: one Method of doing it is, to put them into a Basket plated, &c. about six Feet long, four Feet broad, and ten or twelve Inches high; and that this may not prove any Incumbrance, it may be placed about the Middle of the Press, and have two Men to sift and separate the Skins from the Grape-stones.

I find that a Cribble is much more convenient; for it takes up less room; and there needs but one Man to work above, and the Work will be as easily or more easily done.

I have

I have seen many of these Cribbles; but that which I am going to describe, appears to me to be the most commodious.

The Cribble for stoning the Grapes ought to be made with Brass-wire, because that is more pliant, and does not rust so much, and lasts longer than Iron-wire. The Holes ought to be an Inch in Breadth, almost of an octagonal Figure; it is worked upon two Hoops joined together, the one upon the other: and when it is finished, it is to be covered with a third Hoop or Band, that is about four Inches high.

As the *Marc* is in falling, and the Wine being pressed out, and that it is cast in the Height of the Cribble, they put under it, to sustain it, a Band of Wood, or little Hoop, two or three Fingers high, which goes round at the Bottom of the Cribble; and, besides this, four iron Bars of the Thickness of a little Finger, because, if they were broad, the Skins of the Grapes would rest there, which would hinder the other from passing.

It is proper to put these iron Bars in such a manner, that two of the four may sustain the other two, and that they be all of the same Length.

The Ends ought to cross the two Hoops, and to cover the third; and they must be joined to many Places of the Trelace with a Brass-wire, which may be double or treble.

The Wood of the Hoop ought to be notched in two Places over-against one another, and about an Inch in Depth, and three in Breadth, according to that of the Staves upon which it is to be placed; and these Staves should be placed upon a Scuttle resting upon the Vat, above which they tread the Grapes.

It is also proper that these Notches be plated with Iron, and that they have two Handles or Grasps of Iron

pretty thick and round, to prevent the hurting the Hands of him that manages the Cribble, because it is weighty, and there is Occasion to remove it from Place to Place.

This Cribble may be about a Foot in Height, eight or nine in Circumference, and an Inch in Thickness at the Top, and something more at the Bottom, because of a Band of Wood that is placed round about to sustain the Trelace, as I have said before.

The Treader having bruised the Grapes instead of pushing the Mass in the Vat with his Foot, as is done when he would tun the Grapes with the Skin, it is taken either with a Bowl, or a Pail, or with the Hand, and put into the Cribble; then the Stoner separates the *Marc*, as well as he can, the Skin from the Stone, and casts the latter into a Vessel that stands near him: and when that is filled with the Grapes, they carry it to the Middle of the Press in a Pail, or in a Basket, and from time to time empty into the Vat (to which the Stoner is very near) the Skins and the Wine which are in the Vessel above, which has been stoned.

The Business of the Vintage-gatherers being finished, they put the *Marc* and all the Stones that are upon the Middle, and they lower the Plank to draw from thence the Wine that is found there.

Some give it another Bruising, but I believe very unprofitably; for that can't get out much Wine, and also that which they get from these Stones has nothing but an Harshness: but nevertheless one may, because there is a little of it, mingle it with the other that is in the Vat.

One *Marc* of Grapes, which one may reckon ten *Poinçons*, may yield about fifty Pints of Wine, or thereabouts. This depends upon the Size

of

of the Grapes, and the Heat which has been during the time of the Vintage-gathering.

The Wine being boiled with its Skin, it will be necessary to observe, from time to time, if it have Colour enough, and if it be sufficiently made, to be taken off: and when it is found that it is not yet red enough, the Marc must be thrust down in the Vat, in order to give it the Colour, and never to be forced. You may also cover the Vat with a coarse linen Cloth double, and put the Board of the Press upon that, in case one is apprehensive, that it will lose a Part of its Strength.

It is not the same, when the Stone is left to run with the Wine, because it can easily force; whereas this Inconvenience never happens when the Grapes have been stoned: for this Reason it ought always to be done; one is sure to have Wine well made, and such as may be kept many Years without spoiling, according to the time that it has been left to ferment.

And if all our Red-wines were made in this manner, we should not have occasion to say, as it has been said for a long time, that our Wines are harsh and coarse; for it must be agreed, that it is nothing but the Stone that gives it this bad Quality; which is, however, accidental, since I have offered a Method to remedy it, which may easily be put in Practice.

Many Citizens complain, that the Merchants won't give a greater Price for the Wine whose Grapes have been stoned, than for that which has not; but, in the mean time, it is better: it does indeed cost something more in making it after this manner, in that it takes up more time in pressing.

Upon this Account many Citizens have discontinued the stoning their

Grapes; but I do not approve of that: we ought to spare nothing to make good Wine: and I am persuaded, that there will always be found Merchants reasonable enough not only to make a Distinction between a Wine, the Grapes of which have been stoned, and that which has not, not only by their Taste, but in their Price too.

As the Grapes that are fermented without their Stones, are subject to grow ropy, it is good to prevent this Inconvenience in gathering them before they come to their full Maturity, and to give them but little Fermentation; it can then never be too thick, because the Grape-stone not being there, it is impossible it should force it.

During the time that the Wine is working in the Vat, one may pierce the Casks, and put into each of them about a Pint of Water; it should be boiling hot, or at least very hot: this will purify the Vessels, and render them more tight.

The Hole of the Bung being well stopp'd as soon as the hot Water has been put in, it should be shaken and turned on all Sides, to be able to see if it has Vent in any Place.

Some pretend that this hot Water will take away the Taste of the Casks; but I very much doubt of this.

In order to make this Experiment, it is requisite, that one be first sure, that the Cask has any bad Taste.

When the Casks have been seasoned and drained as dry as may be, they must be placed upon the Stilliers, and there set firm with Stones, or some other thing, to hinder them from rolling while they are filling.

The Basket that is hung up by means of a Prop to receive and hold the Grapes and Skins which fall from the Middle of the Press into the

the wooden Pipe, ought to be well cased up, to hinder the Stones from going into the Casks when they are filling, because when the Wine boils, it casts out the Scum, the Lee, the Skins, and the Stones, in order to purify itself; and sometimes a small Quantity of these is sufficient to stop entirely the Holes of the Casks.

But, to prevent this Accident, one may nail, at the small Hole at which the Wine runs down, a small Lattice of Brass-wire, of which the Holes must be very fine: then there would but a few of the Skins pass, and no Stones; and the Basket, which is very troublesome when one would empty the Pipe, would be useless.

One may yet, for the greater Security, have another Grate, and fasten it with Nails above the Socket on the Inside of the Funnel; but this Grate must be raised three or four Fingers, to the end that the Skins may not hinder the Wine from passing.

Before the Marc is begun to be put upon the Middle of the Press, I suppose the Press to be in such Condition, that nothing is wanting of all the Utensils that are necessary; for it would be an Imprudence to have, at this very Moment, any wanting that is necessary for the making of a Marc.

It is true, one may borrow of Neighbours what one may want; but it may so happen, that they may be using the Things at the same time, and that would be a great Disappointment.

The Screw being the most brittle and most necessary Part belonging to a Press, a Master ought always to have one in reserve, ready to be put in, in case of Need.

In like manner, the Feet of the Beams should be examined some

time before the Vintage, that they be not rotten; for that is the Place they commonly fail in: and when this happens, it is not so easy to remedy it, as it is to remedy a broken screw.

In order to make the Beams of a Press last a long time, when they are good of themselves, it ought to be so contrived, that they may always have the Air under the Middle of the Press; especially at the End of these Pieces there ought not to be either any Marc or Bar, and therefore it should be hindered from falling there.

Some make a small Piece of Brick-work round each of these Beams; and that is the best Precaution that can be taken to make them last a long time.

After the Press has been put in Order, and that the Wine has had its Degree or Time in the Vat, that it ought to have, or they can give it, it must be put upon the Middle of the Press.

When it is at a great Distance from the Vat, they make use of a Scuttle or Basket, or, if it be near, of a Pail: which they let drain upon a Board which bears at one End upon the Vat, where it is fastened with a Nail, or other thing, and the other upon the Middle of the Press. This Board should be bordered on both Sides with Ledges, fruit and well-joined, and about an Inch in Height, to hinder what drains out of the Basket from running on the Ground.

A Piece of Wood, with an Hollow or Chanel about an Inch deep, would be much better than this Board with Ledges; for they cannot be with Ease so closely joined, but that the Wine will find some Chinks to run out at, which will not be in this Wood thus hollowed.

Some,

Some, in order to empty their Vats more easily, put in a Pipe, through which they draw the Wine clear through a little Backing-tub made for this Purpose; out of which they take the Wine in a Pail or Pan-tle, to empty it into the Casks.

For this Purpose the Vat must be set high on a Sillings or Gauntry, and the Barth hollowed at the Place where the Pipe is placed.

Before the Wine is drawn off clear, you must always begin to unloose the Cover of the Vat, in order to prevent the Wine from forcing; and this must be done in such a manner, that he who empties has not the Trouble of lifting it up so high to put it into the Scuttle, or this Measure.

I own, that this manner of emptying a Vat is very commodious: I shall in the following Article, speak of the Inconveniency that may happen thence.

The Marc being placed on the Middle of the Press, they cover it with a Board, with Bolsters, Cushions, and Bags or Pillows: there must be two Rows of these last, and sometimes three, when the Marc is thin, because by how much less the Screw appears, by so much less is it in Danger of breaking; and as the Marc shall be thick, according as they have ordered it, there must be some Rows of the Bags retrenched; for it is sufficient that there is a certain Distance between the Wheel and the Screw, which would not be so if the Marc were very thick, or there were many Sacks.

There is no need to put the Ring of the Rope into the Hook, before the Wheel has been lowered on the Bags; and that you have examined if all is made even, and that none of the Bags are removed.

Before you begin to lower the

Wheel upon the Bags, the Screw ought to be well greas'd above the Nut of it, and also below, when it touches the Bags.

They also grease that Part of the Screw that was within the Nut-screw before they have brought it down to the Point where it ought to be; for the first Operation after the Plank of the Axle-tree has been let down, and before the loosening, the Screw must be soap'd on the Places where it has had none.

White dry Soap, without Oil, is the best for greasing the Screw: when Oil is mingled with the Soap, that draws the Rats, which gnaw the Screw; and it occasions a Gum, or thick Subtance, which makes it go hard when they press the Marc.

The Trendle ought also to be placed at a reasonable Distance from the Middle of the Press upon the Nave of the Wheel; and being well rubbed with Hog's-lard, the Trendle will turn the better: others make use of an iron Crow, which at least produces as good an Effect as the Nave.

When the Staves or Rammers are rather long than short, and that the Trendle is pierced with an Height agreeable to a Man of a middle Stature, they will have the more Force to press the Marc.

After the Plank has been let down, and the Troughs filled to a Pannier, or thereabouts, and they have afterwards added the Wine that comes from these Pressings, they give the first Squeezing, which ought to be followed by three others in a short time, because the *Auvernat* having in it much Fire, its Marc would dry quickly, and yield much less Wine, if there were much time between these Pressings.

It is not enough to grease the Screw of the Press the first Operation

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tion before the Balance is let down, when it is a Wheel-press; it ought to be done from time to time, especially when the Screw is perceived to be rough, or breaks in the Nut, when the Treadle is turned.

Some, before they give the Marc the last Operation, *barbager*; that is to say, they work it, or prick it with an Instrument of Iron, but without touching the Sides, because they choose to hinder it from falling on the Middle. They pretend that this little Squeezing makes the Marc yield about two Pints of Wine the Puncheon.

I have never made the Experiment; but this is seldom practised but in the Marcs of White-wine, because they are thicker, and not so hot by much as those of *Auvernat*.

The last Operation or Pressing being given, you may wait twelve or fifteen Hours for raising the Marc, that it may have time to drain; and they seldom raise it sooner, except they want the Press for making other Wine.

Altho' the Wine that comes out of one Vat is the same, yet they give it two different Names: the one they call *Unpress'd Wine*, and the other *the Wine of the Press*.

The first is that which comes from the red or white Grapes, when they have been trod, whether they have been tunned, or not; and the second is that which comes from the Marc after the Pressing. As this last has always a great deal more Colour and Harshness than the first, they mingle them together, to the end that they may make an equal Wine; and if they were not to do this, they would have one Part of the Wine of the same Vat too delicate and weak in Colour, and the other too red, and too harsh, which would

not be fit for the Merchants, who are for an equal Wine.

When I say the Wine should be equal, I mean only that of one Vat, and not of one whole Collar; for as all the Wine that one buys cannot be all spent at the same time, and that the Merchants search sometimes for Wine high-coloured, and a little firm; and sometimes for a Wine more delicate, and fit for present drinking; therefore it is, in my Opinion, the Prudence of a Citizen to have Tuns of different Degrees of Colour and Firmness, that the more delicate may be drank first, and the firmest some time after, or the Year following; for most Persons love old Wine better than new.

But it is yet more advantageous for a Citizen to have Wine that is rather a little firm than too delicate, because if that be not sold quickly, it may grow ropy, or be spoiled; when, on the other hand, that which is well mixed will keep a great while, and he may sell it a long time after.

It is true, the Merchants often slight, or rather seem to slight and reject, a Wine that has been but little fermented; but it is very often nothing but a little Chicane that those make use of who are employed to purchase Wines, to buy them the cheaper; therefore we must give them Leave to say what they will; but always give the Wine something of the Tun, because if it be not sold at first, it will at last; whereas, when it is made for present drinking, it must be sold as soon as may be, and perhaps under Price.

Some Persons, out of Thirstiness, or rather sordid Covetousness, fearing to lose a little Wine, never entirely fill their Casks; till the Wine has cast forth its greatest Fire; that is, they

they won't make it boil till it has no Force left; and there being only one Pannier full of Wine put into the Cask the next Day, or two Days after it has been filled, that has not the Force to warm it again sufficiently to make it boil.

This way of managing Wine is very wrong; for it causes all its Excrement to remain at the Bottom of the Cask, which augments the Lee, and often contributes to the spoiling the Wine, and to keep it for a long time foul, which therefore the Merchants reject.

It would be much better to fill it presently up to the Bung with the Pressurage, or with what has been pressed, which is taken from the Pressings that they give to the Marc, because the Casks being always full, the Wine purifies itself the more, and becomes clear in less time, and of Consequence is more palatable, and may be sold sooner.

It is not enough to fill the Casks up to the Bung the first time that the Wine is put into them; they ought to be filled many times; that is to say, as soon as the Boiling is over, Wine must be put in to excite it to boil; and the same thing is to be done the next Day, and afterwards for eight or ten Days every other Day.

The Necessity there is of filling the Casks as soon as the new Wine has been put into them, is proved by the Accident that happened to the Wines in the Year 1718. when the Season was too hot, and too dry, during the Months of July and August.

The Wines were then so extreme hot as to boil very low in the Casks, so that many, who had neglected to fill them at first up to the Bung, had their Wine turned sour; which did not happen to those who had used

the Precaution of filling them to the Bung, and keeping them full: and for this Reason, those who have many Tuns of Wine, ought always to take of the last they have made to fill all those Puncheons of the other Tuns; and when a Person has but one, he must put of Wine in a Cask called a *Guelbée*, to fill those Puncheons as far as to the Bung, as soon as the Wine has done boiling; then the Wine that remains must be put into the Casks or *Guelbée*, or into a very close Vessel, for fear of its evaporating, or losing its Spirit.

I will say, by-the-by, that many deceive themselves in making Wine these hot Years; for they let it ferment but a little, because it boils as soon as it is trod; but this but a false Boiling, which comes rather from the Fire that is in the Grape, than from the Working in the Tun; therefore it ought to be tunned a considerable time. It is in such Years the Grapes should the rather be stoned, and that the Wine should be sufficiently fermented.

It is true, there is some Inconvenience in filling the Casks up to the Bung the first time the Wine is put in, because it is impossible not to lose some of it; for it will mix with the Scum and the Lee which comes out at the Bung; but this Inconvenience may be remedied, by setting Gutters above the Bung, and Pans or Vessels of Wood under the Gutters, to receive all that which comes out.

And whereas some pretend, that Lead communicates an ill Taste to the Wine, it is the surest way to have them of Tin, in such manner, that nothing but the End of the Socket may enter into the Hole of the Bung; for if the Hole be made larger than that the Socket may play within it, the Gutter will be useless,

is left, because the Wine would run out between the Wood and the Socket.

There must also be a Vessel called *Guenabée*, to empty these Vessels in as they fill; and it should be covered with a thick double linen Cloth, and closed or fastened all round about with an Hoop, to hinder the Wiue from growing flat.

The Lee descends by little and little to the Bottom of the Casks, where it is joined with the Scum, which there falls together, and is incorporated with it.

Some Days after, the Wine being grown clear, they take away the Vessel, and the Lee remains at the Bottom. This Wine may be put in a Vessel by itself, without mingling with the Wine which is in the Casks out of which it came. Some say, this collected Wine is the more fine and strong; but others affirm the contrary: they may say what they will; but it is always true, that this Wine is very good, provided it has been kept very close in the Vessel where it was collected.

And I believe, that one might, without any Scruple, make use of it for filling the Wine: but, as to this, you need not consult either the Merchants, or the *Vignerons*; since the one have not Judgment or Sincerity enough, and the other are too much interested: and I speak with a Knowledge of the Matter, founded on the Experience I have had many times, and without any Interest but that of the Public.

Those who, from a covetous Temper, will not be at the Charge of procuring these Gutters and Vessels to receive the Wine of the Casks while they are boiling, have no Skill in it: for the Wine which they would save by this means, would make amends intirely the first Year

for the Expence they would be at in procuring them.

Others, that are afraid that they shall not sell their Wine, say, that the Merchants have always an Opinion in favour of that Wine, of which the two Sides of the Bung of each Cask are filled with Scum as far as the first Bands or Circles; and that they have a quite contrary Opinion of those where it does not appear.

It is true, that formerly they did mind this, and their Opinion might be well-grounded, because they never made use of these Gutters: but at this time their Opinion is altered; for they are persuaded, that these Gutters, being in Use, a Cask may have cast out all the Scum without its appearing at the Sides of the Bung, because it falls into these Vessels that are set to receive it; and likewise, that all the Wine that is there is well-mingled.

Besides, it is an easy matter for a Merchant to know if there be much Lee in the Cask; for he needs only to pierce it into the Lee, that is to say, at the Bottom, about two Fingers of the Notch of the Cask where the Head-pieces come in.

The Wine having cast out all its Scum, it will be proper to taste all the Casks into which it has been put, with the Intent, if any one be found that has a bad Relish, to surprise those of it who have furnish'd them, that they may put all the bad ones to their own Account.

Some say, that *St. Martin's-day* being passed, you cannot oblige the Merchants, who have furnished the Wine, to take that again which has been spoiled in the Casks, because they say it is the more difficult to remedy it: others pretend, that the Merchants are answerable three Months after the Casks have been filled,

filled, provided they have not been removed from off the Stillings.

When the Wine has done boiling, it must be covered with the largest Side of the Bung, to hinder it from evaporating; and eight or ten Days afterwards it must be filled full, and bunged up.

Some make use of Bungs about half a Foot long, because they can take them away without daubing the Casks with the Scum. But I am of the Opinion, that broad Bungs are better, and to make two Holes on the Side, the one about the Bigness of a little Faucet, the other about the Bigness of one's little Finger, that a tin Funnel may be put in, having in it a Piece of Tin soldered about two Inches from the End; the Holes of which may be as big again as those of a Tobacco-grater, to the end that when one uses it to fill the Casks, neither Stone, nor Skin, nor Kernels, nor Lec may pass: the great Hole serves for the putting in of a Funnel, and the other to give Vent for the Casks during the time the Wine is poured in them.

This little Hole ought to be made at the time that the Casks are bored, so put in the Wine with the great wooden Funnel; for if the Socket does exactly fill the Bung-hole, the Cask would fill but very slowly, if it had not vent given it by the little Hole.

When it is done after this manner, the Tuns are not daubed with the Scum; it is not disturbed, as is done in striking in the Bung, and the Wine will have less Vent.

You must be sure to fill the Wine every fifteen Days after it has been bung'd, until towards St. Andrew's day; you are not to meddle with it any longer till after the Severity of the Winter is over, which common-

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ly happens towards the Middle of February, because the Frost may make it swell.

The *Auvernat* is not the only Red-wine that we have in this Vineyard-plot; there are also other Wines made that have the same Colour, but are of a different Quality.

There is, for Example, the *beau Lignage*, or the *good Wine*, and that which is made of all Sorts of Grapes, As to the first, it is made up of the Red *Auvernat*, the Teint, the Grey, the White, the tender *Samoireau*, the *Melier*, and all the best Sorts of red Grapes.

The second is composed of all Sorts of Grapes, good and bad, but more of the latter than the former; whence it is easy to be comprehended, why the one has less of the Quality than the other; and as this second is generally spent in the Country, they make it all manner of ways, either fit for present drinking, or firm, or hard, according to the Occasion they have for it, and the Quantity they are to provide. As to the other, they don't fail to make it, and often send it to *Paris*.

All these Sorts of Grapes are not gathered with the same Care as the red *Auvernat*, which cannot bear the Water; nevertheless the Wine is the better, when the Grapes, with which it is made, are cut in a Season that is rather hot and dry, than cold and moist.

We have, in some Places of this Vineyard-plot, three Sorts of Red-wines, which bear the same Name, which nevertheless they distinguish the one from the other: there is the tender *Samoireau*, the hard, and the *Fauichs*, which have all three different Qualities.

The tender *Samoireau* does very well in the Lands of the *Olivet*, Sr. *Masuis*, and *Clery*, where it is more

plentiful

plentiful than any-where else. They make of it a particular Wine, which will keep a long time, provided it have no Mixture, and that they give it but little of the Vat; this renders it firm, and prevents it from growing ropy.

This Grape may be mingled with the red *Auvernat*, because they both ripen at the same time. The *Samoireau* gives the Colour to the *Auvernat*, it sustains it, and causes it to keep a long time; but you must put only a small Quantity, for fear of intirely absorbing the Quality of the *Auvernat*, which after it has lost, it also loses its Name, and is no more regarded, but as a good *Vin de Lignage*, or one composed of all Sorts of Grapes, which is vulgarly called *Vignerons Auvernat*; very different from that of the Citizens, which is in a manner pure *Auvernat*. When one would render this *Vin de Lignage* yet better, he may put to it a fourth Part of good *Melior*.

The hard *Samoireau* is a little higher-coloured than the tender; when it has but its proper Degree of the Vat, they may mix one or two Puncheons of White, and a little less, when they tun it: they should also, when it may be done, take a *Melior* of a better Kind; for this Wine has not much Fire. When it is pure, and it has passed the Year, that Quality diminisheth; it is then proper to make use of Rapes, not of Chips or Shavings, but of Corn, without putting Grapes to it, as some do; for that renders it hard, and disagreeable to drink.

It is sufficient to put a third part, or at most an half, of the Seeds into a Puncheon; and after that they fill the Wine up to the Bung. They make use of these Rapes to put off the Grounds or Bottoms of Wine, and the weak Wines, which they

also mingle sometimes with them. The third Kind of *Samoireau*, of which I shall speak, renders them the better for keeping.

The *Samoireau Fourchu* is the best of the three Kinds; this is proper to give the Colour to the others, and to sustain those that are weak, and to restore those that have any Defect.

In order to know the Colour, they cast some of it against a Wall; and according to the Impression it makes, they judge of the Effect it will produce.

One single Puncheon of that will colour six of White, and sometimes more, according as the Seasons are hot, and the Quantity of the Wine that the Vineyard has yielded. This Wine is not only good to drink, when it is taken in time, but it serves for a Remedy against the Dysentery, and other Maladies. Its Marc is good against Rheumatism.

This Plant has a Virtue that is not found in any others, because the longer it is kept, the better it is: for it is better for drinking at the End of twelve or fourteen Years, than one or two Years after it has been made.

Some put it into Bottles, but it keeps equally as well in Casks, provided Care be taken to keep them always full, and to observe that the Casks don't want Hoops; and it will be proper to put on several iron Hoops at each End.

The Wine, the Marc, and the Wood, or rather the Ashes of this Plant, have also a great many other Properties, which I shall not relate.

The time of gathering these two Species of *Samoireau* comes much later than that of the first; that ripens at the same time with the *Auvernat*.

The Territory of *Mardic* is the most proper for these Plants, and that

that which produces the most of it (I mean of the hard and *Fourchu Samireau*): there is of it at *Bou* and *Cbeci*, and but a very little in any other Places of this Vineyard-plot.

As the *Fourchu* never produces more Wine than when it is a little old, many, eager to enjoy the Fruit of their Labours, and their Expences, have not Patience to wait so long; and therefore they pull up those of them they have, and can't resolve to plant them when they have them not.

Nevertheless this is a precious Plant, and one may judge of it by the Effects that it produces, and by the Price which it bears; for it is commonly sold for double the Price of the best Wines of this Country: and I don't know but that those who destroy them, and those that don't raise them, will repent it one time or other.

As there is not much to be said of the manner of making White-wine, and having taken notice of it at the Beginning of this Article, I shall say but little of it particularly.

Although there are many Kinds of White Grapes, yet they make, as one may say, but two Sorts of Wine of them; the one is the moist, the other is dry Wine.

The first, such as the *Muscat*, or the *Gardin* of *St. Mesmin*, those of *Marigny*, of *Rebrechein*, and other neighbouring Places, may be looked upon as the most precious, in that they bring the Money into the Kingdom, rather than the dry Wines; for they send them into *Holland*, *Flanders*, *England*, &c. To render this Wine the better, they don't content themselves to see that the Grapes have their perfect Maturity, and be half-rotten; they wait oftentimes till the Frost has taken them,

to have the Wine which they call *Bouru*, and in some Years they defer the Vintage until the 15th or 20th of *November*, and it is then sometimes so cold, that the Icicles hang upon those Grapes that perished, so that they are obliged to carry Fires into the Vineyards in great Pans, to warm the Gatherers.

It is true, that those who tarry so long before they gather, have a great deal less Wine than others; but then at the same time it is much better, and sells a great deal dearer; so that I believe it comes much to the same, or very near the matter.

The Wines of which I am speaking, altho' sweet of themselves, they have nevertheless not always the same Degree of Liquor; this depends upon the Condition of the Season, that is to say, by how much the Summer and Autumn is the hotter, the Wine has the more Liquor, and it has a great deal less when the Season is the contrary.

What I say is so true, that the Season having been very hot in the Year 1719. the sweet Wines themselves had abundance more Liquor than ordinary, and kept good more than a Year; the dry Wines also of many Places were sweet and clear.

Some Red-wines were likewise very soft (which is very rare), and held good till the Month of *February* in the Year 1721. It is true, they were thick, and that they did not become clear till the time that they lost their Sweetness, which altered their Strength.

The Softness of the White-wines being over, they were nevertheless good; but as there remains a certain Flavour, which pleases the Palate of most Persons, it is best to sell them, and spend them as soon as may be.

One may know by Experience, that good Grapes almost always make good Wine. Among the white Grapes, without Contradiction, the best are the *Melior*, and the white *Auvernat* of the *Low-Countries*; as the white *Formentes* or *Bourgnignons*, the *Maldeneaux*, the *Framboises*, the white *Gois*, &c. make a Wine, which is better to throw away than to drink; yet the Vineyards of the *Vignerons* are stuffed with these wretched Vines, because they yield more Wine, and for the most part better resist those Accidents that happen to a Vineyard; for these People have no regard to any thing but the Quantity, which is the Reason, that they do not ordinarily sell their Wines to that Advantage as the Citizens do.

The white Grapes cannot be gathered too ripe, because the riper they are, the more Wine they produce, and their Rottenness does not give it any bad Taste; but when it is begun before they come to their full Ripeness, they are subject to grow yellow; yet regard is to be had to those Lands of which the Wine is subject to grow rosy.

For this Reason, when they are gathered, it is good that the Grapes have a little Greenness, to the end that the Wine that comes from them may be able to keep dry; to which the white *Auvernat* of the *Low-Countries*; and the green *Melior*, contribute very much: the last hinders the Wine from being rosy, and the first makes it clear; and for this Reason it is good to plant of it with the *Melior*, because at the time of gathering they may be both mingled together, and make a Wine without any Fault.

One ought to endeavour not to gather the white but when the Weather is fair; a rainy Season is not so

favourable: for one ought never to mingle Water with the Wine that one makes, tho' some are not over-scrupulous as to this Point. It is true, the Inconvenience is not so great in respect to the *Auvernats*; but that should not hinder one always endeavouring to make good Wine; for which Reason it is best to gather the Vintage in a dry, hot time.

As the White-wine is not tunned, when they bring the Grapes in Panniers from the Vineyards, they empty them directly on the Middle of the Press, where they trample them with their wooden Shoes; the broadest and smoothest are the most proper for this Work.

The Grapes ought to be trod immediately, that is to say, every Pannier as they bring them from the Vineyard; otherwise the Wine would be yellow, and this Colour is disagreeable to the Sight, and still more to the Palate, and consequently gives the Wine a bad Quality.

According as the Grapes are pressed on the Middle, and that the Pipe fills, they empty it to fill the Puncheons or the Quarter-puncheons to a Pail-full, or thereabouts, according to the Largeness of the Cask wherein 'tis put. To make it boil, they fill them up to the Hole of the Bung with the Wine which comes from the two first Pressings, and that which remained in the Pipe before they gave the two first Squeezings; and that which the others yield, serves to put into the Wine when the first Boiling begins to be diminished.

One ought always to give to the Marc, whether it be white or red, four Pressings, without taking in the lowering of the Beam; that is to say, that it ought to be cut four times.

Some give it the third Working, with an iron Gripple in the Middle of the Marc; and they leave all round about half a Foot in Breadth, to keep in that which is wrought; and at the fourth Pressing they cut the Border that they left, and put it back upon the other.

They pretend, that a Marc so ordered yields the more Wine. As the Marc of White-wine is the more thick, and has less Fire than the *Auvernat*, it does not dry so quickly; for this Reason there ought to be longer Times between these Squeezings.

They give them these commonly in the Night-time, because they do not lower the Beam but when the Day's Work is finished, when the Men who are to work the Marc have supped.

When the White-wine is cold, it must be fill'd up, and bung'd, and kept always full, at least if it be not in the Depth of Winter; for when this kind of Wine is emptied, it becomes yellow in most Countries; but when this happens, it is easily remedied, either by stirring it with a Stick of Hazel cleft into four, which is put in at the Bung-hole, or in shaking briskly the Puncheon, which they leave sometimes on the Bung, to the end that the Lee that descends thither, and afterwards is mixed again when the Cask is turned up, may take away the Yellowness.

Of Wines, and vinous Liquors, in general.

WINE is a brisk, ageable, and spirituous Juice, drawn from vegetable Bodies, and fermented.

Dr. *Boerhaave* characterizes Wine, that the first thing that it affords by Distillation, be a thin, fatty, inflammable, &c. Fluid, called a Spirit; and in this it is distinguished from

another Class of fermented vegetable Juices, *viz.* Vinegars, which, instead of such Spirit, yield, for the first thing, an acid, uninflamable Matter.

In order to the making Wines, it will be of great Advantage to be well acquainted with the Business of Fermentation. This Dr. *Boerhaave* defines and explains as follows:

Fermentation is a Change produced in vegetable Bodies, by means of an intestine Motion excited therein; the Effect whereof is this; that the Part which first rises from them in Distillation, is either a thin, fat, acrid, hot, transparent, volatile, and inflamable Fluid, that will mix with Water; or else a thin, acid, pellucid, less volatile, uninflamable Liquor, capable of extinguishing Fire.

The Liquor obtained by means of Fermentation, is called thin, because none appears to be thinner than the Spirit of fermented Vegetables; acid, because it almost acts like Fire, when applied to the Tongue, or other Parts of the Body; volatile, because there appears to be no Liquor, that is raised with greater Ease; but 'tis this Liquor being totally inflamable, and at the same time capable of mixing with Water, that ultimately distinguishes Fermentation from all other Operations in Nature; for neither Putrefaction, Digestion, Effervescence, nor any thing of that kind, will ever afford a Liquor at once possessed of those Qualities.

Putrefaction, indeed, as well as Fermentation, is performed by means of an intestine Motion; but the former will never produce either of the Liquors above described, as the Effects of Fermentation, that is, neither a vinous nor acetous Liquor.

We see then, that there are two different Effects of Fermentation, the Production of an inflamable Spirit, and an uninflamable Acid; and

Whatever Operation will afford neither of these Liquors, is improperly called Fermentation; which therefore can only take place in the Vegetable Kingdom: For all the Art in the World, so far as hitherto appears, will never gain such Spirits from Animals or Fossils; and, consequently, never excite an actual and real Fermentation in them: for Fermentation is the single Operation in Nature, by which such Spirits can be obtained.

2. Any vegetable Liquor, so fermented, as to afford the inflammable Spirit above-mentioned, for the first thing in Distillation, we call *Wine*; but if the Liquor be so fermented, as first to afford the acid unflammable one, 'tis called *Vinegar*; by which we mean every thin, acid, volatile, vegetable Liquor, capable of extinguishing Fire. So likewise, under the Name of *Wine*, we include Beer or Ale, Mead or Methelin, Cyder, Perry, all Sorts of artificial Wines, and whatever Liquors afford Spirits possessed of the Properties before set down.

The like is to be understood of *Vinegar*, which is obtainable from all the same Bodies that afford *Wine*: So that we have either the *Wine* or *Vinegar* of all Sorts of Fruits, as of Grapes, Currans, Mulberries, Cherries, &c. all Sorts of Grain, as Barley, Wheat, Oats, &c. all Sorts of Pulse, as Beans, Peas, Tares, &c. all Sorts of Roots, as Turneps, Carrots, Radishes, &c. and, in short, of all Sorts of vegetable Substances, even Grass itself.

3. All the Bodies capable of being changed by Fermentation, either into *Wine* or *Vinegar*, are said to be fermentable Bodies; and, because such a Change can only be wrought, so far as we know at present, upon Vegetables, these alone are accounted fermentable.

4. Any Matter which, being mixed

with a fermentable Body, increases its intestine Motion, or excites or forwards the Fermentation, is called a Ferment: and, according to the Doctrine before delivered, nothing can properly be called so, but what will produce either *Wine* or *Vinegar*.

These fermentable Bodies may be reduced to the following Classes:

The first Class will consist of the mealy Seeds, *i. e.* all the Grain, which, being fully ripe, and well dried, may be reduced, by grinding, to a light Meal or Flour, that is neither clammy nor unctuous.

The second Class consists of all the pulpy Summer Fruits, which, when ripe, affect the Tongue with the Sense of Acidity and Sharpness, as Apples, Pears, Grapes, Gooseberries, &c. Under this Class may be ranged all manner of bulbous pulpy Roots growing in the Ground, if they are but first deprived of their volatile alkaline Salt, which is apt to determine them to Putrefaction.

The third Class takes in all the juicy Parts of Plants, as the Leaves, Flowers, Stalks, and Roots, provided they are not too oily, or too alkaline, in which Cases Vegetables will rather putrefy than ferment.

The fourth Class contains the fresh-expressed and native Juices of all Kinds of Vegetables; to which may be added, all the native, saline Liquors that distil from wounded Plants, as the Tears of the Vine, the Walnut, the Birch-tree, &c.

Under the fifth Class come the most perfect of all vegetable Juices, *viz.* those that are unctuous, condensed, and elaborated by Nature herself, such as Honey, Manna, Sugar, and all other Kinds of concreted Juices capable of dissolving in Water.

In order to fit any of the fermentable Bodies for Fermentation, there are several Particulars requisite:

1. Matu-

1. Maturity; the Juice of unripe Berries, as of Currans or Gooseberries, for Instance, will scarce be brought to ferment at all, while it is very difficult to hinder their Juice, when fully ripe, from falling spontaneously into Fermentation.

Thus the Juice of unripe Grapes, being incapable of fermenting, is a rough, acid Liquor, called Verjuice, that will for several Years remain in the same unactive State; but, after they are come to Maturity, it can no sooner be pressed into the Vessel, than it becomes a fermentable spirituous Fluid.

2. Another Requisite to prepare a Body for Fermentation, is, that it should contain only a moderate Proportion of Oil; for if it either exceeds in the Quantity, or be intirely destitute of Oil, it will never be brought to ferment at all. Thus Almonds, Fennel-Seeds, &c. are always deprived of their Oil before they are attempted to be fermented.

3. The Bodies intended for Fermentation must not be too acid, or austere; as is plain from the acid Juices of unripe Fruits, which are greatly indisposed to ferment.

4. The last thing required to fit and prepare a Body to undergo Fermentation, is the Property of dissolving in Water: for want of which all acid Bodies, and such Woods, Roots, and Herbs, as are dry and hard, become unfit for this Operation; for unless the Parts of these Bodies are dissolved, the requisite intestine Motion thereof will not ensue; but, without such Motion, Fermentation cannot subsist.

Hence Honey itself can never be made to ferment, whilst it retains its native, thick Consistence; but, being dissolved by Heat, or let down with Water, it immediately enters the State of Fermentation. On the other

hand, so violently as the Juice of Grapes affects this State, yet, if immediately after it is expressed, it be reduced, by boiling, to the Consistence of a Jelly, it will lie quiet, and never ferment at all, unless it be again diluted, and let down with Water:

Ferments are of two Kinds, the natural or spontaneous, and those produced by Fermentation.

The spontaneous or natural Ferments are,

1. All the fresh-expressed Juices of fully ripened Plants, which easily run into Fermentation.

2. Honey, Manna, Sugar, and the like thick and inspissated vegetable Juices, which cause a strong Fermentation.

3. The Ferments produced by Fermentation are the fresh Flowers or Yest of any fermenting vegetable Juice or Liquor, as of Wine, Beer, &c. By Flowers, or Yest, is to be understood, that light frothy Matter, which covers the Surface of the fermenting Liquor, in the Nature of a tender Crust, and which being added to any other fermentable Juices, will excite a Fermentation in them.

3. The fresh Forces, or Lees, of any fermenting Liquor; as of Wine, Ale, Beer, &c. For all Fermentation divides the Liquor, which is the Subject of it, into three Parts; viz. the Flowers or Yest, which possess the uppermost Place; the operating or fermenting Fluid, which lies in the Middle; and the gross and seemingly exhausted Matter, which falling to the Bottom of the Vessel, is known by the Name of Lees, Sediments, Feculence, or Mather, that will, if raised again out of the Liquor into which it was precipitated, cause it to work afresh.

Thus, when an Hoghead of Wine has done fermenting, and is fined

down, if the Vessel be any way shook or disturbed, it will grow turbid again, and ferment anew, as Vintners very well know: for such as were the Flowers in the Act of Fermentation, such is the Mother after the Action is over.

5. Acid Paste, or Bakers Leaven, which is no more than any kind of Meal brought into a close Lump by means of Water, after the same manner as common Bread is made; for this being set in a warm Place during the Space of four or five Days, it will first swell, then turn very acid, and at length become a Ferment.

6. Those Ferments which reside in, or stick to the Sides of the Casks that have contained fermenting Liquors; for such Casks will of themselves raise a Fermentation in the Liquors committed to them; and Helmont was of Opinion, they might be capable of doing this for ever.

Upon account of this inherent Ferment it is, that old-seasoned Vessels, or such as have been long employed by Vintners or Brewers, bear so great a Price among them.

It is very remarkable, though a thing well known to Brewers and Vintners, that a new Cask checks the Fermentation of vinous Liquors, and renders them weak and spiritless; for which Reason they never choose to make use of such a Cask before it is seasoned, as they call it, by having first contained some spirituous or fermented Liquor or other, which being plentifully drunk in by the Wood, the original Liquor comes to be deprived of a large Proportion of its Spirit, and more fermentable Part; whence the Remainder must needs taste flat and vapid.

This is certain, that even Must itself will not easily ferment in a new pure Vessel, but with the greatest Facility, if put into one that has be-

fore contained fermenting Juices; for the Parts of the fermenting Liquors, with which such a Vessel must have been impregnated, presently rouse and determine them to Action.

7. There are some Ferments that appear to be heterogeneous, or which are improperly called Ferments; as the White of an Egg beat into a Froth, which is used when the Liquor to be fermented proves too dilute or thin to sustain the Operation: for in this Case the fermentable Parts of the Fluid easily extricate themselves, and so fly off for want of something to detain and keep them in the Body of the Liquor; which therefore requires some viscid Substance to be mixed with it, in order to prevent this Avolation of its subtilis Parts: and this cannot be more commodiously effected than by the White of an Egg.

8. Of the like heterogeneous kind of Ferments are all fixed and acid Salts: Thus, if the Liquor designed for Fermentation be too acid to work kindly, the Addition of an alkaline Salt, as that of Vine-branched, or any saponaceous Substance, will, by taking off from the Acidity, set it for, and so promote the Operation; but if the liquor be of itself too alkaline, then Tartar, or the like, ought to be added to it, to promote the Fermentation.

But this does not happen, because either the acid or alkaline Salt is an actual Ferment, as some Chymists have vehemently contended for the Alkaline, because the Salts employed respectively temper and take down the predominant Acid or Alkali, which before hindered the Fermentation of the Liquor.

And if such Salts should in due Quantities be mixed with any proper Subject of Fermentation; possessed of all the Qualities before set down, as requisite to it, the Operation would be

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be intirely checked: and prevented; so that alkaline Bodies may as well be said to hinder as promote Fermentation.

9. And lastly: Of the same Sort are certain austere or rough-tasted Substances; as all harsh and green Fruit, Pomegranate Bark and Flowers, the Tamarisk Bark, Crab-apples, Juncipe Medlars, &c. which, when the Liquor designed for the Fermentation is too much broken in its Parts, or dissolved in its Texture, bind it together again by its astringent Quality; so that though it was before too thin and aqueous, it is now reduced to a proper Consistence for Fermentation.

Thus, when Must proves thin and watery, it will not ferment kindly, unless some austere or astringent Ingredient, as Red-ruse-leaves, or the like, be added to it, to thicken and improve its Consistence, and at the same time prevent the Air it contains from making too easy an Escape.

But when a Liquor is too austere, or its Roughness proves so great, that it cannot ferment; the Addition of a fixed Alkali, in a proper Quantity, will remove the Obstruction, and leave it at Liberty to work.

So likewise, when the Operation is prevented by too large a Proportion of Acid in the Liquor, the Method is to throw Chalk, Crabs-eyes, Bole-armoniac, or the like, into it; but if it be too unctuous or oily, as in the Case of some Spanish Wines, Salt of Tartar is made choice of; and thus, as Circumstances alter, different Bodies are employed to stop or promote Fermentation in Liquors.

In order for fitting the Subjects of the second Class for Fermentation, and making vinous Liquors, viz. pulpy Summer Fruits, and the Roots of bulbous Plants, in case they prove crude or hard; they are to be first

boiled in Water, and afterwards bruised; which will dispose them for Fermentation: but if such Subjects are juicy, they may be directly ground to a Pulp, or have their Juice pressed from them; or if they are very succulent indeed, there may be no Occasion to bruise them, only directly to commit them to the Press, and squeeze out all their Juice.

But if the Flesh or Substance be strong and tough, it may be proper to rasp, shave, or cut them into small Pieces; which will be of Service in some bulbous Roots, and make them yield their Juice with the greater Ease, and in greater Plenty.

Prepared Fruits seldom stand in need of any thing to make them ferment; for they generally begin to work of their own accord; but if the Weather prove exceeding cold, or the Operation proceed but languidly, it may not be amiss to quicken it, by adding a small Proportion of a Ferment, as a little Yest, the Lees or Mother of Wine, or even a little new Wine may serve the Turn.

The Subjects of the third Class, viz. the succulent Parts of Plants, need only, in order to their Fermentation, be beat to a thick kind of Pulp, while they are fresh, and mixed with a proper Proportion of Rain-water, that is, just enough to dilute them; for if much Water be employed, the Spirit will be the weaker for it.

These require but very little Ferment, or none at all, to make them work in the Summer Season; and no large Proportion in the Winter: but in case any at all be required, nothing will prove more serviceable than Honey or Sugar.

The Subjects of the fourth and fifth Classes, viz. the fresh, native Juices, and weeping Equors of Vegetables, with the condensed and unctuous

unctuous Juices of the same, are to be diluted and let down with Rain-water to a due Consistence; which is then commonly thought to be obtained, when the compound Liquor will just keep a new-laid Egg afloat: but some vegetable Juices may naturally be of this very Density of Consistence; and in that Case they will require no Water at all: if any be thicker or denser, they ferment not so kindly; and if thinner or rarer, they afford but a weak Spirit. Thus, in order to ferment Sugar, Treacle, or any common Syrup, we first let down the Matter with Water to the Consistence above-mentioned; and then, if there be Occasion, put Yest to it to quicken the Fermentation, and make it proceed kindly.

The Subjects of the fourth Class, *viz.* the prepared recent Juices, and spontaneous Tears of Vegetables, are so far from requiring any Ferment, that it often proves very difficult to restrain or check the Fermentation they naturally fall into, especially if the Season be warm, and the Juices rich; at most, if the Weather should prove cold, they need only be set in a warm Place to make them work.

The Subjects of the fifth Class, *viz.* the prepared or inspissated Juices of Vegetables, require no Ferment at all in the Summer, and but a small Proportion in the Winter, to set them on working; less than an Ounce of Yest to twenty Pints of prepared Liquor will usually suffice for that Purpose in the coldest Season: but in hot Countries, or sultry Seasons, these prepared Juices, and especially Sugar, are of themselves apt to fall into a too violent Fermentation; which therefore ought to be abated by the contrary means.

All the vegetable Bodies of these several Classes designed for Ferment-

ation, and prepared for it in the foregoing manner, ought, together with their Ferments, to be committed to Casks of Oak already seasoned or imbued with the same kind of fermented Liquor, or some other, consisting of subtle and penetrating Parts: then those Casks or Vessels having their Bung-holes lightly covered with a thin or single Cloth, and being set in a warm Place, the Liquor will ferment.

The Mouths of the Vessels are thus slightly covered over, that the Air may have a fresh Passage in and out at them; for they are here designed to serve as Vent-holes. And these Vessels are ordered of Wood, because Fermentation is never observed to be so well carried on in those of glazed Earth or Glass; tho', on account of their Transparency, 'tis sometimes performed in the latter, that the Phænomena may be better observed.

The preparatory Business of Fermentation, hitherto described, has been carried on by Art; but Nature must now perform the rest of the Work; so that we are here only concerned to observe the Phænomena which arise in the Operation.

When, therefore, any fermentable Body is prepared, after the manner above delivered, and with its due Proportion of a Ferment, committed to a large strong Glass Vessel, standing in a warm Place;

1. The whole Body of the Liquor soon begins to swell, heave, rarefy, and send up little Bubbles to the Top of the Vessel, where they burst with an audible Noise, and form into Froth: now the Liquor, which was before transparent, grows opaque, and a violent, uninterrupted, intestine Motion manifests itself therein.

2. The Parts of the fermenting Fluid appear to be incredibly elastic, and

and the Motion of them exceeding violent. Indeed, by means of this Property of Fermentation, very terrifying and surprising Actions may be performed. Thus, if an hundred Pints of Must were, on some warm Day in Autumn to be confined close in a Vessel of Oak, above an Inch thick in the Sides, and made ever so tight and strong with iron Hoops, yet could not this prevent the working of the Liquor; but, in spite of so great a Resistance, it would burst the Vessel, with a Report as loud as that of a Cannon.

And therefore the way to preserve new Wine in the State of Must, is, to put it up in very strong, but small Calks, firmly closed on all Sides, by which means it will be kept from fermenting; and then it goes by the Name of *Stum*: but if it should happen to fall into Fermentation, the readiest and only way to stop it, is by the Fume of Sulphur, or something of the like Nature.

Were it not for the Knowledge of this Property of burning Sulphur, the Wine-merchants and Vintners might frequently sustain great Damages from the bursting of their Vessels, when the Liquor is upon the Fret, or, by some Alteration in the Air, or other Accident, begins to ferment again: but the Smoke of a little common Brimstone, or a lighted Match dipped in it, and held under a Cask of Wine that is just ready to burst its Hoops, will calm its Fury, and make it subside as suddenly as a Spoonful of Oil thrown into a large foaming Copper of boiling Sugar, takes down its Heat, and prevents the Mischiefs it might otherwise occasion.

3. A thick Skin, or crusty Scurf, forms itself on the Surface, through which the elastic or fermenting Matter is continually breaking. This

Crust appears to be the principal Cause of Fermentation; for it keeps in, or prevents the spirituous Part of the Liquor from flying off; and if it be frequently broken, it puts a Check to the Fermentation, and will often intirely stop it, if wholly taken away.

4. This Skin or Crust, which we now call Flowers or Yest, gradually consumes and precipitates to the Bottom of the Liquor; in which Case 'tis called by the Name of *Fæces* or *Mother*; and after this, the Fluid above it immediately becomes transparent again, ceases to hiss and bubble, has a very penetrating, pungent, spirituous, or vinous Taste and Scent, with a Mixture of Acidity and Sweetness: and now the Liquor, having undergone the Operation of Fermentation, is become Wine.

The Vapour arising from the Liquor, during its Fermentation, ought not to be approached too near, or breathed in too great a Quantity, because it is highly poisonous; and if it prove not mortal, may, at least, render the Person apoplectic or paralytic. We have Accounts in the *French* and *German* Transactions, of People who were immediately struck dead by receiving at the Nose the Fumes that issued from large Vessels of Wine in the State of Fermentation.

And now, if the Liquor thus fermented be stopped down close, it will begin to work or feed upon, and digest its own Lees or Mother, and at length consume them: in which Case we commonly say, the Wine begins to ripen; and afterwards this Mother floats to the Sides of the containing Vessel, and there appears in the Form of an essential Salt, which is then called *Tartar*.

The Space of Time required for finishing the Fermentation, differs with the Subject-matter, the Season

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of the Year, the Nature of the Place, and other Circumstances; but 'tis known to be perfectly performed by the several Phænomena just now mentioned.

As soon as ever the Flowers fall to the Bottom, the Vessel should be bunged down; otherwise the volatile Part would fly off, and the fermented Liquor become vapid and flat.

In this State it ought to stand for some Weeks in a cool Place, by which means it will grow stronger and more liquid; for during this time it imbibes and consumes its own *Fæces*, which abound in subtle, spirituous Parts, and grows soft, and loses of its Acidity by throwing off its Tartar.

And the longer it is thus suffered to stand, the more Strength it gains, or the more Spirit it will yield in Distillation.

Thus, for Instance; Malt Liquors newly brewed afford but a small Quantity of Inflammable Spirit; but if suffered to remain for some Weeks in the Vessel, till they become fine and clean, they will yield a much greater Proportion: though to avoid so great an Apparatus of Vessels as would then be required, Malt Liquors, brewed in order to make Spirits, are seldom kept, but, immediately after Fermentation, committed to the Still. And hence we are furnished with a Reason, why all stale vinous Liquors are stronger, and inebriate sooner, than such as are new.

The Physical Effects.

The physical Properties of a vinous Liquor, prepared in the manner above described, are those which follow;

1. It will have an inebriating Quality, when received into the Body: and nothing is properly possessed of this Quality, but what has been first fermented.

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For if a Person should eat ever such a Quantity of Grapes, or drink ever so freely of Must, he might, indeed, bring a Looseness upon himself by that means, but he would not be fuddled. So likewise to take down large Draughts of sweet Wort, or the Tincture of Malt, might throw one into a violent Vomiting and Flux, but never produce the Symptoms of Drunkenness.

And whatever some pretend, as to Mandrake, Hemlock, Poppies, Opium and the like, the Effects they have upon the human Body are rather stupefying than inebriating: but Drunkenness is different from Stupefaction.

An Over-dose of vinous Liquors makes a Man brisk, lively, and joyful; or disposes him to sing, dance, and be merry; at length, however, his Legs will not support him; and, if the Fit be violent, he grows furious, raving, or paralytic, and so he dies.

But Opium has not these Effects; it brings on a profound Sleep; and he who has taken too much of it, dies lethargic.

2. Wine has the Faculty of heating the Body. Nothing appears to cool the Body more than Currans; yet the Wine prepared from them is very heating. The like is to be understood of Cherries, and all fermentable Bodies, tho' ever so cold; for these will afford a vinous Liquor.

3. It is inflammable, and will mix with Water.

4. It contains Tartar, and affords it after the the Fermentation is over. This Tartar is the essential Salt of the Vegetable made use of, and differs from the Lees or Mother, being resolvable by Distillation into a Water, a Spirit, two Kinds of Oil, an alkaline Salt, and Earth. All fermented Vegetables afford it. Must yields a feculent Salt, and no Tartar;

but

but if once it works, so as to become pure Wine, it will, in the Space of half a Year throw off a clean Tartar; which therefore appears to be the Effect of a perfect Fermentation, and accordingly is never obtained without it.

5. It retains neither the Colour, Taste, nor Smell of the specific Vegetable, from which it is made. Thus we have seen, that Rosemary affords a quite different Water, after it has been fermented, from what it did before. Thus fermented Hydromel, Malt Liquors, Treacle, Sugar, &c. yield Spirits by Distillation, that cannot be distinguished from one another.

The Grapes of some Countries are as sweet as Honey, and so is their Must before Fermentation; yet the Wine prepared from either, may have little or no Sweetness, and sometimes even gain a Degree of Acidity. It is not easy to believe, that *Rhenish* Wine should proceed from so sweet a Grape as it does.

6. It acquires a somewhat acid and spirituous Taste and Smell. The Taste, of Honey or Malt, &c. is sweet, and their Scent scarce perceivable before you commit them to Fermentation; but after having undergone that Operation, they are less sweet, but sharper upon the Tongue, and affect the Nose with a brisk, spirituous, or vinous Odour.

7. It contains the volatile Salt and Oil of the Vegetable, attenuated, and reduced into one Spirit; as may appear by the Chymical Analysis of a fermented Subject.

8. It renders the Oil of the Vegetable more volatile than the Water. When an unfermented Vegetable is distilled, the first thing that comes over is Water, and the next the essential Oil: but the contrary is observed after Fermentation; for, by

that Operation, the Oil is rendered more volatile than the Water, and therefore rises first in Distillation, having been broken and ground so fine by the preceding Operation, as now to come over the Helm, not in its own Form, as before, but as the finest and most volatile Part of the fermented Liquor, capable of uniting with Water.

The Things that promote Fermentation, are;

1. Rest; by means of which the Crust on the Surface may remain unbroken; for 'tis this Crust that prevents the spirituous Part from flying off.

2. A free Admission of the external Air, so that it may come at the internal Parts of the fermenting Fluid; for, according to Mr. Boyle, if a fermenting Liquor be put into his exhausted Receiver, the Operation immediately ceases.

3. A moderate Degree of Warmth; for too great Heat, and too great Cold, are the Bane of Fermentation.

4. A proper Season of the Year; that is, when the Vegetables of the same Species with that made use of are in their Bloom; for it is then their Juices are most in Motion: accordingly we find, when Vines are in the Blossom, the Wines of former Growths will again spontaneously run into Fermentation. When these several Conditions meet, Fermentation is performed to the best Advantage.

The Things which check or hinder Fermentation, are;

1. Too large a Proportion of acid Salts; such as Spirit or Oil of Vitriol, Oil of Sulphur *per Campanam*, Spirit of Salt, &c. Thus, when any Liquor ferments too kindly, a few Drops of Oil put into it, or the burning a little Sulphur under or

near

near the Vessel, will immediately check and restrain its Fury.

2. An Over-proportion of fixed Alkalies; such are Salt of Tartar, Pot-ashes, or saponaceous Bodies.

3. Terrestrial Alkalies; as Chalk, Marl, Crabs-eyes, &c.

4. A close stopping up of the Vessel.

5. A great Degree of Cold.

6. A violent Degree of Heat, or constant Motion, so as to thicken the fermenting Liquor, and render its Parts hard to be separated.

7. A total Extraction of the Air.

8. A violent Compression of the Air in the Vessel; which, Mr. Boyle has shewn, will stop Fermentation, as well as taking out the Air by means of his pneumatic Engine.

Some short general Directions, as to the Making of Wines.

Wine is made of Grapes, by stamping them in a Vat, or crushing and expressing the Juice out of them in a Press, and then Fermenting, &c.

In the Southern Parts of France, their Method is, for Red-wines, to tread the Grapes, or squeeze them between the Hands, and to let the whole stand, Juice and Husks, till the Tincture be in Colour as they would have it, and then they press it: but, for White-wines, they press the Grapes immediately.

When they have been pressed, they tun the Must, and stop up the Vessel, leaving the Cask empty about the Depth of half a Foot, or better, to give room for its working.

At the End of ten Days they fill this Space with some other proper Wine that will not provoke it to work again, repeating this every ten Days for some time; new Wine spending itself a little before it be perfect.

About Paris, and in the Northern Parts of France, they let the Must and Must stand two Days and Nights for White-wines, and at least a Week for Claret-Wines, before they tun it; and while it continues working, they keep it as warm as possible.

Some, upon stopping it up for good and all, roll the Cask about the Cellar to mix it with the Lees; and, after it has been settled a few Days, rack it off with great Improvement.

To fine it down, they put in Shavings of green Beech into the Cask; but they first take off all the Rind, and boil them an Hour in Water, to extract their Rankness, and afterwards dry them in the Sun, or an Oven. A Peck of these will serve for an Hoghead of Wine: they put it in a gentle working, and purify it in twenty-four Hours; they also give it an agreeable Flavour.

Some sweeten their Wines with Raisins of the Sun trod in the Vat with the Grapes, they having been first plump'd by boiling: others by boiling half the Must, scumming it, and tuning it up hot with the other.

Wine is distinguished, from the several Degrees and Steps of its Preparation, into,

1. *Mere-gutte*, Mother-drop; which is the Virgin Wine, or that which runs of itself out of the Tap of the Vat, before the Grapes are trodden.

2. The Must, Surmount or Stun, which is the Wine or Liquor in the Vat, after the Grapes have been trodden in the Vat.

3. The press'd Wine, or *Force Pressurage*, which is that squeezed with a Press out of the Grapes half bruised by treading.

4. *Beisson* or Draught-wine. This is made of the Husks left of the Grapes

Grapes which are called *Rape* or *Mare*: by throwing Water upon which, and pressing afresh, they make a Liquor for Servants.

Wines are also distinguished into *Vin poux*, or *stewed Wine*; which is that which has not yet work'd nor boil'd.

Bouru; that which has been prevented working, by casking in cold Water.

Vin of the Cuve, or *work'd Wine*; i. e. that which has been let to work in the Vat to give it a Colour.

Vin cuit, i. e. *boil'd Wine*; that which has had a Boiling before it work'd, and which, by that means, still retains its native Sweetness.

Vin passé, i. e. *strained Wine*; that which is made by steeping dry Grapes in Water, and letting it ferment of itself.

The Goodness of Wine consists in its being net, dry, clear, fine, brisk, without any Taste of the Soil, of a clean, steady Colour; in its having a Strength, without being heady; a Body, without being sour; and its keeping; without growing hard.

After Wines have been made, they require to be managed according to their different State and Circumstances. We shall therefore consider them under these four general Heads following:

1. The natural Purification or Clarification of Wines, whereby of themselves they pass from the State of Crudity and Turbulency, to that of Maturity, by Degrees growing clear, fine, and potable.

2. The unseasonable Workings, Froings, and other Sicknesses, to which, from either internal or external Accidents, they are afterwards subject.

3. Their State of Declination or Decay, wherein they degenerate from

their Goodness and Pleasantness, becoming pall'd, or turning into Vinogar.

4. The several Artifices used to them, in each of these States and Conditions. As to the first, viz. the natural Clarification of new Wines, two Things occur, which deserve Consideration; the Manner how, and the Cause by which, the same is effected.

As for the Manner, it is to be observed, that Wine, while yet in the Must, is usually put into open Vessels; the Abundance and Force of the Spirit, s. i. e. the more subtle and active Parts therein contained, being then so great, as not to endure being imprisoned in close ones; at which time it appears troubled, thick, and feculent; all Parts or Elements of it being violently moved and agitated, so that the whole Mass of the Liquor seems to boil like Water in a Caldron over the Fire.

This Tumult being in some Degree composed, and the *Gas sylvestre* (as *Van Helmont* calls it), or wilder Spirit, sufficiently evaporated, they then pour the Must into close Vessels, these to be further defecated by Continuance of the same Motion of Fermentation, reserving the Froth or Flower of it; and putting the same into small Casks, hooped with Iron, lest otherwise the Force of it might break them.

This Flower, thus separated, is what they call *Stum*, either by Transposition of the Letters in the Word *Must*, or from the Word *Stum*, which, in *High Dutch*, signifies Mute; because the Liquor (as one may say) is hindered from that Maturity, by which it should speak its Goodness and Wholesomeness.

This being done, they leave the rest of the Wine to finish its Fermentation; during which, it is probable, that

that the spirituous Parts impel and diffuse the grosser and feculent Parts up and down in a confused and tumultuous manner; until all being disposed in their proper Regions, the Liquer becomes more pure in Substance; more transparent to the Eye, more piquant and gufful to the Palate, more agreeable to the Stomach, and more nutritive to the Body.

The Impurities being thus separated from the Liquer, are, upon Chymical Examinations, found to consist of Salt, Sulphur (each of which is impregnated with some Spirits), and much Earth; which being now dissociated from the purest Spirits, either mutually cohere, coagulate, and affix themselves to the Sides of the Vessels; in form of a stony Crust; which is called *Tartar* and *Argol*; or sink to the Bottom in a muddy Substance; like the Grounds of Ale or Beer, which is called the *Lees of Wine*: and this is the Process of Nature in the Clarification of all Wines, by an orderly Fermentation.

As for the principal Agent; or efficient Cause of this Operation, it seems to be no other but the Spirit of the Wine itself; which, according to the Mobility of its Nature, seeking after Liberty, restlessly moving every way in the Mass of the Liquer, thereby dissolves that common Tye of Mixture, whereby all the heterogenous Parts thereof were combined and blended together; and having gotten itself free, at length abandons them to the Tendency of their Gravity, and other Properties: which they soon obeying, each Kind consorts with their like; and, detaching themselves to their several Places or Regions, leave the Liquer to the Possession and Government of its noblest Principle the Spirit. For

this Spirit, to raise the Lees of the Wine, so doubtless it is also the Cause of its Purity and Vigour; in which the Perfection of the Life seems to consist.

From the natural Fermentation of Wines, we pass to the accidental; from their State of Soundness, to that of their Sickness; which is the second general Head.

We have the Testimony of Experience, that frequently even those Wines that are good and generous, are invaded by unnatural and sickly Comotions; or (as the Wine-coopers call them) Workings; during which they are turbulent in Motion, thick of Consistence, unfavoury in Taste, unwholsome in Use; and after which they undergo sundry Alterations for the worse.

The Causes of this may be either internal or external.

Among the internal, the chief Place may be assign'd to the excessive Quantity of Tartar; or of Lees, which contain much Salt and Sulphur, and continually send forth into the Liquer abundance of quick and active Particles, that, like Scum, or other adventitious Ferment, put it into a fresh Tumult or Confusion; which if not in time allay'd, the Wine either grows rank or pricking, or else turns sour; by reason that the Sulphur being too much exalted above the rest of the Elements or Ingredients, predominates over the pure Spirits, and infects the whole Mass of Liquer with Sharpness or Acidity: or else it comes to pass, that the Spirits being spent and flown away in the Commotion, and the Salt dissolved and set afloat, obtains the Mastery over the other similar Parts, and introduceth Rankness or Ropiness.

Nay, if those Comotions chance to be suppressed, before the Wine is thereby

thereby much depraved; yet do they always leave such ill Impressions, as, more or less, alienate Wine from the Goodness of its former State, in Colour, Consistence, and Taste.

For hereby all Wines acquire a deeper Tincture, *i. e.* a thicker Body or Consistence; Sacks and White-wines changing from a clear White to a cloudy Yellow; and Claret losing its bright Red for a duskyish Orange-colour, and sometimes for a Tawny. In like manner they degenerate also in Taste, and affect the Palate with Foulness, Roughness, and Rancidity, very unpleasant.

Among the external, are commonly reckon'd the too frequent or violent Motion of Wines, after their Settlement in their Vessels; immoderate Heat, Thunder, or the Report of Cannon, and the Admixture of any exotic Body, which will not symbolize, or agree and incorporate with them; especially the Flesh of Vipers, which has been frequently observed to induce a very great Acidity upon even the sweetest and fullest-bodied *Malaga* and *Canary* Wines.

Yet all these foreign Accidents may be accounted rather Occasions than Causes of the ill Events that follow upon them; because these Events seem to arise immediately and principally from the Commotion and Diffusion of the sulphureous and saline Impurities formerly separated from the Liquor, and kept in due Subjection by the genuine and benign Spirits.

This brings us, in the next Place, to the third previous Thing considerable; *viz.* the palling or flattening of Wines, and their declining towards Vinegar, before they have attained to their State of Maturity and Perfection.

Of this, the greatest and nearest

Cause seems to be their Jejuneness and Poverty of Spirits, either native or adventitious.

Native, when the Grapes themselves are of a poor and hungry Kind, or gathered unripe, or nipt by early Frosts, or half-starved in their Growth by a dry and unkindly Season, or too full of watery Parts.

Adventitious, when the Liquor, rich, perhaps, and generous enough at first, comes afterwards to be impoverished by Loss of Spirits, either by Oppression, or by Exhaustion.

The Spirits of Wine may be oppressed, when the Quantity of Impurities or Dregs, with which they are combined, is so great, and their Crudity, Viscosity, and Tenacity, so stubborn, that they can neither overcome them, nor deliver them from their Adhesion; but are forced to yield to the Obstinacy of the Matter on which they should operate, and so to remain unactive and clogged: as may be exemplified in the coarse Wines of *Moravia*, which, by reason of their great Austerity and Roughness, seldom attain to a due Exaltation of their Spirits; but still remain turbulent, thick, and in a State of Crudity, and therefore easily pall; in which respect they are condemned by some *German* Physicians, as bad for generating the Scurvy, and administering Matter for the Stone and Gout, they yielding more of Tartar than other Wines.

The Spirits of Wine may be exhausted or consumed, either suddenly or gradually: Suddenly, by Lightning, which spoils Wine (as may be conceived), at least, not by Congelation or Fixation of its Spirits; for then such Wines might be capable of being restor'd by such means as are apt to reinforce and volatilize the Spirits again, contrary to what

hath been found by Experience; but perhaps by Disgregation, and putting them to Flight, so as to leave the Liquor dead, pall'd, and never to be revived by any Supply.

Gradually, two ways; *viz.* by unnatural Fermentation; of the ill Effects of which, something has been already said: or by Heat from without, of which we have an Instance in the making of Vinegar; which commonly is done by setting the Vessels of Wine against the hot Sun, which, beating upon the Mass of Liquor, and rarefying the finer Parts thereof, gives Wings to the fugitive Spirits to fly away together with the purer and more volatile Sulphur, leaving the Remainder to the Dominion of the Salt, which soon debases and infects it with Sourness.

This being the common Manner of turning Wine into Vinegar, in all Ages, and all Countries, it may be doubted whether Spirit of Wine may be drawn out of Vinegar, notwithstanding it hath been delivered as practicable by *Sennertus* himself.

The Times of the Year when Wines are observed to be most prone to ferment and fret, and then to grow *qually* (as it is called), that is, turbulent and foul, are *Midsummer* and *Allballowtide*, when our Vintners are wont to rack them from their gross Lees, especially Rhenish, which commonly grows sick in *June*, if not rack'd; and they choose to do it in the Wane of the Moon, and fair Weather, the Wind being northerly.

Having thus succinctly recounted the most remarkable Distempers of Wines, guessed at their respective Causes, and touched upon the Times, it is proper to proceed to their usual Remedies; such, at least, as may be collected from Wine-coopers and Vintners; which is the fourth and last Part proposed to be treated of.

To begin therefore with some of the Artifices used to Wines when yet in Must; it is observable, that tho' to raising a Fermentation in them at that Time, there is not so much need of any additional Ferment, as there is in the Wort of Ale, Beer, Hydromel, Metheglin, and other Sorts of Drinks familiar to us in *England*, because the Juice of the Grape is replenished with generous Spirits, sufficient of themselves to begin that Work, yet it is usual in some Countries to put quick Lime either upon the Grapes, when they are pressing, or into the Must; to the end that, by the Force and Quickness of its saline and fiery Particles, the Liquor may be both accelerated and assisted in working.

For the same Reason, perhaps, it is, that the *Spaniards* mix with their Wines, while they are yet flowing from the Press, a certain Thing they call *Gieffo*; which probably is a kind of *Gypsum*, or Plaster, whereby the Wines are made more durable, of a paler Colour, and pleasanter Taste: others put into the Cask Shavings of Fir, Oak, or Beech, for the same Purpose; and others Vinegar.

Again, tho' the first Fermentation succeeds generally well, so that the whole Mass of Liquor is thereby delivered from the gross Lee; yet sometimes it happens, either thro' Scarcity of Spirits at first, or thro' immoderate Cold, that some Part of those Impurities remains confused and floating therein.

Now, in this Case, Wine-coopers put into the Wine certain Things to hasten and help its Clarification; such as, being of gross and viscous Parts, may adhere to the floating Lee, and, sinking, carry it with them to the Bottom; of which Sort are, Isinglass and the Whites of Eggs: or such as, meeting with the grosser
and

and earthy Particles of the Lee, both dissociate and sink them by their Gravity; of which Kind are the Powders of Alabaster, calcin'd Flints, white Marble, Roch Alum, &c.

The Clarification of *Hypocras* is usually expedited by putting into it new Milk, which, after a short Space of Time, separates and sinks of itself, carrying with it the Powders of the Species, and grosser Parts of the Wine, after the manner of Things that clarify Liquors by way of Adhesion.

The *Grecians*, at this Day, have a peculiar Way of spurring Nature, in fining and ripening their strongest and most generous Wines; and this is done by adding to them, when they begin to work, a proportionate Quantity of Sulphur and Alum; not (as it is very probable) to prevent their fuming up to the Head, and inebriating, according to the Conjecture of that great Man the Lord *St. Albans*; for, notwithstanding this Mixture, they cause Drunkenness as soon, if not sooner, than other Wines; nor are Men intoxicated by the Vapours of Wine flying up immediately from the Stomach into the Brain; but only to excite and promote Fermentation, and hasten their Clarification that ensues thereupon; the Sulphur perhaps helping to attenuate and divide those gross and viscid Parts, wherewith *Greek Wine* abounds; and the Alum conducing to the speedier Precipitation of them afterwards. And a learned Traveller relates, that some Merchants put into every Pipe of their *Greek Wine*, a Gill, or thereabouts, of the chymical Oil of Sulphur, in order to preserve it the longer clear and sound.

Which tho' it be very probable, because the Sulphur is known to resist Putrefaction in Liquors, yet one

would decline the Use of Wines so preserved, unless in time of pestilential Infection.

But of all Ways of the hastening the Clarification and Ripening of Wine, none seems to be more ealy, or less noxious, than that borrowed from one of the Antients by the Lord Chancellor *Bacon*; which is by putting the Wine into Vessels well stopped, and letting it down into the Sea.

But how shall we reconcile this Experiment to that common Practice of both the Antients and Moderns, of keeping Wine in the Must a whole Year round, only by sinking the Cask for thirty or forty Days in a Well, or deep River?

That this Practice was very antient, is manifest from that Discourse of *Plutarch*, *Quest. Natur.* 27. about the Efficacy of Cold upon Must; whereof he gives this Reason: That Cold, not suffering the Must to ferment, by suppressing the Activity of the Spirits therein contained, conserves the Sweetness thereof a long time. Which is not improbable, because Experience teaches, that such as make their Vintage in a rainy Season, cannot get their Must to ferment well in a Vault, unless they cause great Fires to be made near the Casks; the Rain mixed with the Must, together with the ambient Cold, hindering the Motion of Fermentation, which arises chiefly from Heat.

That the same is frequent at this Day also, may be collected from what Mr. *Boyle* has observed in his *History of Cold*, on the Relation of a *Frenchman*; viz. That the Way to keep Wine long in the Must (in which the Sweetness makes many to desire it) is to tun it up immediately from the Press; and, before it begins to work, to let down the Vessels;

slowly and finally stopped into a Well or deep River, there to remain for six or eight Weeks; during which time the Liquor will be so confirmed in its State of Crudity, as to retain the same together with its Sweetness for many Months after, without any sensible Fermentation.

But it may be objected, How can these two so different Effects, the Clarification of new Wine, and the Conservation of Wine in the Must, be derived from one and the same Cause, the Cold of the Water?

But this may be conceived without much Difficulty; for it seems not unreasonable, that the same Cold which hinders Must from fermenting, should yet accelerate and promote the Clarification of Wine after Fermentation: in the first, by giving a Check to the Spirit, before it begins to move and act upon the crude Mass of Liquor, so that it cannot, in a long time after, recover Strength enough to work: in the latter, by keeping in the pure and genuine Spirit, otherwise apt to exhale; and rendering the flying Lee more prone to subside, and so making the Wine much sooner clear, fine, and potable. Thus much concerning the Helps of new Wine.

The general and principal Remedy for the preternatural or sickly Comotions incident to Wines after their first Clarification, and tending to their Impoverishment or Decay, is Racking, *i. e.* drawing them from their Lees into fresh Vessels.

Which yet being sometimes insufficient to preserve them, Vintners find it necessary to pour into them a large Quantity of new Milk, as well to blunt the Sharpness of the sulphureous Parts now set afloat and exalted, as to precipitate them, and other Impurities, to the Bottom, by Adhesion.

But, taught by Experience, that by this means the genuine Spirits of the Wine also are much flatted and impaired (for the Lee, tho' it makes the Liquor turbid, doth yet keep the Wine in Heart, and conduce to its Duration); therefore lest such Wines should pall and die upon their Hands, as of Necessity they must, they draw them for Sale as fast as they can vend them.

For the same Disease they have divers other Remedies, particularly accommodated to the Nature of the Wine that needs them. To instance in a few:

For *Spanish* Wines disturbed by a flying Lee, they have this Receipt: Make a *Parrell* (as they call it) of the Whites of Eggs, Bay-salt, Milk, and Conduit-water; beat them well together in a convenient Vessel; then pour them into the Pipe of Wine (having first drawn out a Gallon or two to make room), and blow off the Froth very clean: hereby the Tumult will, in two or three Days, be recomposed, the Liquor refined, and the Wine drink pleasantly, but will not continue to do so long; and therefore they advise to rack it from the milky Bottom, after a Week's Settlement, lest otherwise it should drink foul, and change Colour.

If Sacks, or *Canary* Wines, chance to boil over, draw off four or five Gallons; then putting into the Wine two Gallons of Milk, from which the Cream hath been skimmed, beat them till they be thoroughly mixed together, and add a Pennyworth of Roch-alum, dried in a Fire-shovel, and powder'd, and as much of white Starch; after this take the Whites of eight or ten Eggs, an Handful of Bay-salt; and, having beaten them together in a Tray, put them also into the Wine, filling up the Pipe again,

again, and letting the Wine stand two or three Days, in which time the Wine will recover to be fine and bright to the Eye, and quick to the Taste; but you must be sure to draw it off that Bottom soon, and spend it as fast as you can.

For Claret, in like manner distemper'd with a flying Lee, they make use of this Artifice:

They take two Pounds of the Powder of Pebble-stones, baked in an Oven, the Whites of ten or twelve Eggs, an Handful of Bay-salt; and, having beaten them well together, in two Gallons of the Wine, they mix them with that in the Cask, and, after two or three Days, draw off the Wine from the Bottom.

The same Parell serves also for White-wines upon the Fret by the Turbulency and Rising of their Lee.

To cure Rhenish of its Fretting (to which it is most prone a little after *Midsommer*, as was before observed), they seldom use any other Art but giving it Vent, and covering the oaken Bung with a Tile or Slate, from which they carefully wipe off the Filth purged from the Wine by Exhalation; and, after the Commotion is by this means composed, and much of the fretting Matter cast forth, they let it remain quiet for a Fortnight or thereabouts, and then rack it into a fresh Cask, newly fum'd with a sulphurat-ed Match.

As for the various Accidents that frequently ensue, and vitiate Wine (after those before-mentioned Reboilings, notwithstanding their Suppression before they were incurable); you may remember they have all been referred to such as alter and deprave Wines, either in Colour or Consistence, or Taste or Smell. Now

for each of these Maladies our Vintners are provided of a Cure.

To restore *Spanish* and *Austrian* Wines grown yellow or brownish, they add to them sometimes Milk alone, and sometimes Milk, and Isinglass well dissolv'd therein; sometimes Milk, and white Starch; by which they force the exalted Sulphur to separate from the Liqueur, and sink to the Bottom; so reducing the Wine to its former Clearness and Whiteness.

The same Effect they produce with a Composition of *Fleur-de-lys* Roots and Salt-petre, of each four or five Ounces, the Whites of eight or ten Eggs, and a competent Quantity of common Salt, mixed and beaten in the Wine.

To amend Claret decayed in Colour, first they rack it upon a fresh Lee, either of *Alicant*, or red *Bordeaux* Wine; then they take three Pounds of Turnsole, and steep it all Night in two or three Gallons of the same Wine; and having strained the Infusion through a Bag, they pour the Tincture into the Hogs-head (sometimes they suffer it first to fine itself in a Rundlet); and then cover the Bung-hole with a Tile, and let it stand for two or three Days, in which Time the Wine usually becomes well-coloured and bright.

Some use only the Tincture of Turnsole.

Others take half a Bushel of full-ripe Elder-berries, pick them from their Stalks, bruise them, and put the strained Juice into an Hogshead of discoloured Claret; and so make it drink brisk, and appear bright.

Others, if the Claret be otherwise found, and the Lee good, over-draw three or four Gallons; then replenish the Vessel with as much good Red-wine, and roll it upon its Bed, leav-

ing it reversed all Night; and then next Morning they turn it again; so as the Bung-hole may be uppermost, which stopp'd, they leave the Wine to settle.

But in all these Cases they observe to set such newly-recovered Wines abroad the very next Day after they are fined, and to draw them for Sale speedily.

To correct Wines faulty in Consistence, *i. e.* such as are lumpish, foul, or ropy:

They generally make use of the Powders of burnt Alum, Lime, Chalk, Plaster, *Spanish* white calcin'd Marble, Bay-salt, and other the like Bodies, which cause a Precipitation of the gross and viscid Parts of the Wine then afloat. As for Example:

For Attenuation of *Spanish* Wines that are foul and lumpish, having first rack'd them into a newly-scented Cask, they make a Parell of Burnt-alum, Bay-salt, and Conduit-water; then they add to these a Quart of Bean-flour or Powder of Rice (and if the Wine be always brown and dusky, Milk, otherwise not); and beating all these well together with the Wine, blow off the Froth, and cover the Bung with a clean Tile or Stone. Lastly, they again rack the Wine after a few Days, and put it into a Cask well scented.

The Manner of scenting Casks is as follows:

They take four Ounces of Brimstone, one Ounce of Burnt-alum, two Ounces of *Aqua Vitæ*; these they put together in an earthen Pan or Pipkin, and hold them over a Chafing-dish of glowing Coals, till the Brimstone is melted and runs; then they dip therein a little Piece of new Canvas, and instantly sprinkle thereon the Powders of Nutmegs, Cloves, Coriander, and Anil-seeds.

This Canvas they fire, and let it burn out in the Bung-hole, so as the Fume may be received into the Vessel; and this is said to be the best Scent for all Wines.

To prevent the Foulness and Ropiness of Wines, the old *Romans* used to mix Sea-water with their Must.

To cure the Ropiness of Claret, the Vintners, as well *French* as *English*, have many Remedies; of which these that follow are the most usual:

First, they give the Wine a Parell; then draw it from the Lee, after the Clarification by that Parell; this done, they infuse two Pounds of Turnsole in good Sack all Night; and the next Day putting the strain'd Infusion into an Hoghead of Wine with a Spring Funnel, leave it to fine, and after draw it for excellent Wine.

Another is this: They make a Lee of the Ashes of Vine-branches, or of oaken Leaves, and pour it into the Wine hot; and after stirring, leave it to settle: the Quantity of a Quart of Lee to a Pipe of Wine.

A third is only Spirit of Wine; which, put into a muddy Claret, serves to the Refining it effectually and speedily; the Proportion being a Pint of Spirit to an Hoghead; but this is not to be used in sharp and eager Wines.

When White-wines grow foul and tawny, they only rack them on a fresh Lee, and give them time to fine.

For the mending of Wines that offend in Taste, Vintners have few other Correctives but what conduce to Clarification; nor do they indeed much need Variety in the Case, seeing all Unfavouriness of Wines whatever proceed from their Impurities set afloat, and the Dominion of

of others, their sulphurous or saline Parts, over the finer and sweeter, which Causes are removed chiefly by Precipitation.

For all Clarification of Liquors may be referred to one of these three Causes:

1. Separation of the grosser Parts of the Liquor from the finer.

2. The equal Distribution of the Spirits of the Liquor, which always renders Bodies clear and untroubled.

3. The refining of the Spirit itself.

And the two latter are Consequents of the first, which is effected chiefly by Precipitation, the Instruments whereof are Weight and Viscosity of the Body mixed with it; the one causing it to cleave to the gross Parts of the Liquor flying up and down in it, the other sinking them to the Bottom.

But this being more than Vintners commonly understand, they rest not in Clarification alone, having found out certain Specifics, as it were, to palliate the several Vices of Wines of all Sorts, which make them disgustful. Of these I shall recite two or three of the greatest Use and Esteem among them.

To correct Rankness, Bageness, and Pricking of Sacks, and other sweet Wines, they take twenty or thirty of the Whitest Lime-stones, and slack them in a Gallon of the Wine; then they add some more Wine, and stir them together in an Half-Tub, with a Parrelling Staff; next, they pour this Mixture into the Hoghead, and having again used the Parrelling Instrument, leave the Wine to settle, and then rack it.

This Wine may probably be no ill Drink for gross Bodies, and Rheumatic Pains; but injurious to Good-fellows of a hot and dry Constitution, and meagre Habits.

Against the Pricking of French Wines, they prescribe this easy and cheap Composition: Take of the Powder of Flanders Tile one Pound, of Roch-alum half a Pound; mix them, and beat them well, with a convenient Quantity of Wine; then put them into the Hoghead, as the former.

When their Rhenish Wines prick, they first rack them off into a clean and strongly-scented Cask, or Vat; then they add to the Wine eight or ten Gallons of clarified Honey, with a Gallon or two of Skim-milk; and, beating all together, leave them to settle.

Sometimes it happens, that Claret loses much of its Briskness and Piquantness; and, in such case, they rack it upon a good Lee of Red-wine, and put into it a Gallon of Sloes or Bullace; which, after a little Fermentation and Rest, makes the Wine drink brisk and rough.

To meliorate the Taste of hungry and too eager White-wines, they draw off three or four Gallons of it, and infusing therein as many Pounds of Malaga Raisins stoned, and bruised in a Stone Mortar, till the Wine has sufficiently imbibed their Sweetness and Tincture (which it will do in a Day's time), they run it through an Hypocras-bag; then put it into a fresh Cask well scented, together with the whole Remainder of the Wine in the Hoghead, and so leave it to fine.

To help sinking Wines, the general Remedy is, racking them from their old and corrupt Lee: besides which, some give them a fragrant Smell or Flavour, by hanging in them little Bags of Spices, such as Ginger, Zedoary, Cloves, Cinnamon, Orrice-roots, Cubebs, Grains of Paradise, Spikenard, and other Aromatics.

Others boil some of these Spices in a Pottle of good sound Wine of the same Sort, and run up the Decoction hot.

Others correct the ill Savour of rank-iced French Wine with only a few Cinnamon canes hung in them.

Others again, for the same Purpose, use Elder-flowers and Tops of Lavender.

Having thus run over the Vintners Dispensatory, and described many of their principal Receipts or Secrets, for the Cure of the acute Diseases of Wine; we shall come to the fourth Head, which contains Medicaments proper for their chronic Distempers; viz. Loss of Spirits, and Decay of Strength.

Concerning these, therefore, it is observable, that as when Wines are in preternatural Comotions, from an Excess and Predomination of their sulphureous Parts, the grand Medicine is, to rack them from their Lees; so, on the contrary, when they decline, and tend towards palling, by reason of the Scarcity of their Spirits and Sulphur, the most effectual Preservative is to rack them upon other Lees, richer and stronger than their own; that being from thence supply'd with the new Spirits, they may acquire somewhat more of Vigour and Quickness.

I say Preservative, because there is, in Truth, no restoring of Wines after they are perfectly pall'd and dead; for nothing that is past Perfection, and hath run its natural Race once, can receive much Amendment.

But, besides reinforcing of impoverished Wines by new and more generous Lees, there are sundry Confections, by which also, as by Cordials, the languishing Spirits of many of them may be sustained, and to some Degree recruited: of which the following are Examples.

When Sacks begin to hang off, which doth not often happen, especially in this City, where it is drunk in Plenty, they refresh them with a cordial Syrup, made of most generous Wines, Sugar, and Spices.

For Rhenish and White Wines, a simple Decoction of Raisins of the Sun, and a strong-scented Oak, usually serve the Turn.

For Claret inclining to a Consumption, they prescribe a new and richer Lee, and the Shavings of Fir-wood; that the Spirit, being recruited by the additional Lee, may be kept from exhaling by theunctuous Spirit of the Turpentine.

This Artifice is used in Parts in the most delicate and thin-bodied Wines of France; and is, very probably, the Cause of that exceeding Dulness and Pain of the Head, which always attends Debauches with such Wines.

Nor is it a modern Invention, but well known to, and frequently used by, the Romans, in the Time of their greatest Wealth and Luxury: for Pliny (*Hist. Nat. Lib. 14. cap. 2.*) takes singular notice of the Custom of the Italian Vintners, in mixing with their Wines Turpentine of several Sorts.

The Grecians, long before, had their *Vina picata* and *resinata*, as is evident by the Commendation of such Wines by Plutarch, and the Prescription of them to Women, in some Cases, by Hippocrates; and they were so much delighted with their *Vinum pissites*, that they consecrated the Pitch-tree to Bacchus. But I shall next take some notice of the more disingenuous Practices of Vintners in the Transmutation or Sophistication of Wines, which they call *Trickings* or *Compassings*.

They transform poor *Rochelle* and *Coniac* White-wines into Rhenish; Rhenish

Rhenish into Sack; the Lags of Sack and Malmseys into Muscadela. They counterfeit Rassic Wine with *Flaw-de-lis* Roots; *Kerdea* with Decoctions of Raisins: they sell decayed *Korta*, vulgarly *Sherry*, for *Luscious* Wine; in all these Impositions obeluding the Palate so neatly, that few are able to discern the Fraud; and keeping these *Arcana* so close, that few can come to the Knowledge of them.

As for their Metamorphosis of White into Claret, by dashing it with Red, nothing is more commonly either done or known.

For their Conversion of White into Rhenish, they have several Artifices to effect it, among which this is the most usual:

They take an Hoghead of *Rockelle*, or *Coniac*, or *Nant's* White-wine; tuck it into a fresh Cask strongly scented; then give the White Parel: put into it eight or ten Gallons of clarified Honey, or forty Pounds of coarse Sugar; and, beating it well, leave it to clarify.

To give this Mixture the delicate Flavour, they sometimes add a Decoction of Clary-seeds, or of *Galistrum*; of which Drugs there is an incredible Quantity used yearly at *Dort*, where the Staple of Rhenish Wines was; and this is that Drink, with which the *English* Ladies were wont to be so delighted, under the specious Name of *Rhenish in the Mash*.

The Manner of making *Adulterate* *Bastard* is thus:

Take four Gallons of White-wine, three Gallons of old *Canary*, five Pounds of *Bastard* Syrup; beat them well together, put them into a clean Rundlet well scented, and give them time to fine.

Sack is made of Rhenish, either by strong Decoctions of *Malaga* Rai-

ns, or by a Syrup of Sack, Sugar, and Spices.

Muscadel is sophisticated with the Lags of Sack or Malmsey, thus:

They dissolve it in a convenient Quantity of Rose-water; of Musk, two Ounces; of *Calamus Aromaticus* powder'd, one Ounce; of Coriander beaten, half an Ounce: and while this Infusion is yet warm, they put it into a Rundlet of old Sack, or Malmsey; and this they call a *Flavour for Muscadela*.

There are many other Ways of adulterating Wines in this City; but because they all tend to the above-mentioned Alterations, and are not so general, I shall pass them over; and mention the Observations of a certain curious Author on this Subject.

The Mystery of Wines consists in the making and meliorating of Natural Wines.

Melioration is either of sound or vicious Wines. Sound Wines are better'd,

1. By Preserving,
2. By timely Fining.
3. By mending Colour, Smell, or Taste.

1. To preserve Wines, Care must be taken, that after the Pressing they may ferment well; for without good Fermentation they become *qually*, i.e. cloudy, thick, and dusky, and will never fine of themselves, as other Wines do; and when they are fined by Art, they must be speedily spent, or else they will become *qually* again, and then will not be recoverable by any Art.

The principal Impediments of the Fermentation of Wines, after pressing the Grapes, are either their Unripeness, when gathered, or the Mixture of Rain-water with them, as in wet Vintages, or else thro' the Addition of Water to rich Grapes. The

Spaniards

Spaniards use *Gieffe*, to help the Fermentation of their *Canary Wines*.

To preserve *Spanish Wines*, and chiefly *Canary*, and therefore principally that which is *Raxie*, which will not keep so long, they make a Layer of Grapes and *Gieffe*; whereby it acquires a better Durance and Taste, and a whiter Colour, most pleasing to the *English*.

Raxie Wine is so called, because it comes from *Rhenish Vine-cuttings*, sometimes renewed. The Grapes of this Vine are fleshy, yielding but a little Juice.

The *French* and *Rhenish Wines* are chiefly and commonly preserved by the Match, thus used at *Dort* in *Holland*:

They take twenty or thirty Pounds of *Brimstone*, rack into it melted, as *Cloves*, *Cinamon*, *Mace*, *Ginger*, and *Coriander-seeds*; and some, to save Charges, use the Reliques of the *Hypocras-bag*; and, having mixed these well with the *Brimstone*, they draw thro' this Mixture long square narrow Pieces of *Canvas*; which Pieces, thus drawn thro' the said Mixture, they light, and put into the Vessel at the *Bung-hole*, and presently stop it close. Great Care is to be had in proportioning the *Brimstone* to the Quantity and Quality of the Wine; for too much makes it rough: this Smoking keeps the Wine long white and good, and gives it a pleasant Taste.

There is another Way for *French* and *Rhenish Wines*; viz. Firing it. 'Tis done in a Stove, or else a good Fire made round about the Vessel, which will gape wide, yet the Wine runs not out: 'twill boil, and afterwards may soon be rack'd.

Secondly, For timely Fining of Wines. All Wines in the Must are more opacous and cloudy. Good Wine soon fines, and the gross Lees

settle quickly, and also the flying Lees in time. When the grosser Lees are settled, they draw off the Wine: this is called *Racking*. The usual Times for *Racking* are *Midsummer* and *Allballowide*.

The Practice of the *Dutch* and *English* to rid the Wine of the flying Lees speedily (and serves most for *French* and *Spanish Wine*), is thus performed.

Take of *Isinglass* half a Pound; steep it in half a Pint of the hardest *French Wine* that can be got, so that the Wine may fully cover it; let them stand twenty-four Hours; then pull and beat the *Isinglass* to Pieces, and add more Wine; four times a Day squeeze it to Jelly, and, as it thickens, add more Wine. When it is full, and perfectly jellied, take a Pint or Quart to an *Hogshead*; and so proportionably: then over-draw three or four Gallons of that Wine you intend to fine, which mix well with the said Quantity of Jelly; then put this Mixture to the Piece of Wine, and beat it with a Staff, and fill it top-full.

Note, That *French Wines* must be bung'd up very close, but not the *Spanish*; and that *Isinglass* raises the Lees to the Top of strong Wines; but in weaker precipitates them to the Bottom.

They mend the Colour of sound *Clarets*, by adding thereto *Red-wine*, *Tent*, or *Alicant*, or by an Infusion of *Turnsole*, made in two or three Gallons of Wine, and then putting it into the Vessel, to be then (being well stopped) rolled for a Quarter of an Hour.

This Infusion is sometimes twice or three times repeated, according as more Colour is to be added to the Wine; about three Hours Infusion of the *Turnsole* is sufficient; but then it must be rubb'd and wring'd.

~~Claret over-red~~ is amended with the Addition of White-wines.

White-wines coming over found, but brown, are thus remedied:

Take of Alabaſter-powder, over-draw the Hogſhead three or four Gallons; then put this Powder into the Bung, and ſtir and beat it with a Staff, and fill it top-full. The more the Wine is ſtir'd, the finer it will come upon the Lee; that is, the finer it will be.

To colour Sack white, take of white Starch two Pounds, of Milk two Gallons; boil them together two Hours; when cold, beat them well with an Handful of white Salt, and then put them into a clean, but ſweet Butt, beating them with a Staff, and the Wine will be pure and white.

One Pound of the before-mentioned Jelly of Iſinglaſs takes away the Brownneſs of French and Spaniſh Wines, mixed with two or three Gallons of Wine; according as it is brown and ſtrong, more or leſs to be uſed. Then over-draw the Piece of Wine about eight Gallons, and uſe the Rod; then fill the Veſſel full, and in a Day or two it will fine and be white, and mend, if qually.

The firſt Buds of *Ribes nigra*, i. e. Black Currans, infuſed in Wines, eſpecially Rheniſh, make it diuretic, and more fragrant in Smell and Taſte; and ſo doth Clary.

The Inconvenience is, that the Wine becomes more heady; a Remedy for which is Elder-flowers added to the Clary; which alſo betters the Fragrancy thereof, as it is manifeſt in Elder-vinegar. But theſe Flowers are apt to make the Wine ropy.

To help brown Malaga's and Spaniſh Wines, take Powder of Orrice-roots and Salt-petre, of each four Ounces; the Whites of eight Eggs,

to which add as much Salt as will make a Brine; put this Mixture into Wine, and mix them with a Staff.

To meliorate muddy and tawny Clarets; take of Rain-water two Pints, the Yolks of eight Eggs, Salt an Handful; beat them well, let them ſtand ſix Hours before you put them into the Caſk; then uſe the Rod, and in three Days it will come to itſelf.

To amend the Taſte and Smell of Malaga Wine, take of the beſt Almonds, four Pounds; make an Emulſion of them with a ſufficient Quantity of the Wine to be cured; then take the Whites and Yolks of twelve Eggs; beat them together with an Handful of Salt; put them into the Pipe, uſing the Rod.

To amend the Smell and Taſte of French and Rheniſh Wines, which are foul, take one Pound of Honey, an Handful of Elder-flowers, an Ounce of Orrice-powder, one Nutmeg, a few Cloves, to an Auln of the Wine; boil them in a ſufficient Quantity of the Wine to be cured, to the Conſumption of Half; and when it is cold, ſtrain it, and uſe it with the Rod: ſome add a little Salt. If the Wine be ſweet enough, add one Pound of the Spirits of Wine to an Hogſhead, and give the Caſk a ſtrong Scent. Spirit of Wine makes any Wine briſk, and fines it, without the former Mixture.

A Lee of the Aſhes of Vine-branches, viz. a Quart to a Pipe, being beaten into Wine, cures the Ropineſs of it; and ſo infallibly doth a Lee of oaken Aſhes.

For Spaniſh ropy Wine, rack it from the Lees into a new-ſcented Caſk; then take of Alum one Pound, of Orrice-roots powder'd half a Pound: beat them well into the Wine with a Staff: ſome add fine and well-dried Sand, put warm to the Wine.

If

If the Wine begins to prove brown, add three Bottles of Milk to a Pipe; *alias*, the Spaen cures ropy Wine, before it begins to fret.

To Hering-Roes preserve any Stum Wines.

To other Rhenish Wines when sitting: It is commonly in June that Wine begins to ferment, and grow sick; then have a special Care not to disturb it, either by removing, filling the Vessel, or giving it Vent; only open the Bung, which cover with a Slate; and as often as the Slate is foul, cleanse it and the Bung from their Filth; and when the Fermentation is past, which you shall know by applying your Ear to the Vessel, then give it Rest ten or twelve Days; that the grosser Lees may settle; then rack it into a fresh-scented Cask.

This Mixture meliorates vicious Wines both in Smell and Taste, especially *French*: take of the best Honey one Part, of Rain-water two Parts, and one Third of found old Wine of the same Kind; boil them on a gentle Fire to a third Part, scumming them often with a clean Scummer (for which Purpose they have a Pail of fair Water standing by, to rince it in); then put this Mixture hot into a Vessel of fit Capacity, and let it stand unbung'd till cool: others, to better this, put in a Bag of Spices. This Mixture is, by the *Dutch*, called *Soet*; and will serve also to fine any Wine, new or old.

2. It will mend the hard Taste of Wine; *i. e.* putting a Gallon thereof to an Hoghead, and using the Rod, and then let it rest five or six Days at the least; but if mild enough, add white Mustard-seed bruised.

To mend and preserve the Colour of Clarets, take red Beet-roots *q. s.* scrape them clean, and cut them into small Pieces; then boil them in *q. s.*

of the same Wine, to the Consumption of the third Part; scum it well, and, when cool, decant off what is clear, and use the Rod.

Alias, Take of Wine and Honey of each two Pounds, Rain-water a Pottle, twelve Beet-roots, ripe Mulberries four or five Handfuls; boill them to Half, and, when cool, decant, &c. as above.

To preserve Claret rack'd from the Lees, take to a Tierce ten Eggs, make a small Hole in the Top of the Shells; then put them into the Wine, and all will be consumed.

To prevent Souring of *French* Wines, take Grains of Paradise *q. s.* beat them in a Pan, and hang them or put them loose in a Vessel. Some use Lavender-tops.

To help sour *French* Wine, take of the best Wheat four Ounces; and having been boiled in fair Water till it break, when cold, put it into a Vat in a Bag, and use the Rod.

Alias, Take five or six Cinnamon-canes; bung them up well.

To help *Spanish* four Wines, first rack the Wine into a clean Cask, and fill it up with two or three Gallons of Water, and add to it four Ounces of burnt Chalk; then rack it off after three or four Days, and fill it up again with Rain-water, if the first time doth not do it.

Some use Loam or Plastering: if these Ingredients make the Wine bitter, correct the Fault with Nutmegs and Cloves.

To help stinking Wines, take Ginger half an Ounce, Zedoary two Drams; powder them, and boil them in a Pottle of good Wine, which put scalding hot into the Vat; bung it up, and let it lie: the Species of *Diambra* and *Diamoscu Duc.* do the same; and so Nutmegs and Cloves, which also give a kind of Raciness.

To help Wine, that hath an ill Savour from the Lees, first rack it into a clean Cask, and, if Red or Claret, give it a fresh Lee of the same Kind; then take of Cloves, Cinnamon, Ginger, two Ounces, Orrice-root four Ounces; powder them grossly, hang them in a Bag, and taste the Wine once in three Days; and, when it is amended, take out the Bag.

Some do it thus: Take of Cloves half a Pound; Mastic, Ginger, Cubeb, of each two Ounces; *Spica Nardi*, three Drachms; Orrice-root, half a Pound; make thereof a fine Powder, which put loose into the Vat, and use the Rod, and make a good Fire before it.

Firing of Wines in Germany is thus performed: They have in some Vaults three or four Stoves, which they heat very hot; others make Fires almost before every Vat; by this means the Must fermenteth with that Vehemency, that the Wine appears between the Staves; when this Ebullition, Fermentation, and Working, cease, they let the Wine stand some Days, and then rack it. This Firing is only used in cold Years, when the Wine falls out green.

Stum is nothing else but pure Wine kept from fretting by often racking, and matching it in clean Vessels, and strongly scented, *i. e.* new-matched; by means whereof it becomes as clear or clearer than any other Wine, preserving itself from both its Lees, by Precipitation of them; but, if thro' Neglect it once fret, it becomes good Wine.

The Bung of the Vessel must be continually stopped, and the Vessels strong, lest they break. A little Stum put to Wine decay'd, makes it ferment afresh, and gives Life and Sweetness to it; but offends the Head and Stomach, torments the

Guts; and is apt to cause Loosenesses, and, some say, Barrenness in Women.

To fine Wine presently: Fill a Cask with Shavings or Chips of Beech, or Oak (which are best); this is to be done with much Art, or else it seldom hits right, but tasteth long; put these Chips into a Cask, which is called by the *Dutch, Ede Spoon*, *i. e.* a Chip, into which they pour as much Wine as the Cask will hold; and in twenty-four Hours the Wine will be fine. Or a Quart of Vinegar in three days will fine an Hoghead of Wine.

To set old Wine a fretting, being deadish and dull of Taste: Take of Stum two Gallons to an Hoghead; put it hot upon the Wine; then set a Pan of Fire before the Hoghead, which will then ferment till all the Sweetness of the Stum is communicated to the Wine, which thereby becomes brisk and pleasant.

Some use this Stumming at any time; some in *August* only, when the Wine hath a Disposition to fret of itself; more or less Stum to be added, as the Wine requires.

The best Time to rack Wine is in the Decrease of the Moon, and when the Wine is free from fretting; the Wind being at North-east or North-west, and not at South, the Sky serene, free from Thunder and Lightning.

Another Match for *French* Clarets, and *Spanish* Wines: Take Orrice-roots, Mastic, and Brimstone, of each four Ounces; Cloves, two Ounces; ordering it as above in Matching Wines: this will serve for all Wines, adding, if you please, Nutmugs, Ginger, Cinnamon, and other Spices; double the Quantity of Orrice-root is to be used for *Spanish* Wines.

To

To help *Malaga's*, which will not fine: Take of crude Tartar powder'd, sifted, and dried; two Pounds; mix it with the Whites of six Eggs; dry, powder, and sift them again; then over-draw the Pipe as much as will serve to mix with this Powder, and fill the Pipe therewith, beating it with a Staff as before, and this Wine will be fine in ten Days.

Another speedy Way to fine *French Wines*: Hang a Piece of Scent in the Cask, and when it is burnt out, put in a Pint of the best Spirit of Wine, and stir it about. Some add a little Salt well dried; this fines the Wine in twenty-four Hours.

To keep Must a Year: Take Must, put it into a Cask pitch'd within and without, half full; stop the Bung-hole close with Morter.

Others sew the Cask in Skins, and sink it for thirty Days into a Well or River; or else a Garland of *Polium Montanum* hung in a Vessel; or rub the Inside of the Vessel with Cheese: all these preserve Rhenish Must.

Alum, put into an Hog's Bladder, keeps Wine from turning flat, faint, or brown; and beaten with the Whites of Eggs, removes its Ropiness.

Flat Wines are recovered with Spirits of Wine, Raisins, and Sugar of Melasses; and Sacks, by drawing them on fresh Lees.

Our Wine-coopers of later Times use vast Quantities of Sugar and Melasses, to make them drink brisk and sparkling, and to give them Spirits; and also to mend their bad Tastes; all which Raisins, and Cuts, and Stum, perform.

Country Vintners feed their fretting Wines with raw Beef; and in Town, their *Canaries* with *Malaga*; which is added more or less to all *Canaries*.

The Composition of Wines is manifold, the Vintners usually drawing out of two or three Casks for one Pint, to accommodate it to the Palate of those that drink it. Most of the *Canary* is made with *Xeres Sack*.

As for compounded Wines, as *Muscadine* and *Hypocras*; the former is usually made with thirty Gallons of Cuts, which is Wine boiled to the Consumption of Half, or the Lees and Droppings boiled and clarified; its Flavour is made of Coriander-seeds prepared, and Shavings of Cypress-wood.

Some, instead of Cuts, make it of Sugar, Melasses, and Honey, or mix them with the Cuts.

Hypocras may be made as follows:

Take of Cardamums, Carobbalsammum, of each half an Ounce; Coriander-seeds prepared, Nutmegs, Ginger, of each two Ounces; Cloves, two Drams; bruise and infuse them forty-eight Hours in *Xeres* and White-wine, of each a Gallon, often stirring them; then add thereto of Milk three Pints; strain it thro' an Hypocras-bag, and sweeten it with a Pound of Sugar-candy.

A certain Modern gives the following Directions for the ordering and improving of Wines:

When your Wines are press'd, put them into Casks that have been well cleansed, and rinsed, two or three Days before with Water, in which the Leaves or Flowers of Peaches have been infused, which gives them an agreeable Flavour.

N.B. Put White-wines into new Casks, lest old ones change their Colour.

If your Grapes are not ripe enough, or of the last Gathering, or of a small Body, about three Weeks after

after they are put up in Casks, roll them five or six times a Day, for four or five Days following; then two or three times a Day, for three or four Days following; once a Day for ten Days after that; thence once in three or four Days; and (if your Grapes were gathered very green) continue rolling them in the Whole about five or six Weeks.

N.B. This Rolling is to be performed discretionally, in proportion to the Ripeness or Greenness of the Grapes when gathered; *viz.* if ripe, very little Rolling will serve; once in four or five Days, for a Month, is sufficient.

This Rolling heightens the Fermentation, heats the Wine, causing it to purge and purify, and helps to ripen it better than any Method yet known. Besides, this mixing it with the Lee sweetens and strengthens it, and renders it more palatable.

When your Wines ferment (which they will do in a few Days), take out the Bung of each Cask, covering it with a Cloth laid hollow over the Hole, to prevent Dirt from falling therein.

Take off the Froth, which works like Yest, and put a little into those Casks which are backward in fermenting, and it will greatly help their Fermentation.

It is to be observed, that the finest Wines ferment the soonest; the rest in proportion to their Goodness. The Fermentation will continue about ten or twelve Days at least.

When the Fermentation is over (which you will know by the Froth ceasing), fill up each Cask within two Inches, and bung it up close, opening at the same time a small Vent-hole, to carry off what may be thrown up by the Fermentation's not being quite ceased.

Continue filling up, as before, for

ten or twelve Days, till you are sure the Wine has done Fermentation, lest the Foulness, which should work thro' the Vent-hole, sink down for want of Passage, and foul the Wine.

After these twelve Days are expired; fill the Cask within one Inch, once in six Days for a Month; after which, once in fifteen Days for three Months. For tho' the Fermentation will be quite over long before this Time, yet the Casks must be filled once a Month, as long as they are kept in the Cellar or Warehouse; because all Wines will waste in the Cask, and, if they are not kept continually filled up, they will grow flat and heavy.

Stop up the Vent-hole as soon as you are sure the Wines have done working, and open them when you perceive them to work at any time. Observation and Discretion will best guide on these Occasions.

In *Champaigne* and *Burgundy*, such as are curious in their Wines keep Warehouses as well as Cellars, for the Advantage of keeping their Wines cool, into which they move them alternately twice a Year; *viz.* from *April* to *November* they keep them in their Cellars, and from *November* to *April* in Warehouses above-ground; such Warehouses being found, by Experience, to be cooler in Winter than Cellars, being more exposed to the Rigour of the Season; whereas Cellars are coolest in Summer, being less exposed to the Warmth of the Sun and Air.

It is a known Rule, that the cooler Wines are kept, the longer they will last good, and be more grateful to the Palate; and it is best to keep them, as near as possible, in an equal Degree of Heat.

Wines kept too warm are apt to turn sour.

About

About the Middle of *December*; if your Wines are fetled after working, draw them off from the Lees for the first time into fresh Casks, cleansed and prepared as before directed; observing (as before) to keep them fill'd up, and continue undisturbed till the Middle of *February*, at which time draw them off again, as before.

Do the like at the latter End of *March*, and again in *April*, before they are laid into the Cellars to keep them cool, as before directed.

Drawing off Wines frequently from the Lees, renders them brisk, lively, and sparkling in the Glass; while the contrary produces a muddy Dreg or Sediment, makes them thick or dull, and sometimes ropy.

To remedy which, when they draw off the Wines first, take an Ounce of fine Isinglass to each fifty Gallons of Wine; beat it well with an Hammer, infuse it in about a Quart of Brandy or White-wine, till it is fully dissolved, which will be done soonest over a gentle Fire: strain it thro' a Sieve, till it is clear from any Foulness; then pour it into the Bung-hole, stirring it well with a Stick; but so as to move the Lees or Bottom as little as possible. This Stirring puts the Wine into a Ferment, and the glutinous Parts of the Isinglass seize all the Foulness, and make it sink to the Bottom, and become fine in about seven Days.

When you bottle off Wines, observe to do it, in Winter, on a frosty or dry Day; and in Summer, on a cool Day; hot, misty, or rainy Weather being detrimental to them.

When your Bottles are fill'd, and well cork'd, strew the Floor of the Cellar or Warehouse with Sand or Saw-dust, about three Inches thick, laying your Bottles sloopwise thereon, and not setting them upright, which

lets in Air. It will not be amiss to tie down the Corks, and to dip them, and the Mouth of the Bottles, into the Resin and Pitch warm'd, which will prevent the Air getting in, or the Wine leaking out.

If the Wine in your Bottles should prove ropy, on occasion of the Grapes being too ripe, or any other Cause, move them out of the Cellars into the open Air (into a Garret, if you have one): it will recover them quickly.

In *Champaigne* they have an Invention of a Leathern Pipe, which they affix to the Bung-hole of the full and empty Hoghead; and by which means, and a Pair of Bellows contrived for the Purpose, they shift their Wines without disturbing them; but our common way of the Crane being as good, it may serve as well; tho' that is particularly described in the Chapter treating of *Wine-press* in Letter W, and also the Form of them is there delineated on a Copper-plate.

These Rules and Instructions if well observed, will be sufficient for the Management of Wines from the Gathering the Grapes, Pressing them, Casking, Fining, and Preserving the Wine, till it is drawn.

Red-wines prick'd or sour may be changed to White-wines, and become drinkable, by the following Method, practis'd by the *London* Vintners.

When Red-wines are prick'd or eager, take three or four Gallons of new Milk; let it stand till it creams; skim it clean, and set it again to cream; and repeat the Skimming till no more Cream will arise, and the Milk appear bluish; then take the Whites of about eighteen or twenty Eggs, beat them well, and mix them well with the Milk; then pour it
into,

Into your Cask of Lager Red-wine, and with a Stick which reaches almost to the Bottom, stir it about as quick as you can for six or seven Minutes; then stop the Cask up close, and the red Colour will all sink to the Lees, and a clear White-wine will remain; which, if too weak or faint, may be helped and revived with *Aqua Vitæ*, Spirits of Wine, or other strong Mixture, till it is of Strength suitable to your Purpose, which must be guided by your Discretion and Judgment; let it stand some time to settle before you draw it.

This is a common Practice at this Day, tho' known to few, but professed Vintners and Wine-coopers.

Having thus given an Account of the different Practices of the Vignerons, Vintners, and Wine-coopers, in the Management of their several Wines, I shall next offer a few things which have occurred to me from some Observations and Experiments, relating to the making of Wines in *England*.

The Grapes being ripe, should be cut when they are perfectly dry, and carried into a large dry Room, where they must be spread upon Wheat-straw, in such a manner as not to lie upon each other; in this Place they may remain a Fortnight, three Weeks, or a Month, according as there is Conveniency, observing to let them have Air every Day, that the Moisture perspired from the Grapes may be carried off. Then, having the Presses and other things in Order, you should proceed in the following manner: First, all the Grapes should be pulled off the Bunches, and put into Tubs, being careful to throw away such as are mouldy, rotten, or not ripe, which, if mixed with the others, will spoil the Wine; and if the Stalks of the

Bunches are press'd with the Grapes, there will an austere Juice come from them, which will render the Wine acid and sharp: this, I fear, has spoiled a great Quantity of Wine which was made in *England*, which, if otherwise managed, might have proved very good. For we find in *France*, and other Wine Countries, where Persons are desirous of having good Wine, they always pick the Grapes from off the Stalks, before they are pressed; though indeed the common Vignerons, who have more regard to the Quantity than the Quality of their Wines, do not practise this. But as in *England* we labour under the Inclemency of Climate, so we should omit nothing of Art, which may be necessary to help the Want of Sun.

The Grapes being thus carefully picked off, should be well pressed; and if it be designed for Red-wine, the Husks and Stones should be put into the Liquor (which must be put into a large Vat), where the Whole should ferment together five or six Days; after which the Wine should be drawn off, and put into large Casks, leaving the Bung-hole open, to give Vent to the Air which is generated by the Fermentation. But it must be remarked, that after the Wine is pressed out, and put into the Vat with the Husks, if it does not ferment in a Day or two at most, it will be proper to add a little Warmth to the Room by Fires, which will soon put it into Motion; and for want of this it often happens, where People press their Wine, and leave it to ferment in open cold Places, that the Nights being cold, check the Fermentation, and to cause the Wine to be foul, and almost ever after upon the Fret. This Husbandry is much practised upon the *Rhine*, where they always have

Stoves

5 E

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Stoves placed in the Houses where the Wine is fermented, wherein they keep Fires every Night, if the Season is cold, while the Wines are fermenting.

If White-wine is desired, then the Husks of the Grapes should not remain in the Liquor above twelve Hours, which will be long enough to set it a fermenting. And when it is drawn off, and put into other Vessels, it should not remain there above two Days before it is drawn off again; and this must be repeated three or four times, which will prevent its taking any Tincture from the Husks in fermenting.

When the greatest Fermentation is over, the Wine should be drawn off into fresh Casks, which must be filled within a very little of the Top; but the Bung-hole should be left open three Weeks or a Month, to give Vent to the generated Air; and as the Wine subsides in the Casks, so they should be carefully refilled with Wine of the same Sort from a Store-cask, which should be provided for that Purpose; but this must be done with much Care, lest by hastily refilling the Casks, the Scum which is naturally produced upon all new Wines, should be broken thereby, which will mix with the Wine, and foul it, causing it to take an ill Taste; therefore it would be proper to have a Funnel, which should have a Plate at the small End, bored full of little Holes, that the Wine may pass through in small Drops, which will prevent its breaking of the Scum.

After the Wine has remained in this State a Month or six Weeks, it will be necessary to stop up the Bung-hole, lest by exposing it too much to the Air, the Wine should grow flat, and lose much of its Spirit and Strength; but it must not be

quite stopped up, but rather should have a Pewter or Tin-tube, of about half an Inch Bore, and two Feet long, placed in the Middle of the Bung-hole. The Use of this Tube is to let the Air, which is generated by the Fermentation of the Wine, pass off, because this being of a rancid Nature, would spoil the Wine, if it were pent up in the Cask; and in this Tube there may always remain some Wine, to keep the Cask full, as the Wine shall subside; and, as it shall be necessary, the Wine in the Tube may be easily replenished. For want of rightly understanding this Affair, a great Quantity of the choicest Wines of *Italy*, and other Countries, have been lost. A great Complaint of this Misfortune I received from a very curious Gentleman in *Italy*, who says; "Such is
" the Nature of this Country
" Wines in general (nor are the
" choicest *Cbianti's* excepted), that
" at two Seasons of the Year, *viz.*
" the Beginning of *June* and *September*,
" the first when the Grapes
" are in Flower, and the other
" when they begin to ripen, some
" of the best Wines are apt to
" change (especially at the latter
" Season); not that they turn eager,
" but take a most unpleasant Taste,
" like that of a rotten Vine-leaf,
" which render them not only unfit
" for drinking, but also to make
" Vinegar of; and is called the
" *Settembrine*. And what is most
" strange is, that one Cask, drawn
" out of the same Vat, shall be infected,
" and another remain perfectly good,
" and yet both have been kept in the same Cellar.

" As this Change happens not to
" Wine in Flasks (though that will
" turn eager), I am apt to attribute
" it to some Fault in refilling the
" Cask, which must always be kept
" full;

“ full; which, either by letting
 “ alone too long, till the Decreate
 “ be too great, and the Scum there
 “ naturally is on all Wines, thereby
 “ being too much dilated, is subject
 “ to break; or else, being broken
 “ by refilling the Cask, gives it that
 “ vile Taste. But against this there
 “ is a very strong Objection, *i. e.*
 “ that this Defect seizes the Wine
 “ only at a particular Season, *viz.*
 “ September, over which if it gets,
 “ it will keep good many Years. So
 “ that the Case is worthy the In-
 “ quiry of Naturalists, since it is
 “ evident, that most Wines are more
 “ or less affected with this Distem-
 “ per, during the first Year after
 “ making.”

Upon receiving this Information
 from *Italy*, I consulted the Reverend
 Dr. *Hales* of *Teddington*, who was
 then making many Experiments on
 fermenting Liquors; and received
 from him the following curious So-
 lution of the Cause of this Change
 in Wine, which I sent over to my
 Friend in *Italy*, who has tried the
 Experiment, and it has accordingly
 answered his Expectation, in pre-
 serving the Wine, which was thus
 managed, perfectly good: he has
 also communicated the Experiment
 to several Vignerons in different
 Parts of *Italy*, who are repeating the
 same: which take in Dr. *Hales*'s
 Words.

“ From many Experiments which
 “ I made the last Summer, I find
 “ that all fermented Liquors do ge-
 “ nerate Air in large Quantities,
 “ during the time of their Fermen-
 “ tation; for, from an Experiment
 “ made on twelve Cubic Inches of
 “ *Malaga Raisins*, put into eighteen
 “ Cubic Inches of Water the Be-
 “ ginning of *March*, there were
 “ 411 Cubic Inches of Air gene-
 “ rated by the Middle of *April*;

“ but afterwards, when the Fermen-
 “ tation was over, it resorbed a
 “ great Quantity of this Air. And
 “ from forty-two Cubic Inches of
 “ Air from the Tun (which had
 “ fermented thirty-four Hours be-
 “ fore it was put into the Bolt-head)
 “ had generated 639 Cubic Inches
 “ of Air, from the Beginning of
 “ *March* to the Middle of *June*, af-
 “ ter which it resorbed thirty-two
 “ Cubic Inches of Air: from whence
 “ it is plain, that fermented Liquors
 “ do generate Air, during the time
 “ of their Fermentation, but after-
 “ wards they are in an imbibing
 “ State; which may, perhaps, ac-
 “ count for the Alteration of the
 “ nice *Italian* Wines; for Wine,
 “ during the first Year after making,
 “ continues fermenting more or less,
 “ during which time a great Quan-
 “ tity of Air is generated, until the
 “ Cold in *September* put a Stop to
 “ it; after which it is in an imbib-
 “ ing State. For the Air thus ge-
 “ nerated is of a rancid Nature (as
 “ the *Grotto del Cano*), and will kill
 “ a living Animal, if put into it.
 “ So that if, during the Fermentation
 “ of the Wine, there are two Quarts
 “ of this rancid Air generated,
 “ which is closely pent up in the
 “ upper Part of the Vessel, when
 “ the Cold shall stop the Fermen-
 “ tation, the Wine, by absorbing this
 “ Air, becomes foul, and acquires
 “ this rancid Taste; to prevent
 “ which I would propose the follow-
 “ ing Experiment.

“ Suppose the Ves-
 “ sel A filled with
 “ Wine; in the Bung-
 “ hole of this Vessel
 “ b, I would have a
 “ Glass Tube of two
 “ Feet long, and about two Inches
 “ Bore, fixed with a Pewter Socket
 “ closely cemented, so as that there



" may be no Vacuities on the Sides ;
 " and into this Tube should be an-
 " other, of about half an Inch Bore,
 " closely fixed; the lower Tube
 " should always be kept about half
 " full of Wine, up to X, which
 " will supply the Vessel, as the
 " Wine therein shall subside, so that
 " there will be no room left in the
 " upper Part of the Vessel to con-
 " tain generated Air, which will
 " pass off through the upper small
 " Tube, which must be always left
 " open for this Purpose; and the
 " Tube being small, there will be
 " no Danger of letting in too much
 " Air to the Wine.

" As the Wine in the lower Tube
 " shall subside, it may be refilled by
 " introducing a slender Funnel thro'
 " the small Tube, down to the
 " Scum upon the Surface of the
 " Wine in the larger Tube, so as to
 " prevent its being broken, by the
 " Wine falling too violently upon it.
 " This Experiment being tried with
 " Glass Tubes; will give an Oppor-
 " tunity to observe what Impression
 " the different States of the Air have
 " upon the Wine, by its rising or
 " falling in the Tubes; and if it
 " succeeds, it may be afterwards
 " done by wooden or metal Tubes,
 " which will not be in Danger of
 " breaking."

This curious Experiment, having
 succeeded where-ever it has yet been
 tried, will be of great Service in the
 Management of Wines, there being
 many useful Hints to be taken from
 it, particularly with regard to fer-
 menting Wines; for since we find,
 that Wines too long fermented (espe-
 cially those which are produced in
 cool Countries) do seldom keep well;
 so, by letting them stand in a cool
 Place, the Fermentation will be
 checked, which is agreeable to the
 Practice of the *Champagnois*, who

keep their Wines in Winter in Cel-
 lars above-ground; but when the
 Weather grows warmer in Spring,
 they then carry them down into
 their Vaults, where they are cooler
 than in the Cellars; and this Me-
 thod of removing their Wines from
 the Cellars to the Vaults, and back
 again into the Cellars, as the Seasons
 of the Year shall require, is found
 of great Service in preserving the
 Wines in Perfection. For these
 Wines (being weak, when compared
 with those produced in more Southern
 Countries) have not Body enough
 to maintain them, if they are per-
 mitted to ferment all the succeeding
 Summer, which the Heat of the Sea-
 son will promote, where the Wine
 is exposed to its Influence; and this
 surely must be worth the Trial by
 those who make Wine in this Coun-
 try, since it is the Practice of the
 Northern Countries, which is the
 most proper for our Imitation, and
 not that of the more Southern.

But after the Wine has passed its
 Fermentation in the Vat, and is
 drawn off into the Casks, it will
 require something to feed upon, so
 that you should always preserve a
 few Branches of the best Grapes,
 which may be hung up in a Room
 for that Purpose, until there be Oc-
 casion for them, when they should
 be picked off the Stalks, and two or
 three good Handfuls put into each
 Cask, according to their several
 Sizes: for want of this, many times
 People make use of other things,
 which are by no means so proper for
 this Purpose.

The *Vignerons* of different Coun-
 tries do also put various Sorts of
 Herbs into the Vat, when the Wine
 is fermenting, to give it different
 Flavours. Those of *Provence* make
 use of Sweet-marjoram, Balm, and
 other Sorts of aromatic Herbs; and

upon the *Rbins* they always put some Handfuls of a peculiar Kind of Clary into the Vats, from whence arise the different Flavours we observe in Wines, which, it is probable, were made in the same manner, and from the same Sort of Grapes. How far this might be thought worth practising in *England*, a few Experiments would inform us; though it is to be questioned, whether these Herbs do mend the Wine, because it seems to obtain amongst the *Vignerons*, purely to alter the Flavour of their Wines, and make them agreeable to the *Palate* of their particular Customers. But however this be, it is yet certain, that there is some Art used to alter the Flavour of the Wine, in most of the different Wine Countries of *France*; for it is the same Sort of Grape, which the Curious always plant in *Orleans*, *Champaigne*, *Burgundy*, and *Bordeaux*; and how different these Wines are in their Flavour and Quality, every one who is acquainted with them, well knows: and this Difference can never be effected by the Situation of the Places, since there is no very great Difference in the Heat of those Countries; nor do I believe, their different ways of making the Wine can alter their Flavour so much, especially those of *Orleans*, *Burgundy*, and *Bordeaux*, where there is little Difference in their Management; but in *Champaigne* there is this Difference from the rest, that they always cut their Grapes in a Morning before the Dew is gone off, or in cloudy Weather; whereas the *Vignerons* of all the other Places never cut any till they are perfectly dry, which may occasion a great Alteration in the Wine.

The Method commonly practised to give the red Colour to Wine, is to let it ferment a few Days upon

the Skins; which they always observe to press two or three times, in order to make them discharge their Contents: but where a deep-colour'd rough Wine is desired, there they put a Quantity of a certain Sort of Grape, whose Juice is red, into each Vat; this is well known in *England* by the Name of *Claret Grape*. The Leaves of this Vine always change to a deep-purple Colour, as the Fruit ripens; and the Grapes are of a fine blue Colour, with a Flue over them like fine Plums; but the Juice of them is very austere, especially if they are not very ripe.

This Red-wine will not require to be drawn off into Casks more than at first from the Vat; for it may remain in the same Vessels until it is fit to bottle off, which, I think, should not be done till the Wine is a Year old; for the greater Quantity of Wine there is in each Vessel, the more Force it will have, and so consequently be in less Danger of suffering from the Injuries of Weather, especially if the before-mentioned Method be practised. But where there are large Quantities of Wine preserved in close Vaults, People should be very cautious how they at first enter them, after they have been shut up for some time, because the Air of this Vault will become rancid from the Mixture of the generated Air proceeding from the Wines, which has often killed People who have incautiously entered them.

From the many Vineyards which have of late Years been planted in *England*, there has as yet been very little Wine made, that has been by the best Judges thought tolerably good: which in a great measure may be attributed to the wrong Exposition of these Vineyards, and to the ill Method of planting and ma-

naging of them, as hath been before observed. But, besides these, there has been a great Want of Skill in the making and after-managing of the Wines, there having been very few Persons who have proceeded in this Affair with good Judgment, or Attention enough to observe the Mistakes they have made in their several Experiments. There is one common Error, into which most Persons have fallen, who have attempted to make Wines in *England*; which is by endeavouring to imitate the Wines of this or that Country; whereas there are few of the Wines which are drunk in *England*, which are not brewed up to suit the Palates of the Drinkers. Therefore the chief Care in making of Wine should be, to make plain good wholesome Liquor, without regarding the particular Flavour (or endeavouring to imitate *Burgundy* or *Champaigne* Wines, &c. as most People have done): in order to which, it is absolutely necessary to observe the following Directions; first, to have the Grapes as duly ripened as possible; then to gather them in a dry Season, as also to separate them from rotten or unripe Grapes, and to pull them from the Stalks before they are pressed: these are the principal Directions for the first Part of the Work. What remains afterward to be observed is, that the Wine ferment a proper time; for if it doth not ferment long enough, or to a proper Degree, it will be continually on the Fret; and therefore not clear or drinkable; and if it is suffered to ferment too long, the generous Spirit will be lost, and the Wine will soon become sour. Therefore on this Particular depends the greatest Nicety of Judgment in the making of Wine; and for this there can be no positive Instructions given; because the Seasons, and

many other Accidents, may occasion a greater or less time necessary for the Fermentation to be continued, in order to give the Wine its proper Strength and Flavour; so that it is only by a close Attention, and by many repeated Experiments, a Person will be enabled to judge rightly when the Wine has had a proper Fermentation, as also how to stop the Fermentation, when it is too violent, or continues too long.

The Method of judging when Wine has fermented its proper time, is chiefly by the Taste; but it in a great measure depends on the Person who directs this Affair having a good Palate, to know when the Wine is in Perfection; for in hot dry Years it will require a much greater Fermentation, and to be continued longer, than in moist cool Seasons; and some particular Sorts of Grapes will take a longer time to ferment than others; so that it is by no means adviseable to mix different Sorts of Grapes, together in the Press, because there are not any two Sorts but will require a different Degree of Fermentation; which will occasion the Wine to be always on the Fret.

After the Fermentation is over, there must be great Care taken to keep the Vessels full of Liquor; as also to leave a Vent in the Bung-hole of the Vessels, for the rancid Air, which is generated, to pass off; for the Reasons given in the former Part of the *Gardeners Dictionary*: tho' it will not be proper to add any other Sorts of foreign Wines to it, as is commonly practised, which seldom incorporate with this *English* Juice. But the best Method to add a Body to it is, to ferment the Juice, as soon as it is pressed, upon the Lees of good *Canary*, or some other strong generous Wines, which will greatly

greatly enrich the *English* Juice. But then great Care should be taken to get the Lees pure and unmixed, otherwise it will have a contrary Effect.

I have been informed by Persons who have resided in the Countries from whence we have the strongest Wines, that it is a common Method there in Practice, to distil a strong Spirit from the Husks of the Grapes, which they pour into the Wine, after it has fermented a proper time; which checks the Fermentation, and adds Strength to the Wine. This is at present universally practised amongst the Vignerons in *Portugal*, with this Difference only; that those who are the most curious in the Quality of their Wines, take particular Care, in drawing off the Spirit, to have it as pure as possible; as also to rectify it very high, that the Quantity added to the Wine may be small, and not so distinguishable on the Palate. And those Years when their Vintage proves very bad, it is a common Practice for these Vignerons, or at least Wine-coopers, who reside there, to procure great Quantities of Brandy from *France*, which they rectify to an higher Spirit, and mix with their Wines, before they ship them for *England*.

Since this is the Practice in the Wine Countries, it might be very well worth the Trial in *England*, to be informed of the Effects; because as our Seasons frequently prove bad, there will be a greater Necessity of adding a Body to the Wine, in order to prevent its turning acid, which is too frequently the Case with *English* Wines.

There are some Persons, who add Sugar, Honey, and other Mixtures, to their Wines, to render them palatable: but this is very wrong

Practice; for it generally causes the Wine to fret, and always renders it disagreeable to the Stomach; therefore I would by no means advise the putting any other than a few of the very best foreign Raisins into the Wine, upon which the Wine may feed, which will be of great Use to preserve it.

In some of the Islands of the *Archipelago*, it has been long practised by the Inhabitants to boil their Wines, which gives them a good Body, and preserves them a long time. These Wines were formerly much more esteemed in *England*, than they are at present, most Peoples Palates having been vitiated by the *French* Wines, which are thin and weak; so may be drunk in greater Quantities, tho' the former more generous Wines are generally esteemed more wholesome, when taken moderately. This Practice may be very well worth Trial in *England*, because, in boiling, a great Quantity of the watery Parts will be thrown off, which may give the Wine a Body, and preserve it.

The adding of a Colour to the *English* Wine, is another thing which has employed the Thoughts of many Persons; some have added the Juice of Elder-berries, which, I have been informed, is also frequently practised abroad; others have added the Juice of Sloes, Mulberries, Blackberries, &c. but as none of these will add any Strength to the Wine, they must be used sparingly; for where a Colour is desired in Wine, it will be a better Method to make use of Turnsole, which is chiefly practised by the Vintners and Wine-coopers, to give a Colour to their pale Wines, than to add too large Quantities of either of those Juices. And as a small Quantity of Turnsole will be

sufficient, to colour a large Barrel of Wine; so it is likewise the cheapest Tincture which can be used.

The several Practices in Use amongst the Wine-coopers, both at home and abroad, to add different Flavours to their Wines, is a Mystery which they by no means care to divulge; for I have been informed by some Persons, who have been a little acquainted with their Arts, that they can brew up Wines of almost any Sort in such a manner as to imitate the Flavour of any other Sort of Wine; but if these Wines are kept any time, they will become foul and ill-tasted; so that it may be easily supposed, that these Wines are not very wholesome to drink, though they may have an agreeable Flavour for a time. The Practice of mixing one Sort of Wine with another, in order to give Strength, Brightness, or Flavour to Wines, has been long in Use; and if there are no worse Mixtures, there may be little Danger in drinking of these Wines: but by the Effects which some Persons have observed, in those who have drunk but small Quantities of these brewed Wines, there is great Reason to fear, that some unwholesome Things are often mixed with them.

That the Practice of mixing of one Sort of Wine with another, is at present greatly used in London, is very obvious from the great Quantities of *Alicant* and other strong *Spanish* Wines, which are imported, and bought up by the Coopers and Merchants, who are rarely known to sell any of these Sorts of Wines pure as they bought them. Also the whole Vintage of *Barabarr*, which is ingrossed by the *French* Wine-merchants in London, is supposed to be mixed with the low

Growth of *French* Wines, to add Strength to them; since it is rarely, if ever, known they sell this Wine again, simple and unmixed.

Since, from what has been related in this Place, and also in the former Part of the *Gardeners Dictionary*, it is plain, that most of the different Flavours of foreign Wines are adventitious; therefore whoever sets about to make Wine of *English* Grapes, should not be very solicitous to add particular Flavours to it; but rather have regard to the Wholesomeness, and to give it Strength enough to preserve it; which is what should be principally regarded, because afterward it will not be very difficult to add any particular Flavour, according to the Palate of the Owner, from the Instructions which have been exhibited. For Instance, that strong Flavour which is observed in some *French* Clarets, is given by adding some dried Elder-flowers to the Juice, when it is fermenting; and this may be added in a greater or less Degree, according to Persons Palates. The Flavour of *Rhenish* Wines, which many People admire, is given by adding of the Flowers of the yellow Clary, called by some Botanists *Colus Jovis*. The Flavour of *Frontinac* Wine may be given by adding a Quantity of the Juice of white Elder-berries, with many other Mixtures, which need not be repeated here.

The other necessary Cautions to be taken, in order to preserve Wine clear, and in good Condition, besides what have been exhibited, are, first, that the Vault in which it is placed be under a good Building, so as not to be affected by the external Air; for if it be exposed to Rain, there will be no Possibility of keeping Wines in it, tho' the Arch may be

be returned with the utmost Care: and this well clayed on the Top, and paved with square Stones over the Clay; as I have several times observed; where all these have been well performed: and yet the Vaults would not keep Wine in any tolerable Condition, when the Rains in Autumn have fallen. For if the Vaults are not so contrived, as that Heat and Cold may not alter the Temperature of the Air, Wines will never continue long good in them. Therefore it will be very proper to hang Thermometers up in the Vaults, by which the Alterations of Heat and Cold may be certainly known; and if it appears, that the Spirit is ever raised in the Summer, or sunk by Cold in the Winter, above five Divisions from the temperate Point, there will be small Hopes of preserving the Wine which is placed in them. The next Caution should be, not to put any Quantity of other fermenting Liquors into the same Vault with the Wine; for that will often affect the Wines which are near them. Nor should new Wines be carried into the Vaults where the old Wines are kept, because, when the new Wines are in a strong State of Fermentation, they will affect the whole Air of the Vaults, and alter its Temperature; whereby the old Wines will be often caused to fret, which will raise the Sediment, and foul the Wine; so that many times it becomes so ill-tasted, as not to be, by the greatest Art, ever rendered so palatable as before. There are many other Things which will occur to a careful Observer, who is practised in managing of Wine, very well worthy to be considered by the Curious, which have never fallen within my Observation.

XANTHIUM, Lesser Burdock,

The Characters are;

It hath a flosculous Flower, consisting of many Florets, which are barren, out of which arises the Chive, supporting the Summit for the most part bifid. The Embryoes arise at a remote Distance from the Flowers, on the same Plant, which become oblong Fruit, for the most part prickly, divided into two Cells, and pregnant with Seeds, which are also oblong.

The Species are;

1. XANTHIUM. *Dod. pempt. 39.*
The Lesser Burdock.

2. XANTHIUM *Canadense majus, fructu aculeis aduncis munito.* *Inst. R. H.* A greater Kind of the Lesser Burdock from *Canada*, with a Fruit armed with crooked Prickles.

3. XANTHIUM *Lusitanicum laciniatum, validissimis aculeis munitum.* *Inst. R. H.* Jagged *Portugal* Lesser Burdock, armed with very strong Prickles.

4. XANTHIUM *Carolinense medium, fructu torosore.* *Hort. Elsb.* Middle *Carolina* Lesser Burdock, with a swelling Fruit.

The first Sort is sometimes found wild in *England*, tho' rarely; but in several other Countries it grows plentifully by the Sides of Brooks, Ditches, and other standing Waters; always delighting in a moist fat Soil. This Plant is placed in the Catalogue of Medicinals at the End of the *College Dispensatory*, tho' at present it is rarely used in Physic.

The second Sort was brought from *Canada*, where it grows very plentifully; as also in many of the neighbouring Countries in *North America*.

The

The third Sort is a Native of Portugal, from whence the Seeds have been procured by some curious Botanists, who preserve it in their Gardens.

The fourth Sort was discovered by Mr. Catesby, in South Carolina, from whence he brought the Seeds to Europe.

All these are annual Plants, which, if permitted to scatter their Seeds in Autumn, will maintain themselves better than if they are sown in the Spring; for the Seeds will remain in the Ground all the Winter, and the Plants will come up early the following Spring; when they will require no farther Care but to thin them where they are too close, and to keep them clear from Weeds. In July, their Flowers will begin to appear, and their Seeds will ripen in September.

The first is an humble Plant, seldom rising above a Foot high; but the second, third, and fourth Sorts, will rise to be near three Feet high, and divide into many Branches. The third Sort is often later in ripening of its Fruit, than either of the former; so that when the Autumns prove very cold, the Seeds do not come to Maturity; therefore it will be proper to raise a Plant or two of this Kind on an Hot-bed early in the Spring; which should be planted in Pots, to confine their Roots, and thereby prevent their growing too luxuriant, and cause them to put out their Flowers and Fruit much sooner; so that their Seeds will be perfectly ripe.

XERANTHEMUM, Eternal-flower, or Ptarmica; vulgo.

The Characters are;

It hath a scaly silver-coloured Flower-cup; the Flower is dry; the

Disk consisting of many plain Petals, having no Embryoes affixed to them; yet are included in the same Empalement with the Florets; the Embryoes afterward became Seeds, each having a leafy Head.

The Species are,

1. XERANTHEMUM *flore simplicis purpureo majore.* H. L. Eternal-flower, or Ptarmica, with a large single purple Flower.

2. XERANTHEMUM *flore pleno purpureo majore.* H. L. Eternal-flower, or Ptarmica, with a large double purple Flower.

3. XERANTHEMUM *flore simplicis albo.* H. L. Eternal-flower, or Ptarmica, with a single white Flower.

4. XERANTHEMUM *flore pleno albo.* H. L. Eternal-flower, or Ptarmica, with a double white Flower.

5. XERANTHEMUM *flore simplicis purpureo minore.* Tourn. Eternal-flower, or Ptarmica, with a lesser single purple Flower.

6. XERANTHEMUM *flore purpureo simplicis minimo, semine maximo.* H. L. Eternal-flower, or Ptarmica, with a very small single purple Flower, and a large Seed.

7. XERANTHEMUM *incanum, flore albo.* H. R. Par. Hoary Eternal-flower, with a white Flower.

8. XERANTHEMUM *flore simplicis minimo, dilute purpurascete.* H. L. Bat. Eternal-flower, with the least single, pale, purplish-coloured Flower.

9. XERANTHEMUM *flore simplicis, ex albo & rubro obsoletis mixto.* Hort. Cath. Eternal-flower with a single Flower of a mixed Red and White.

10. XERANTHEMUM *flore pleno, ex albo & rubro obsoletis mixto.* Hort.

Hort. Cath. Eternal-flower, with a double Flower mixed with White and Red.

11. XERANTHEMUM *orientale, flore minimo, calyce cylindraceo. Tourn.*
Cor. Eastern Eternal-flower, with the least Flower, having a cylindrical Cup.

These Flowers were formerly much more cultivated in the *English* Gardens than at present, especially the two Sorts with double Flowers, which the Gardeners near *London* did cultivate in great Plenty for their Flowers, which they brought to Market in the Winter-season, to set in Glasses in Rooms, to supply the Place of other Flowers, which are not easy to be procured at that Season; for these being gathered when they are fully blown, and carefully dried, will continue fresh and beautiful many Months: but as there are no other Colours in these Flowers but white and purple, the Gardeners had a Method of dipping them into various Tinctures, so as to have some of a fine Blue, others Scarlet, and some Red, which made a pretty Variety; and if they were rightly stained, and afterward hung up till they were thorough dry, they would continue their Colours as long as the Flowers endured.

All these Sorts are propagated by Seeds, which should be sown on a warm Border in *August*, observing to water and shade the Ground, if the Season proves warm and dry, until the Plants are come up; after which they must be kept clear from Weeds, and in dry Weather should be now-and-then refreshed with Water. When the Plants are about two Inches high, they should be pricked out into another Border under a warm Wall, Pale, or Hedge, at about four or five Inches Distance from each other. In this Place, the

Plants will endure the Cold of our ordinary Winters extremely well; and in the Spring will require no farther Care but to keep them clear from Weeds; for they may remain in the same Place for good. In *June* they will begin to flower, and the Beginning of *July* they will be fit to gather for drying: but a few of the best and most double Flowers of each Kind should be suffered to remain for Seed, which in about a Month's time will be ripe, and the Plants will perish soon after; so that the Seeds must be annually sown in order to preserve them.

The Seeds of these Plants are many times sown in the Spring; but they seldom grow so well at that Season, nor will the Plants grow near so large, or produce near the same Quantity of Flowers, as those which are sown in Autumn; for which Reason that Time should be preferred. Besides, it often happens, that the Plants which come up of the Spring-sowing, rarely produce good Seeds, unless the Season proves very favourable.

XIPHION, Bulbous Iris, or Flower-de-luce.

The Characters are;

It hath a Lily-flower, consisting of one Leaf, and shaped exactly like that of the common Iris: the Pointal is furnished with three Leaves, but the Empalement turns to a Fruit, shaped like that of the common Iris; and the Root is bulbous, or consists of many Coats.

The Species are;

1. XIPHION *Perficum praxos, flore variegato. Tourn.* Early *Perfian* bulbous Flower-de-luce, with a variegated Flower.

2. XIPHION *angustifolium, flore albo, labio inferiori rictus aureo. Boerb. Ind.* Narrow-leaved bulbous Iris, with a white Flower, and the lower

Lower Part of the Lip of a yellow Colour.

5. *XIPHION angustifolium, caruleo-violaceum, non odorum.* Boerb.

Ind. Common narrow-leaved bulbous Iris, with a blue violet-coloured Flower without Scent.

6. *XIPHION angustifolium, flore luteo inodoro.* Fourn. Narrow-leaved bulbous Iris, with a yellow Flower without Scent.

7. *XIPHION angustifolium, flore ex violaceo purpureo & caeruleo pallescente variegato, notatum.* Boerb.

Ind. Narrow leaved bulbous Iris, with a violet-purple and pale-blue variegated Flower.

8. *XIPHION angustifolium, petalis repandis albis, erectis dilute caeruleis, incumbentibus pallide caeruleis.* Boerb. *Ind.* Narrow-leaved bulbous Iris, whose Flower hath white Falls, the upright Leaves of a sky-blue, and the under ones of a pale-bluish Colour.

9. *XIPHION angustifolium, petalis repandis aureis, incumbentibus pallide flavis, erectis dilute caeruleis.* Boerb. *Ind.* Narrow-leaved bulbous Iris, whose Flower hath yellow Falls, and the upright Leaves are of a sky-blue Colour.

10. *XIPHION angustifolium, flore majore dilute caeruleo.* Narrow-leaved bulbous Iris, with a large sky-blue Flower.

11. *XIPHION angustifolium, flore majore, dilute caeruleo, lineis rubris elegantibus striato.* Narrow-leaved bulbous Iris, with a large sky-blue Flower, elegantly striped with Red.

12. *XIPHION angustifolium, flore majore albo.* Narrow-leaved bulbous Iris, with a large white Flower.

13. *XIPHION angustifolium, flore majore albo, lineis dilute caeruleis, & partibus violaceis distincto.* Narrow-leaved bulbous Iris, with a large

white Flower, with sky-blue Stripes, and spotted with Violet.

14. *XIPHION angustifolium, flore majore saturate violaceo.* Narrow-leaved bulbous Iris, with a large deep violet-coloured Flower.

15. *XIPHION angustifolium, flore majore, petalis repandis dilute caeruleis, erectis saturate violaceo.* Narrow-leaved bulbous Iris, with a large Flower, whose Falls are of a sky-blue, but the upright Petals are of a deep-violet Colour.

16. *XIPHION angustifolium, flore majore, dilute caeruleo, petalis repandis flavis.* Narrow-leaved bulbous Iris, with a large sky-blue Flower with yellow Falls.

17. *XIPHION angustifolium, flore majore, saturatus violaceo, striis rubris eleganter variegato.* Narrow-leaved bulbous Iris, with a deep violet-coloured Flower, beautifully striped with Red.

18. *XIPHION angustifolium, flore majore, petalis repandis dilute caeruleo, erectis flavis.* Narrow-leaved bulbous Iris, whose Flower hath pale-blue Falls, but the upright Leaves are of a yellow Colour.

19. *XIPHION latifolium acanthon odoratum, flore purpureo.* *Inst. R. H.* Broad-leaved sweet-scented Bulbous Iris, with a blue Flower, without a Stalk.

20. *XIPHION latifolium acanthon odoratum, flore purpureo.* *Inst. R. H.* Broad-leaved sweet-scented Bulbous Iris, with a purple Flower without a Stalk.

21. *XIPHION latifolium acanthon odoratum, flore lacteo-coloris.* *Inst. R. H.* Broad leaved sweet-scented Bulbous Iris, with a milk-white Flower with a Stalk.

22. *XIPHION album, oris caeruleis.* *Inst. R. H.* White Bulbous Iris, with blue Borders.

21. XIPHION *Porcellana dictum*.
Inst. R. H. Bulbous Iris, commonly
called *Porcellana*.

22. XIPHION *Chamoletta Lavendulacea dictum*. Inst. R. H. Bulbous
Iris, called in Holland, *Chamoletta
Lavendulacea*.

23. XIPHION *Chamoletta dictum*,
flore caeruleo, versicolor. Inst. R. H.
Bulbous Iris, with a blue variegated
Flower, called *Chamoletta*.

24. XIPHION *Chamoletta dictum*,
flore purpureo, versicolor. Inst. R. H.
Bulbous Iris, called *Chamoletta*, with
a purple variegated Flower.

25. XIPHION *latifolium caule dona-
tum, flore caeruleo*. Inst. R. H.
Broad-leaved Bulbous Iris, with a
blue Flower furnished with a Stalk.

26. XIPHION *latifolium caule do-
natum, flore atro-purpurascente*. Inst.
R. H. Broad-leaved Bulbous Iris,
with a dark-purple Flower, furnished
with a Stalk.

27. XIPHION *latifolium caule do-
natum, flore caeruleo, lineis violaceis
aut purpureis distincto*. Inst. R. H.
Broad-leaved Bulbous Iris, with a
blue Flower, marked with violet and
purple Lines, and furnished with a
Stalk.

28. XIPHION *latifolium caule do-
natum, flore cinereo, violaceis striis
distincto*. Inst. R. H. Broad-leaved
Bulbous Iris, furnished with a Stalk,
and an ash-coloured Flower, striped
with Violet.

29. XIPHION *latifolium candidum*.
Inst. R. H. Broad-leaved Bulbous
Iris, with a white Flower.

30. XIPHION *foliis amplioribus
maculatis, flore purpureo*. Inst. R. H.
Bulbous Iris with larger spotted
Leaves, and a purple Flower.

31. XIPHION *foliis amplioribus
maculatis, flore violaceo*. Inst. R. H.
Bulbous Iris with broader spotted
Leaves, and a violet Flower.

32. XIPHION *foliis amplioribus
maculatis, flore niveo*. Inst. R. H.
Bulbous Iris with broader spotted
Leaves, and a snow-white Flower.

33. XIPHION *versicolor & mul-
tiformum*. Inst. R. H. Many-leaved
variegated Bulbous Iris.

34. XIPHION *majus & humilius*,
flore amplo flavo vario. Inst. R. H.
Greater and lower Bulbous Iris,
with a large yellow variable Flower.

There are many other Varieties
of this Flower, which have been of
late Years obtained from Seeds:
their Numbers are every Year so
much increased that way, that it
would be endless to enumerate them
all: therefore I shall proceed to their
Culture; in which I shall first begin
with the Method of raising them
from Seeds, that being the way to
obtain new Varieties.

Having procured a Parcel of Seeds
from good Flowers, the Beginning
of *September* you should provide some
flat Pans or Boxes, which must have
Holes in their Bottoms to let the
Moisture pass off: these should be
filled with fresh light sandy Earth,
and the Seeds sown thereon pretty
thick, observing to scatter them as
equally as possible; then cover them
over about half an Inch thick with
the same light fresh Earth, and place
the Boxes or Pans where they may
have the morning Sun till Eleven of
the Clock; and if the Season should
prove very dry, they must be now-
and-then refreshed with Water.

In this Situation they may remain
until the Middle of *October*, when
they should be removed into a more
open Position, where they may have
the full Sun most Part of the Day;
in which Place they must abide all
the Winter, observing to keep them
clear from Weeds and Moss, which
at this Season is very apt to spread
over

over the Surface of the Earth, in Pots, when they are exposed to the open Air.

In the Spring the Plants will appear above-ground, when, if the Season is dry, they must be now-and-then refreshed with Water, and constantly kept clear from Weeds; and as the Season advances, and the Weather becomes warm, they should be again removed into their former shady Situation, where they may enjoy the morning Sun only. When the Plants begin to decay, which will be in *June*, they must be cleared from Weeds and dead Leaves, and some fresh Earth sifted over them about half an Inch thick, still suffering them to abide in the same Situation all the Summer-season; during which time they will require no farther Care, but to keep them clear from Weeds until the Beginning of *October*, when they must be again removed into the Sun, and the Surface of the Earth lightly taken off, and some fresh Earth sifted over them.

In this Place they must remain all the Winter, as before; and in the Spring they must be treated as was directed for the former Year.

When the Leaves are decayed, the Bulbs should be carefully taken up (which may be best done by sifting the Earth through a fine Sieve), and a Bed or two of good light fresh Earth should be prepared, into which the Bulbs must be planted, at about three Inches asunder each way, and three Inches deep. These Beds must be constantly kept clean from Weeds and Moss; and in the Spring, just before the Plants come up, the Surface of the Beds should be stirred, and some fresh Earth sifted over them about half an Inch thick, which will greatly strengthen the Roots.

During the Spring and Summer they must be constantly weeded; and at *Michaelmas* the Earth should be again stirred, and some fresh sifted over the Beds again as before; observing in Winter and Spring still to keep the Beds clean, which is the whole Management they will require; and in *June* following the greatest Part of the Roots will flower; at which time you should carefully look over them, and put down a Stick by all those whose Flowers are beautiful, to mark them; and as soon as their Leaves are decayed, these Roots may be taken up to plant in the Flower-garden amongst other choice Sorts.

But the Nursery-beds should still remain, observing to keep them clear from Weeds, as also to sift fresh Earth over them, as was before directed; and the following Season, the remaining Part of the Roots, which did not flower the last Season, will now shew their Blossoms, so that you may know which of them are worth preserving in the Flower-garden, which should now be marked; and when their Leaves are decayed, they must be taken up, and planted with the other fine Sorts in an East Border of light fresh Earth; but the ordinary Sorts may be intermixed with other bulbous-rooted Flowers in the large Borders of the Pleasure-garden, where, during their Continuance in Flower, they will afford an agreeable Variety,

But after these choice Flowers are obtained from Seeds, they may be increased by Off-sets, as other bulbous Flowers are. These Off-sets should be planted in a separate Border from the blowing Roots, for one Year, until they have Strength enough to produce Flowers; when they

they may be placed in the Flower-garden with the old Roots.

These Bulbs need not be taken up oftener than every other Year, which should always be done soon after their Leaves decay; otherwise they will send forth fresh Fibres, when it will be too late to remove them; nor should they be kept long out of the Ground; a Week or Fortnight is full enough; for when they are kept longer, their Bulbs are subject to shrink, which causes their Flowers to be weak the following Year.

The Earth which these Flowers thrive best in, is a light sandy Loam; and if it be taken from a Pasture-ground, with the Sward, and laid in an Heap until the Grass is thoroughly rotted, it will be still better; for these Bulbs do not delight in a rich dunged Soil; nor should they be planted in a Situation where they may be too much exposed to the Sun: for in such Places their Flowers will continue but a few Days in Beauty, and their Roots are apt to decay; but in an East Border, where they have the Sun until Eleven of the Clock, they will thrive and flower extremely well, especially if the Soil be neither too wet or over-dry: from the most beautiful of these Flowers should be Seeds saved, and sown every Year, which will always furnish new Varieties, some of which will greatly exceed the original Kinds.

The Persian Iris is greatly esteemed for the Beauty, and extreme Sweetness, of its Flowers, as also for its early Appearance in the Spring, it generally being in Perfection in February, or the Beginning of March, according to the Forwardness of the Season, at which time there are few other Plants in Beauty.

This may be propagated by Seeds, in the same manner as the other Sorts; but the Boxes in which they are sown, should be put under a Garden-frame in Winter, to shelter them from hard Frosts, because while the Plants are young, they are somewhat tender: from the Seeds of this Kind, I could never obtain any Varieties, their Flowers being always the same.

These Plants are also propagated by Off-sets in the same manner as the other Sorts; but their Roots should not be transplanted oftener than every third Year, nor should they be ever kept out of the Ground long, because their Roots will intirely decay in a short time, so as not to be recovered again. This Sort was formerly more common in the Gardens near London, than at present; which I suppose has been occasioned by the keeping the Roots above-ground too long, which destroyed them.

XYLON, The Cotton-plants.

The Characters are;

The Flower consists of one Leaf, cut into several Segments almost to the Bottom, and is of the expanded Bell-shape; from the Centre rises an hollow pyramidal Tube, adorned and loaded, for the most part, with Chives; from the Empalement shoots up the Pointal, fixed like a Nail in the Bottom of the Flower, and of the Tube, which is afterward changed into a roundish Fruit, divided into four or more seminal Cells, gaping at the Top, and inclosing Seeds covered over with, and wrapped within that soft ductile Wool, commonly known by the Name of Cotton.

The Species are;

1. XYLON *sive Gossypium herbaceum.* J. B. Herb or Shrubby Cotton.

2. XY-

2. *XYLON Americanum præstantissimum, semine virescente. Ligon.* The most excellent American Cotton, with a greenish Seed.

3. *XYLON fove Gossypium frutescens annuum, folio vitis ampliori quinquesido, Insulæ Providentiæ. Pluk. Phyt.* Annual shrubby Cotton of the Island of *Providence*, with a large quinquesid Vine-leaf.

4. *XYLON arboreum. J. B.* The Tree Cotton.

5. *XYLON arboreum, flore flavo. Tourn.* Tree Cotton, with a yellow Flower.

There are several other Varieties of this Plant in the warm Parts of the *East* and *West Indies*, where they grow in great Plenty, some of which have been observed by the Curious in Botany; but others have escaped their Notice: however, these being what I have observed growing in the *European* Gardens, I shall not trouble the Reader with an Enumeration of the other Varieties.

The first Sort here mentioned is cultivated plentifully in *Candy, Lemnos, Cyprus, Malta, Sicily*, and at *Naples*; as also between *Jerusalem* and *Damascus*, from whence the Cotton is brought annually into these Northern Parts of *Europe*. It is sown upon tilled Grounds in the Spring of the Year, and cut down and reaped in Harvest, as Corn with us; the Ground must be tilled and sown again the succeeding Year, and managed in such sort, as we do the Tillage for Corn, and other Grain: it is an annual Plant, perishing when it hath perfected its Fruits, as many others do.

This Cotton is the Wool which incloses or wraps up the Seeds, and is contained in a kind of brown Husk or Seed-vessel, growing upon this Shrub; for it is from this Sort

that the vast Quantities of Cotton are taken which furnish our Parts of the World: it is brought from the Islands, where the Natives take great Care of its Culture: there are several Sorts of Cotton sold, which chiefly differ according to the Countries from whence they come, and the various Preparations made of them. The first is the Cotton in the Wool, that is to say, that which comes from the Shell, from which only we take the Seed; those Cottons come from *Cyprus, Smyrna, &c.* The second is the Cotton in the Yarn, which comes from *Damascus*; the *Jerusalem* Cottons, which are called *Bazacs*, are the best which are sold. The second and third Sorts are also annual; these are cultivated in the *West-Indies* in great Plenty. But the fourth and fifth Sorts grow in *Egypt*; these abide many Years, and often arrive to be Trees of great Magnitude, from which the Inhabitants are annually furnished with great Quantities of Cotton. One of these Trees has a purplish, and the other a yellow Flower, which I believe is the only Difference between them.

All these Sorts are preserved in the Gardens of those who are curious in collecting rare Plants. They are easily raised from Seeds (which may be obtained fresh from the Places of their Growth): these must be sown upon an Hot-bed early in the Spring, and when the Plants come up, they must be transplanted out each into a separate small Pot filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which they should have Air and Water in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed;

placed; for if they are too much drawn, by keeping the Glasses close down in the Day-time, they will run up very weak and slender, so as not to be able to support themselves; and if they are too much exposed to the Air, they will not make any Progress in their Growth.

When the Plants are so far advanced, as to fill the Pots with their Roots, they should be shaken out, and put into larger Pots, which should be filled with the same light fresh Earth, and again plunged into the Hot-bed, and managed as before: thus from time to time, as the Plants advance, they must be removed into larger Pots; and as the Warmth of the Season increases, they should have a greater Share of Air; and when they are too tall to continue under the Glasses of the Hot-bed Frame; they must be removed into the Stove, and placed in the Tan-bed, amongst other tender Exotic Trees and Shrubs; in which Place the annual Sorts will produce their Flowers in Autumn; but they rarely produce Pods in this Country.

The Tree Kinds must be continued in this Bark-stove all the Winter; and if they are placed with the All-spice, Seaside Grape, and such other West-Indian Trees, serving to keep the Air of the House about ten Degrees above the temperate Heat marked on Mr. Foster's Botanical Thermometers, they will thrive very well, provided they are often refreshed with Water.

KYLON ARBOREUM; *vide* Ceiba.

XYLOSTEON, Upright Honey-suckle.

The Characters are;
The Flower consists of one Leaf, is tubular, and divided into several
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Parts at the Top, and rests on the Empalement; these are for the most part produced by Pairs on the same Foot-stalk. The Empalement afterwards becomes a soft double Fruit or Berry, inclosing compressed roundish Seeds.

There is but one Species of this Plant at present known; *viz.*

XYLOSTEON Pyrenaicum. *Inf.*
R. H. Pyrenean Upright Honey-suckle.

This Plant was discovered by Dr. Tournefort on the Pyrenean Mountains, who has separated it from the *Chamaecerasus*, on account of the Shape of its Flower, which differs so little from the Flowers of those Plants, that it doth not deserve to be removed from them; since the Fruit agrees perfectly with those of that Genus.

It grows about three or four Feet high, and divides into many Branches, after the same manner as the other Upright Honey-suckles; the Flowers are small, and come out but sparsely on the Branches, so do not make any great Appearance. The usual Time of its flowering is in February, about the same time as the *Miscaroon*; wherefore it may be admitted to have a Place in Gardens, amongst other hardy Exotic Shrubs, in order to make a Variety. This Plant may be propagated by Cuttings, which should be planted at *Michaelmas* on a shady Border, and in a strong loamy Soil; where, if they are duly watered in dry Weather, and kept clear from Weeds, they will make good Roots by the following *Michaelmas*, when they may be removed to the Places where they are designed to remain, which should be in a strong loamy Soil, and in a cool shady Situation. For if these Plants are planted on a light dry Soil, and in an open Situation, they will

will not live through one Summer, unless they are plentifully watered in dry Weather; and even with this Care, they will make but little Progress.



Y E

YEW-TREE; *vide* Taxus.
YUCCA, The Indian Yucca, *vulgo*.

The Characters are;

It hath the Appearance of an Aloe, the Leaves ending in a sharp Point, but will grow in the Habit of a Tree; the Flower consists of one Leaf, which is bell-shaped, cut into six Segments, and naked; these are produced on long Spikes; the Ovary, which is in the Centre of the Flower, afterward becomes a tricapsular Fruit, as in the Aloe.

The Species are;

1. YUCCA *foliis aloes*. C. B. P. The common Yucca.
2. YUCCA *foliis filamentosis*. Meriss. Yucca with Threads growing from the Leaves.
3. YUCCA *arborea*. The Tree Yucca.
4. YUCCA *draconis folio serrato*. H. Elth. Yucca with Leaves like those of the Dragon tree.

The first of these Plants is pretty hardy, and when grown strong, will endure the Cold of our ordinary Winters in the open Air very well, provided it be planted on a dry Soil: this commonly produces its Flowers every Year, which grow very sparsely on the Stalks, and are less beautiful than those of the Tree Sort, which are produced in a long close Spike, and make a very beautiful

Appearance; but these do not flower oftener than once in four or five Years, which is always in Autumn, so that they never produce any Seeds in this Country.

The threaded Sort is not so common as the others in the *English* Gardens; but as it is a Native of *Virginia*, it might be easily procured in Plenty from thence. The fourth Sort hath been raised of late Years from Seeds, which came from thence, and is now pretty common in *England*; but the Plants are not as yet arrived to Maturity enough to produce Flowers in *England*; so that I cannot say how they differ from those of the other Sorts.

All these Plants are either propagated by Seeds, when obtained from Abroad, or else from Off-sets or Heads taken from the old Plants, after the manner of Aloes.

When they are raised from Seeds, they should be sown in Pots filled with light fresh Earth, and plunged into a moderate Hot-bed, where the Plants will come up in five or six Weeks after; and when they are two or three Inches high, they should be transplanted each into a separate small Pot filled with light fresh Earth, and plunged into the Hot-bed, where the Plants should have Air and Water in proportion to the Warmth of the Season, and the Bed in which they are placed.

In *July*, they should be enured by degrees to bear the open Air, into which they must be removed, to harden them before Winter, placing them in a well-sheltered Situation, where they may remain until the Beginning of *October*, when they must be removed into the Green-house, where they may be ranged amongst the hardier Sorts of Aloes, and should be treated in the same manner as hath been already directed for

Z A

for them, to which the Reader is desired to turn for further Instructions.

When these Plants have acquired Strength, they may be afterwards turned out into a warm Border, where they will endure the Cold of our ordinary Winters very well, especially the two first Sorts; and, I believe, the other two Sorts will bear the Cold pretty well, after they are grown strong and woody in their Stems.

The Off-sets taken from the old Plants should be laid in a dry Place for a Week or ten Days before they are planted, that their Wounds may heal; otherwise they will be subject to rot with Moisture.



Z A

ZACINTHA, Warted Succory.

The Characters are;

It hath a fuscous Flower, consisting of many half Florets, stantly resting on the Embryoes, and included in a scaly Empalement. The Empalement afterward becomes a furrowed Head, whose single Parts, or Capsule, have swelling Seeds adorned with a Down.

We have but one Species of this Plant; viz.

ZACINTHA five cichorium verrucarium. Matth. Warted Succory.

This Plant grows abundantly in the Island of Zant, from whence it obtained the Name; it also grows wild in several other warm Countries: but in England it is preserved in the Gardens of some Persons who are curious in Botany, for the sake of Variety; there being little Beau-

Z A

ty or Use at present known in this Plant.

It is an annual Plant, which perishes soon after the Seeds are ripe; therefore must be sown every Year, or the Seeds permitted to scatter on the Ground in Autumn, which will come up in the Spring, and furnish a Supply of Plants more certainly than when the Seeds are sown in that Season; for very often the Seeds which are sown in the Spring, will remain in the Ground a whole Year before the Plants come up; and sometimes they intirely miscarry; whereas those Seeds which scatter in Autumn, or are sown at the same Season, rarely fail. When the Plants are come up, they will require no other Care, but to thin them where they are too close, so as to leave them about six or eight Inches asunder; and after this to keep them clear from Weeds. In June these Plants will begin to flower, and their Seeds will ripen to the End of August, or the Beginning of September.

The Flowers of this Plant are small, and generally produced singly from the Divarications of the Branches, somewhat after the manner of Succory; the Flowers are of a yellow Colour, and resemble those of Hawkweed. After the Flowers are past, the Empalement swells to a furrowed Head, somewhat resembling Warts or Excrecences, in which the Seeds are included.

When the Seeds of this Plant are sown in the Spring, it should be done in Drills made about two Feet asunder; and when the Plants are come up, they should be thinned to the Distance of six Inches in the Rows; because they do not thrive very well when they are transplanted, so that they should remain in the

Places where they are sown; and if they are kept clear from Weeds, they will require no other Care.

ZINZIBER, Ginger.

The Characters are;

The Flower (for the most part) consists of five Leaves, which are shaped somewhat like those of the Iris; these are produced in an Head or Club, each coming out of a separate leafy Scale: the Ovary afterwards becomes a triangular Fruit, having three Cells, which contain their Seeds.

The Species are;

1. ZINZIBER. C. B. P. The common Ginger.

2. ZINZIBER *latifolium sylvestre*. H. L. Broad-leaved wild Ginger, or Zerumbeth.

The first of these Plants is cultivated in the warm Parts of the West-Indies in great Plenty, from whence we are annually furnished with the dried Roots for Use. The second Sort is most common in the East-Indies, tho' it grows wild in some Parts of the West-Indies: there are small Quantities of this Root brought into Europe for Medicinal Use; but it is never used in the Kitchen as the other.

These Plants are propagated as Curiosities in the Gardens of those who delight in rare Plants; they are both propagated by parting of their Roots; the best Time for which is in the Spring, before they begin to shoot, when each large Root may be divided into several Parts, observing always to preserve two or three Eyes to each Piece: these should be planted into Pots filled with rich light Earth, and plunged into an Hot-bed of Tanners Bark, where they must be frequently refreshed with Water, and in hot Weather the Glasses should be raised with a Brick, to give them Air in

proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed: for when their Leaves are come up, if they are too much drawn, they will grow very tall and weak, and the Roots will make but very indifferent Progress. But when they have a due Proportion of Heat, Moisture, and free Air, the Roots will thrive so fast, as in one Season, from a small Head, to spread over a large Pot, and sometimes will produce Flowers in this Country.

But these Plants must be constantly kept in a Hot-bed of Tanners Bark; for they are too tender to endure the open Air in England, in the warmest Part of Summer; and in Winter they must be placed in a Bark-stove: for although their Leaves decay in Autumn, and their Roots seem to remain in an unactive State most Part of the Winter; yet, if they are not preserved in a very warm Place during that Season, they will intirely rot, as I have more than once observed: nor do these Roots abide the Winter so well, when placed upon Boards in the warmest Stove, as when they are plunged in the Bark-bed, tho' they are preserved in the same Degree of Warmth; which I conceive to be owing to the Moisture of the Bark, which in Fermentation ascends, and, entering the Holes at the Bottom of the Pots, affords an agreeable Nourishment to the Roots, preserving them always plump and full; whereas those in a dry Stove often shrink for want of Moisture, and many times decay; for it is not very safe to give them much Water after their Leaves are decayed, because they are very apt to rot with too much Moisture at that Season.

When

When their Leaves are decayed, is the proper Time to take up these Roots; but those that are designed to plant again, should not be disturbed till the Spring, just before they begin to shoot; which, as was before observed, is the best Time to transplant them; because they soon after send forth their Fibres, which will preserve them from rotting.

ZIZIPHUS, The Jujube.

The Characters are;

The Flower consists of several Leaves, which are placed circularly, and expand in form of a Rose; out of whose Empalement rises the Pointal, which afterward becomes an oblong fleshy Fruit, shaped like an Olive, including an hard Shell divided into two Cells, each containing an oblong Nut or Kernel.

The Species are;

1. ZIZIPHUS. *Dod.* The common manured Jujube.

2. ZIZIPHUS *sylvestris.* *Tourn.* The wild Jujube.

3. ZIZIPHUS *quæ Jujube Americana spinosa, loti arboris foliis et facie, fructu rotundo parvo dulci.* *Hort. Beaumont.* Prickly American Jujube, with Leaves like the Nettle-tree, and small round sweet Fruit, commonly called in the *West-Indies*, Mangosteem.

4. ZIZIPHUS *argentea Zeylanica, spinis carens, Walambilla Zeylanicis dicta.* *C. P. B.* Silver-leaved Jujube of *Ceylon* without Spines, commonly called *Walambilla*.

The first of the Plants is cultivated in the Gardens of *Italy*, and the South Parts of *France*, from whence the Fruit was formerly brought into *England* for Medicinal Use; but of late Years it has been very little used in the Shops, so that there is rarely any of it brought over at present.

In those warm Countries they preserve the Fruit for the Table in the Winter-season, when few other Kinds are in Perfection; at which time these, and Services, and some other Sorts, furnish their Desserts.

The Fruit is somewhat like a small Plum, but it has not a great Share of Flesh upon the Stone; tho' it having an agreeable Flavour, it is by some Persons greatly esteemed.

The second Sort grows wild in the Hedges in the South of *France*, *Italy* and *Spain*; but in these colder Countries it is preserved in the Gardens of those who are curious in collecting of the various Kinds of Trees and Shrubs.

These Plants may be propagated by putting their Stones into Pots of fresh light Earth, soon after their Fruits are ripe; and in Winter they should be placed under a common Hot-bed Frame, where they may be sheltered from severe Frost; in the Spring these Pots should be plunged into a moderate Hot-bed, which will greatly facilitate the Growth of the Seeds; and when the Plants are come up, they should be enured to the open Air by degrees, into which they must be removed in *June*, placing them near the Shelter of an Hedge; and in very dry Weather they must be frequently refreshed with Water.

In this Situation they may remain until the Beginning of *October*, when they must be removed either into the Green-house, or placed under an Hot-bed Frame, where they may be defended from Frost; but should have as much free Air as possible in mild Weather.

During the Winter season they should be now-and-then refreshed with Water; but after their Leaves are fallen (as they always shed them

in Winter), they must not be over-watered, which would rot the tender Fibres of their Roots, and cause the Plants to decay.

In *March*, just before the Plants begin to shoot, they should be transplanted, each into a separate small Pot, filled with fresh light Earth; and if they are plunged into a moderate Hot-bed, it will greatly promote their taking Root; but in *May* they must be enured to the open Air by degrees, into which they should be soon after removed.

Thus these Plants should be managed while young, during which Time they are tender; but when they are three or four Years old, they may be planted in the full Ground, where, if they have a dry Soil, and a warm Situation, they will endure the Cold of our ordinary Winters very well.

These Plants may be also propagated by Suckers, which the old ones will many times send forth from their Roots; but these are seldom so well rooted as those produced from Seeds, and rarely make so good Plants; for which Reason they are but seldom propagated that way.

The third Sort is very common in *Barbados*, *Jamaica*, and the other warm Parts of *America*, from whence I have several times received the Seeds, which generally rise very freely on an Hot-bed; but the Plants, being very tender, re-

quire the Help of a Bark-bed constantly, without which they will not make any Progress; and in Winter they must be placed in the Bark-stove, where, if they are frequently refreshed with Water, they will thrive extremely well. There are several Plants of this Kind in the Gardens of the Curious; but I have not observed any to produce Flowers as yet.

The fourth Sort was brought into *England* from some curious Garden in *Holland*, many Years ago: this was raised in the Gardens of *Mynheer Van Beaumont*, from Seeds, which he received from *Ceylon*, and since hath been communicated to many curious Persons in *Holland* and *England*. There is no way as yet found successful, to propagate this Plant, but from Seeds; which being never produced in these cold Countries, and but rarely brought from Abroad, is the Reason it is not very common in the *European* Gardens at present.

This is preserved in Pots of light fresh Earth, and placed in a Stove in Winter, where it may be kept in a moderate Warmth, and must be frequently refreshed with Water, with which Culture the Plants will thrive very well; but I have not seen them produce any Flowers as yet in *England*, though there are several pretty old Trees in the Gardens at *Hampton-court*.

A N

I N D E X

Of the THINGS treated of in the

Gardeners Dictionary.

A

BELE-TREE, *vide*

Populus

Abies

Abrotanum

Abrotanum Fœmina, *vide* Santolina

Abfinchium

Abutilon

Acacia

Acacia Germanorum, *vide* Prunus
sylvæstris

Acacia Virginiana, *vide* Pseudo-
acacia

Acajou

Acanthus

Acer

Acetosa

Acetosiella, *vide* Oxys

Acinos

Aconitum

Aconitum hyemale

Acrivola

Adhatoda

Adiantum

Adonis

Æschynomene, *vide* Mimosa

African Marigolds, *vide* Tagetes

Ageratum

Agnus-castus, *vide* Vitex

Agrimonia

Agrimonoides

Agrimony, *vide* Agrimonia

Hemp-agrimony, *vide* Eupatorium

Ahouai

Alaternoides

Alaternus

Alcea

Alchymilla

Alder-tree, *vide* Alnus

Berry-bearing Alder, *vide* Frangula

Alexander, *vide* Smyrnum

Alkekengi

Alleluja, *vide* Oxys

Allium

Almond-tree, *vide* Amygdalus

Almond Dwarf, *vide* Perfica

Alnus

Aloe

Althæa

Alyssoides

5 F 4

Alysson

- Alysson
 Amaranth, *vide* Amaranthus
 Amaranthus
 Amaranthoides
 Liquid Amber, *vide* Styrax
 Ambrosia
 Ammi
 Amomum Plinii, *vide* Solanum
 Amoris Pomum, *vide* Lycopersicon
 Amygdalus
 Anacamperos
 Anagallis
 Anagyris
 Ananas
 Anapodophyllon
 Anchusa
 Androsæmum
 Anemone
 Anemone the Wood, *vide* Anemone
 noides
 Anemonospermos
 Anethum
 Angelica
 Berry-bearing Angelica, *vide* Aralia
 Angelica-tree, *vide* Aralia
 Anguria
 Anil
 Anise, *vide* Apium
 Anona
 Anonis
 Anthora, *vide* Aconitum
 Antirrhinum
 Aparine
 Aphaca
 Apios
 Apium
 Apocynum
 Apple-trees, *vide* Malus
 Sweet-apple, *vide* Anona
 Custar-apple, *vide* Anona
 Male Balsam-apple, *vide* Momcr-
 dica
 Paradise-apple, *vide* Malus
 Star apple, *vide* Anona
 Sour-apple, *vide* Anona
 Water-apple, *vide* Anona
 Fig-apple, *vide* Malus
 Apples of Love, *vide* Lycopersicon
 Mad-apple, *vide* Melongena
 Thorn-apple, *vide* Stramonium
 Apricock, *vide* Armeniaca
 Aquifolium
 Aquilegia
 Aralia
 Arbor camphorifera, *vide* Camphora
 Arbor Coral, *vide* Corallodendron
 Arbor Judæ, *vide* Siliquastrum
 Arbor Virginiana
 Arbor Zeylanica
 Arbours
 Arbutus
 Arch-angel, *vide* Lamium
 Argemone
 Aria Theophrasti, *vide* Cratægus
 Arisarum
 Aristolochia
 Armeniaca
 Arrach, *vide* Atriplex
 Artemisia
 Artichoke
 Jerusalem Artichoke, *vide* Corona
 Solis
 Arse-smart, *vide* Perficaria
 Arum
 Arundo
 Astarabacca, *vide* Asarum
 Asarum
 Asclepias
 Ascyrum
 Ash-tree, *vide* Fraxinus
 Asparagus
 Aspen-tree, *vide* Populus
 Asperugo
 Asperula
 Asphodel, *vide* Lilio-asphodelus
 Asphodelus
 Asplenium
 Aster
 Asteriscus
 Asteroides
 Astragalus
 Astrantia
 Atriplex
 Avens, *vide* Caryophyllata
 Avenues
 Aurantium
 Aucicula

I N D E X.

- Auricula Muris
 Auricula Urſi *Myconii*, *vide Verbaſcum*
 Azedarach
 Azerole, *vide Meſpilus*.
B
Balaufſtia, *vide Punica*
 Balaufſtium, *vide Punic*
 Ballote
 Balm, *vide Meliſſa*
 Molucca Balm, *vide Molucca*
 Turkey Balm, *vide Moldavica*
 Balfam-apple, *vide Balfamina*
 Male Balfam-apple, *vide Momordica*
 Balfamita
 Bamia Moſchata, *vide Ketmia*
 Banana, *vide Muſa*
 Bane-berries, *vide Chriſtophoriana*
 Baniſtera
 Barba Capræ, *vide Ulmaria*
 Barba Jovis
 Barbados Flower-fence, *vide Poinciana*
 Barbados Cherry, *vide Malpighia*
 Barberry-tree, *vide Barberry*
 African Barberry, *vide Euonymus*
 Barleria
 Barley, *vide Hordeum*
 Naked Barley, *vide Triticum*
 Barrenwort, *vide Epimedium*
 Baſella
 Baſil
 Stone Baſil, *or Wild Baſil*, *vide Acinos*
 Baſilicum, *vide Ocimum*
 Baſons
 Baſtard Dittany, *vide Pſeudodictamnus*
 Batchelors Buttons, *vide Lychnis*
 Bauhinia
 Bay, *vide Laurus*
 Cherry Bay, *vide Lauro-ceraſus*
 Bead-tree, *vide Azedarach*
 White Beam-tree, *vide Cratægus*
 Beans, *vide Faba*
 French-beans, *vide Phaſeolus*
 Kidney-beans, *vide Phaſeolus*
 Kidney-bean-tree, *vide Phaſeoloides*
 Bean-trefoil, *vide Cytifus*
 Binding Bean-tree, *vide Acacia*
 Bean-caper, *vide Fabago*
 Bears-breech, *vide Acanthus*
 Bears-ear, *vide Auricula Urſi*
 Bears-foot, *vide Helleborus*
 Ladies Bed-ſtrow, *vide Gallium*
 Bee-flower, *vide Orchis*
 Beech-tree, *vide Fagus*
 Beet, *vide Beta*
 Belladonna
 Bell-flower, *vide Campanula*
 Bellis
 Bellis major, *vide Leucanthemum*
 Hair Bells, *vide Hyacinthus*
 Bellonia
 Benjamin-tree, *vide Arbor Virginiana*, &c.
 Herb Bennet, *vide Caryophyllata*
 Benzoin
 Berberis
 Bermudiana
 Bernardia
 Beſleria
 Beta
 Betonica
 Betonica Pauli, *vide Veronica*
 Betonica aquatica, *vide Scrophularia*
 Betony, *vide Betonica*
 Star of Bethlehem, *vide Ornithogalum*
 Betula
 Bidens
 Bifolium
 Bignonia
 Bihai
 Bindweed, *vide Convolvulus*, *Saxiflax*, *Quamoclit*.
 Bilberry Buſh, *vide Vitis Idæa*
 Birch-tree, *vide Betula*
 Birds-eye, *vide Adonis*
 Birds-foot Trefoil, *vide Lotus*
 Birds-foot, *vide Ornithopodium*
 Birthwort, *vide Ariſtolochia*
 Biſhops-weed, *vide Ammi*
 Biſlingua, *vide Ruſcus*
 Biſtorta
 Black-thorn, *vide Prunus*
 Bladder-nut, *vide Staphyloedendron*
Blattaria

I N D E X.

- | | |
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| <p>Blattaria
 Blights
 Blood-flower, <i>vide</i> Hæmanthus
 Bloodwort, <i>vide</i> Lapathum
 Blue-bottle, <i>vide</i> Cyanus
 Bocconia
 Bonduc
 Bontia
 Bonus Henricus, <i>vide</i> Chenopodium
 Boor-cole, <i>vide</i> Brassica
 Borrage, <i>vide</i> Borrago
 Borrago
 Botrys, <i>vide</i> Chenopodium
 Box-tree, <i>vide</i> Buxus
 Bramble-bush, <i>vide</i> Rubus
 Brank Urfin, <i>vide</i> Acanthus
 Brassica
 St. John's Bread, <i>vide</i> Siliqua
 Breynia
 Bristol-flower, <i>vide</i> Lychnis
 Broccoli, <i>vide</i> Brassica
 Brook-lime, <i>vide</i> Becabunga
 Spanish Broom, <i>vide</i> Spartium
 Green Broom, <i>vide</i> Cytifogenista
 Broom, <i>vide</i> Genista scoparia
 Brunella
 Brunsfelsia
 Bruscus, <i>vide</i> Ruscus
 Bryonia
 Bryony, <i>vide</i> Bryonia
 Bucks-horn, <i>vide</i> Coronopus
 Buck-wheat, <i>vide</i> Fagopyrum
 Buglofs, <i>vide</i> Buglossum
 Vipers-buglofs, <i>vide</i> Echium
 Bugle, <i>vide</i> Bugula
 Buglossum
 Bugula
 Bulbocastanum
 Bulbocodium
 Bullace-tree, <i>vide</i> Prunus
 Bupthalmum
 Bupleuroides
 Bupleurum
 Burdock, <i>vide</i> Lapathum
 Burnet, <i>vide</i> Pimpinella
 Burfa Pastoris
 Butcher's Broom, <i>vide</i> Ruscus
 Butterbur, <i>vide</i> Petasitis</p> | <p>Butomus
 Buxus.</p> <p style="text-align: center;">C</p> <p>Caapeba
 Cabbage, <i>vide</i> Brassica
 Sea Cabbage, <i>vide</i> Crambe
 Cabinet
 Cacalia
 Cacalianthemum
 Cacao
 Cachrys
 Cæsalpina
 Cainito
 Cajou, <i>vide</i> Acajou
 Cakile
 Calaba
 Cashew Nut, <i>vide</i> Acajou
 Calabash-tree, <i>vide</i> Cucurbitifera
 Arbor
 Calamint, <i>vide</i> Calamintha
 Calamintha
 Water Calamint, <i>vide</i> Mentha
 Calceolus
 Caltha
 Caltha palustris, <i>vide</i> Populago
 Calves-foot, <i>vide</i> Antirrhinum
 Camara
 Cammock, <i>vide</i> Anonis
 Camomile, <i>vide</i> Chamæmelum
 Campanula
 Camphire, <i>vide</i> Camphora
 Camphora
 Camphorata
 Campion, <i>vide</i> Lychnis
 Candle-berry-tree, <i>vide</i> Gale
 Candy-tuft, <i>vide</i> Thlaspi
 Canabina
 Cannabis
 Canna Indica, <i>vide</i> Cannacorus
 Candy Carrot, <i>vide</i> Myrrhis
 Canterbury Bells, <i>vide</i> Campanula
 Capers, <i>vide</i> Capparis
 Capnoides
 Capnorchis
 Bean-caper, <i>vide</i> Fabago
 Capparis
 Caprifolium
 Capsicum</p> |
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Car-

I N D E X.

- Caracalla, *vide* Phaeolus
 Caraway, *vide* Carui
 Cardamindum, *vide* Acriviola
 Cardamine
 Cardiaca
 Cardinals-flower, *vide* Rapuntium
 Carduus
 Carduus benedictus, *vide* Cnicus
 Carduus Fullonum, *vide* Dipsacus
 Carlina
 Carnation, *vide* Caryophyllus
Spanish Carnation, *vide* Poinciana
 Carob, *vide* Siliqua
 Carrot, *vide* Daucus
 Deadly Carrot, *vide* Thapsia
 Candy Carrot, *vide* Myrrhis
 Carui
 Caryophyllata
 Caryophyllus
 Cassia
 Cassida
 Cassidoni, *vide* Stoechas
 Mountain Cassidony, *vide* Elichry-
 sum
 Cassine
 Cassioberry-bush, *vide* Cassine
 Castanea
 Castanea equina; *vide* Hippocasta-
 num
 Castorea
 Catanance
 Cataputia major, *vide* Ricinus
 Cataputia minor, *vide* Tithymalus
 Catch-fly, *vide* Lychnis
 Cats-foot, *vide* Elichrysum
 Cat-mint, *vide* Cataria
 Caucalis
 Cedar of Bermudas, *vide* Juniperus
 Cedar of Carolina, *vide* Juniperus
 Cedar of Virginia, *vide* Juniperus
 Cedar of Lebanon, *vide* Cedrus Li-
 bani
 Cedrus baccifera
 Ceiba
 Celandine, *vide* Chelidonium
 Greater Celandine, *vide* Chelido-
 nium majus
 Lesser Celandine, *vide* Chelidonium
 minus
 Celastrus, *vide* Alaternus
 Celery, *vide* Apium
 Celtis
 Great Centaury, *vide* Centaurium
 majus
 Lesser Centaury, *vide* Centaurium
 minus
 Centinodium
 Cepa
 Cerafus
 Ceratia, *vide* Siliqua edulis
 Cerefolium, *vide* Chærefolium
 Cereus
 Cerinthe
 Ceterach, *vide* Asplenium
 Chærophyllum
 Chamæcerafus
 Chamæcitus, *vide* Helianthemum
 Chamæclema
 Chamæcypariffus, *vide* Santolina
 Chamædaphne, *vide* Ruscus
 Chamædrys
 Chamælea, *vide* Thymælea
 Chamælea tricoccus
 Chamæmelum
 Chamæmepilus, *vide* Mespilus
 Chamæmorus
 Chamænerion
 Chamæpitys
 Chamarhododenron
 Chamæripes, *vide* Palma
 Chamærubus, *vide* Rubus
 Chamæscye, *vide* Tithymalus
 Chardon, *vide* Cinara
 Chaste-tree, *vide* Vitex
 Cheese Runnet, *vide* Gallium
 Chelidonium majus
 Chelidonium minus
 Chelone
 Chenopodio-morus
 Chenopodium
 Cherry-tree, *vide* Cerafus
 Cherry-laurel, *vide* Lauro-cerafus
 Cherry-bay, *vide* Lauro-cerafus
 Barbados Cherry, *vide* Malpighia
 Winter Cherry, *vide* Alkekengi
 Chervil, *vide* Chærophyllum
 Great Chervil, *vide* Myrrhis
 Chestnut, *vide* Castanea

Horfe

I N D E X.

- Horse Chestnut, *vide* Hippocastanum
 Scarlet flowering Horse Chestnut,
vide Pavia
 Chiches, *vide* Cicer
 Chichling Vetch, *vide* Clymenum
 & Lathyrus
 Chondrilla
 Christmas Flower, *vide* Helleborus
 Christ's-thorn, *vide* Paliurus
 Christophoriana
 Herb Christopher, *vide* Christopho-
 riana
 Chrysanthemoides Osteospermon
 Hard-seeded Chrysanthemum, *vide*
 Chrysanthemoides Osteospermon
 Chrysanthemum
 Chrysoplenium
 Cicer
 Cichorium
 Cicuta
 Cicutaria
 Cinara
 Cineraria, *vide* Jacobæa
 Cinqfoil, *vide* Quinquefolium
 Bastard Cinqfoil } *vide* Pentaphyl-
 Shrub Cinqfoil } loides
 Circeæ
 Circium
 Cistus
 Dwarf Cistus, *vide* Helianthemum
 Citron-tree, *vide* Citreum
 Citrul, *vide* Pepo
 Clare, *vide* Horminum & Sclarea
 Clematitis
 Climber, *vide* Clematitis
 Upright wild Climber, *vide* Cle-
 matitis
 Clinopodium
 Clivers, *vide* Aparine
 Cloud-berries, *vide* Chamæmorus
 Clutia
 Clymenum
 Cnicus
 Coa
 Coast-mary, *vide* Balsamita
 Cobnut-tree, *vide* Corylus
 Coccygria, *vide* Cotinus Coriaria
 Cochlearia
 Cock's-head, *vide* Onobrychis
 Cocos, *vide* Palma Nucifera
 Codlin-tree, *vide* Malus
 Codlins and Cream, *vide* Chamæ-
 nerion
 Coffee-tree, *vide* Jasminum
 Colchicum
 Coleworts, *vide* Brassica
 Colliflower, *vide* Brassica
 Colocynthis
 Coloquintida, *vide* Colocynthis
 Colts-foot, *vide* Tufflago
 Columbine, *vide* Aquilegia
 Colutea
 Podded Colutea Cretica, *vide* Co-
 ronilla
 Colutea Scorpioides, *vide* Emerus
 Coma Aurea
 Commelina
 Commeline, *vide* Commelina
 Comfrey, *vide* Symphytum
 Compofts
 Conocarpodendron
 Conservatory, *vide* Green-house
 Consolida Major, *vide* Symphytum
 Consolida Media, *vide* Bugula
 Consolida Minima, *vide* Bellis
 Consolida Regalis, *vide* Delphinium
 Conval Lily, *vide* Lilium Convalli-
 um
 Convolvulus
 Conyza
 Copaiba
 The Coral-tree, *vide* Corallodendron
 Corchorus
 Coriander, *vide* Coriandrum
 Coriaria
 Corindum
 Coris
 Cork-tree, *vide* Suber
 Corn-flag, *vide* Gladiolus
 Corn-bottle, *vide* Cyanus
 Corn-marygold, *vide* Chrysanthe-
 mum
 Corn-sallad, *vide* Valerianella
 Cornel-tree, *vide* Cornus
 Cornus
 Cornelian-Cherry, *vide* Cornus
 Cornutia
 Corona Imperialis

Corona

I N D E X.

Corona Solis
 Coronilla
 Coronopus
 Cortufa
 Corylus
 Cotinus Coriaria
 Cotonea Malus, *vide* Cydonia
 Cotoneaster, *vide* Mespilus
 Cotton-plant, *vide* Xylon
 Cotton-weed, *vide* Gnaphalium
 Cotula foetida, *vide* Chamæmelum
 foetidum
 Cotyledon
 Courbaril
 Cowslip, *vide* Primula Veris
 Cows-lungwort, *vide* Verbaſcum
 Crab-tree, *vide* Malus
 Crambe
 Cranes-bill, *vide* Geranium
 Crassula
 Cratægus
 Crefs, *vide* Nasturtium
 Garden-creſſes, *vide* Nasturtium
 Water-creſſes, *vide* Silybrium
 Indian-creſſes, *vide* Acriviola
 Winter-creſs, *vide* Silybrium &
 Barbarea
 Crithmum
 Criſta Pavonis, *vide* Poinciana
 Crocus
 Croſs-wort, *vide* Cruciatâ
 Crotolaria
 Crow-foot, *vide* Ranunculus
 Crown Imperial, *vide* Corona Im-
 perialis
 Cruciatâ
 Cucubalus
 Cuckow Pint, *vide* Arum
 Cucumber, *vide* Cucumis
 Wild Cucumber, *vide* Elaterium
 Cucumis
 Cucurbita
 Cucurbitifera Arbor
 Cud-weed, *vide* Gnaphalium
 Cuiete
 Cumin, *vide* Cuminum
 Wild Cumin, *vide* Cuminoides
 Cuminoides
 Cuminum
 Cupreſſus

Curran-tree, *vide* Ribes
 Cururu
 Cuſtard-apple, *vide* Anona
 Cyanus
 Cyclamen
 Cydonia
 Cynogloſſum
 Cyprus-tree, *vide* Cupreſſus
 Summer Cyprus, *vide* Chenopo-
 dium
 Cyticapnos
 Cytiſo-geniſta
 Cytifus.

D

D Affodil, *vide* Narciffus
 Lily-daſſodil, *vide* Lilio-nar-
 ciſſus
 Daiſy, *vide* Bellis
 Ox-eye Daiſy, *vide* Leucanthemum
 Dalechampia
 Damafonium
 Dames-violet, *vide* Heſperis
 Dandelion, *vide* Dens Leonis
 Danewort, *vide* Sambucus
 Date-tree, *vide* Palma
 Indian Date-tree, *vide* Guaiacana
 Daucus
 Daucus Creticus, *vide* Myrrhis
 Day-lily, *vide* Liliaſtrum
 Dead-nettle, *vide* Lamium
 Devil-in-a-buſh, *vide* Nigella
 Delphinium
 Dens Canis
 Dens Leonis
 Dentaria
 Diapentia, *vide* Sanicula
 Dictamnus albus, *vide* Fraxinella
 Dictamnus Creticus
 Diervilla
 Digitalis
 Dill, *vide* Anethum
 Dioſcorea
 Dipſacus
 Diſtaff-thiſtle, *vide* Atractylis
 Dittany, *vide* Dictamnus
 Baſtard Dittany, *vide* Pſeudo-dictam-
 nus
 Dock, *vide* Lapathum
 Dodartia
 Dogs-bane, *vide* Apocynum

Dog-

I N D E X.

- Dog-berry-tree, *vide* Cornus
 Dog-wood, *vide* Cornus
 Dogs-tooth, *vide* Dens Canis
 Doria
 Doronicum
 Dorstenia
 Dorycnium
 Douglassia
 Draco Herba
 Draco Arbor, *vide* Palma
 Dracocephalon
 Dracunculoides, *vide* Hæmanthus
 Dracunculus
 Dracunculus pratensis, *vide* Ptarmica
 Dragon, *vide* Dracunculus
 Dragonwort, *vide* Draco Herba
 Dropwort, *vide* Filipendula
 Water Dropwort, *vide* Oenanthe
 Duck's-foot, *vide* Anapodophyllon
 Dulcamara, *vide* Solanum
 Dungs
 Dwarf-laurel, *vide* Thymelæa
 Dwarf-trees
 Dyers-weed, *vide* Luteola
- E
- E** Arth
 Peas Earth-nut, *vide* Lathyrus
 Earwigs
 Ebulus five Sambucus humilis
 Echinomelocactus, *vide* Melocactus
 Echinophora
 Echinopus
 Echinus
 Echium
 Edera quinquefolia, *vide* Vitis
 Edgings
 Elæagnus
 Elæcerium
 Elatine, *vide* Linaria
 Elephantopus
 Elephas
 Elicaryfum
 Elder-tree, *vide* Sambucus
 Dwarf Elder, *vide* Sambucus
 Marsh Elder, *vide* Opulus
 Elm, *vide* Ulmus
 Emerus
 Empetrum
 Enchanters Nightshade, *vide* Circæa
- Endive, *vide* Cichorium
 Ephemeron
 Ephedra
 Epimedium
 Equisetum
 Eranthemum, *vide* Adonis
 Erica
 Erica baccifera. *vide* Empetrum
 Erigeron, *vide* Senecio
 Eruca
 Erucago
 Ervum
 Eryngo, *vide* Eryngium
 Eryngium
 Erysimum
 Espaliers
 Eternal-flowers, *vide* Xeranthemum,
 Elichrysum, Amaranthoides
 Everlasting Pea, *vide* Lathyrus
 Everlasting Flower, *vide* Amaranthoides, Xeranthemum, Elichrysum
 Euonymus
 Eupatoriophalacron
 Eupatorium
 Euphorbium
 Euphrasia.
- F
- F** Aba
 Faba Ægyptiaca, *vide* Arum
 Ægyptiacum
 Faba crassa, *vide* Anacamperos
 Fabago
 Fagonia
 Fagopyrum
 Fagus
 Featherfew } *vide* Matricaria
 Feverfew }
 Felwort, *vide* Gentiana
 Fences
 Fenel, *vide* Fœniculum
 Fenel-flower, *vide* Nigella
 Hogs Fenel, *vide* Peucedanum
 Fenel-giant, *vide* Ferula
 Fenugreek, *vide* Fœnum Græcum
 Fern, *vide* Filix
 Sweet Fern, *vide* Myrrhis
 Ferrum Equinum
 Ferula

Ficoidea

I N D E X.

Ficoidea
Ficoidea
Ficus
Ficus Indica, vide Opuntia
Fig-tree, vide Ficus
Fig-marigold, vide Ficoidea
Indian Fig, vide Opuntia
Figwort, vide Scrophularia
Filago, vide Gnaphalium
Filbert, vide Corylus
Filipendula
Filix
Fir-tree, vide Abies
Flammula Jovis, vide Clematitis
Flax, vide Linum
Toad-flax, vide Linaria
Flea-bane, vide Conyza
Flea-wort, vide Pſyllium
Flesh
Flix-weed, vide Eryſimum
Flos Africanus, vide Tagetes
Flos Paſſionis, vide Granadilla
Flos Solis, vide Corona Solis
Flos Trinitatis, vide Viola
Flower
Flower-de-luce, vide Iris & Xiphion
Eternal Flower } vide Xeranthemum
Everlaſting Flower } mum
Flower-fence, vide Poinciana
Fluellin, vide Veronica
Fœniculum
**Fœnum Burgundiacum, vide Medica-
 fativa**
Fœnum Græcum
Fools-ftones, vide Orchis
Fountains
Fox-glove, vide Digitalis
Fragaria
Frangula
Fraxinella
Fraxinus
French-marigolds, vide Tagetes
Friers Cowl, vide Arifarum
Fritillaria
Fritillaria crassa, vide Aſclepias
**Cock's-comb [Fritillary, vide Aſcle-
 pias**
Fruits, preſerving, vide Pyrus
Fruſtrum Indicum, vide Mayz
Frutex

Frutex pavonius, vide Poinciana
Frutex Virginianus
Fuchſia
Fumaria
Fumitory, vide Fumaria
Bladder Fumitory, vide Capnoides
**Indianbulbous-rooted Fumitory, vide
 Capnorchis**
Furz, vide Geniſta.

G

G Ale
G Galega
Galeopsis
Gallium
Gardens
Garidella
Garlick, vide Allium
Wild Garlick, vide Moly
Gatten-tree, vide Cornus
Gelder-roſe, vide Opulus
Geniſta juncea
Geniſta ſpinofa
Geniſtella tinctoria
Gentian, vide Gentiana
Gentianella, vide Gentiana
Geranium
Germander, vide Chamædryſ
Water Germander, vide Scordium
Tree Germander, vide Teucrium
Geum
Gilder-roſe, vide Opulus
**Gill-go-by-the-ground, vide Chamæ-
 clema**
Gilliflower, vide Caryophyllus
Stock-gilliflower, vide Leucoium
Queen's Gilliflower, vide Heſperis
Ginger, vide Zinziber
Gingidium, vide Viſnaga
Gladiolus
Water Gladiole vide Butomus
Glaſtenbury Thorn, vide Meſpilus
Glaſ-wort, vide Kali
Glaucium
Glauz
**Globe-flower, vide Helleboro-ranun-
 culus, alſo Cyanus**
Globe-thiſtle, vide Echinopus
Globularia
Glycyrrhiza
Gnaphalium

Gna-

I N D E X.

Gnaphalodes
 Goat's-rue, *vide* Galega
 Goats-beard, *vide* Tragopogon
 Goats-thorn, *vide* Tragacantha
 Goldilocks, *vide* Coma aurea
 Golden-rod, *vide* Virga aurea
 Goose-foot, *vide* Chenopodium
 Goose-grass, *vide* Aparine
 Gooseberry, *vide* Grossularia
 Gors, *vide* Genista Spinosa
 Gossipium, *vide* Xylon
 Gourd, *vide* Cucurbita
 Bitter Gourd, *vide* Coloquintida
 Grafting
 Gramen
 Oily Grain, *vide* Sesamum
 Granadilla
 Grape, *vide* Vitis
 Grape-hyacinth, *vide* Muscari
 Grape-flower, *vide* Muscari
 Grass-vetch, *vide* Nissolia
 Vipers-grass, *vide* Scorzonera
 Gravel
 Green-house
 Gromil
 Gromwell } *vide* Lithospermum
 Grossularia
 Ground Ivy, *vide* Chamæclema
 Ground-pine, *vide* Chamæpitys
 Groundsel, *vide* Senecio
 Guajabara
 Guajacana
 Guaiacum
 Guajava
 Guanabanus
 Guazuma
 Guidonia
 Gum Succory, *vide* Chondrilla
 Gundelia.

H

Hemanthus
 Halicacabum, *vide* Alkekengi
 Halicacabus Peregrina, *vid.* Corindum
 Halimus, *vide* Atriplex
 Hard-beam, *vide* Carpinus
 Harmala
 Hair-bells, *vide* Hyacinthus
 Hares-ear, *vide* Bupleurum
 Harts-horn, *vide* Coronopus

Harts-tongue, *vide* Lingua Cervina
 Hawk-weed, *vide* Hieracium
 Hawthorn, *vide* Mespilus
 Hazel, *vide* Corylus
 Heath, *vide* Erica
 Black-berried Heath, *vide* Empetrum
 Hedera
 Hedera terrestris, *vide* Chamæcissus
 Hedges
 Hedge-mustard, *vide* Eryfinum
 Heditarum
 Hedyppois
 Hedypparum
 Heleniastrum
 Helenium
 Helianthemum
 Heliotropium
 Hellebore, *vide* Helleborus
 Bastard Hellebore, *vide* Helleborus
 White Hellebore, *vide* Veratrum
 Helleborine
 Helleborus
 Helleborus albus, *vide* Veratrum
 Helmet-flower, *vide* Cassida
 Hemerocallis, *vide* Liliun
 Hemlock, *vide* Cicuta
 Bastard Hemlock, *vide* Cicutaria
 Hemp, *vide* Cannabis
 Hemionitis
 Henbane, *vide* Hyoscyamus
 Hepatica
 Hepatorium, *vide* Eupatorium
 Herba Gerardi, *vide* Angelica syl-
 vestris minor
 Herba Paris
 Hercules All-heal, *vide* Pastinaca
 Hermannia
 Hermodactylus
 Hernandia
 Herniaria
 Hesperis
 Hickery, *vide* Juglans
 Hieracium
 High-taper } *vide* Verbascum
 Hig-taper }
 Hippocastanum
 Hippolapathum, *vide* Lapathum
 Hippofelinum, *vide* Smyrniun
 Hirundinaria, *vide* Asclepias

Hoga-

Hogs-fenel, *vide* Peucedanum
 Hollow-root, *vide* Fumaria
 Hollyhocks, *vide* Malva rosca
 Hollytree, *vide* Aquifolium
 Knee Holly, *vide* Ruscus
 Honeyfuckle, *vide* Caprifolium
 Upright Honey-fuckle, *vide* Chamæcerasus
 Trumpet Honeyfuckle, *vide* Peryclymenum.
 French Honeyfuckle, *vide* Hedyfarum.
 Honeywort, *vide* Cerinthe
 Honey-flower, *vide* Melianthus
 Honefty, *vide* Lunaria
 Hops, *vide* Lupulus
 Hordeum
 Horizontal Shelters
 Horminum
 Hornbeam, *vide* Carpinus
 Horned Poppy, *vide* Glaucium
 Horfe-chefnut, *vide* Hippocastanum
 Scarlet flowering Horfe-chefnut, *vide* Pavia
 Horfe-dung
 Horfe-mint, *vide* Mentastrum.
 Horfe-radish, *vide* Cochlearia
 Horfe-tail, *vide* Equisetum
 Horehound, *vide* Marrubium
 Water Horehound, *vide* Lycopus
 Bafe Horehound, *vide* Stachys
 Bastard Horehound, *vide* Marrubiastrum
 Stinking Horehound, *vide* Ballote
 Hofe-in-hofe, *vide* Primula veris
 Horns and Hedge-hog, *vide* Medica
 Hot-beds
 Hottonia
 Houghing or Hoeing
 Hounds-tongue, *vide* Cynoglossum
 Houfleeck, *vide* Sedum
 Humble Plant, *vide* Mimosa
 Hura
 Hyacinth, *vide* Hyacinthus
 Hyacinthus tuberosus
 Grape Hyacinth, *vide* Muscari
 Hydrolapathum, *vide* Lapathum
 Hydropiper
 Hydrophyllon

Hyofcyamus
 Hyppecum
 Hypericum
 Hypericum Frutex, *vide* Spiræa
 Hyffop, *vide* Hyffopus.

J

Acæa
 Jacinth, *vide* Hyacinth
 Jacobæa
 Jacob's Ladder, *vide* Polemonium
 Jalapa
 Jafminoides
 Jafmin, *vide* Jafminum
 Perfian Jafmin, *vide* Lilac
 Scarlet Jafmin, *vide* Bignonia
 Iberis, *vide* Lepidium
 Ibitcus, *vide* Althæa
 Icaco
 Jerufalem Sage, *vide* Phlomis
 Jefuits Bark-tree, *vide* Ageratum
 Ilex
 L'Immortal, *vide* Amaranthoides
 Indian Wheat, *vide* Mayz
 Indigo Plant, *vide* Anil
 Inga
 Inoculating
 Intybus
 Job's Tears, *vide* Lacryma Jobi
 St. John's Bread, *vide* Siliqua
 Sweet John, *vide* Caryophyllus barbatus
 St. John's-wort, *vide* Hypericum
 Jonquil, *vide* Narciffus
 Jonthlafpi
 Iris
 Iris Bulbosa } *vide* Xiphium
 Iris Perfica }
 Iris Uvaria, *vide* Aloe Africana, &c.
 Ironwort, *vide* Sideritis
 Ifatis
 Ifoza
 Judaica Arbor, *vide* Siliquastrum
 Judas-tree, *vide* Siliquastrum
 Jujube, *vide* Ziziphus
 Julianus, *vide* Helperis
 July-flower, *vide* Caryophyllus
 Juncus
 Juniper, *vide* Juniperus
 Jupiter's Beard, *vide* Barba Jovis
 Jufticia

I N D E X.

Ivy-tree, *vide* Hedera
 Ground Ivy, *vide* Chamæclema.

K

K Ali
 Karatas
 Kempfera
 Ketmia
 Kidney-beans, *vide* Phaseolus
 Kidney-bean-tree, *vide* Phaseoloides
 Kidneywort, *vide* Geum
 King's-spear, *vide* Asphodelus
 Knapweed, *vide* Jacea
 Knee Holly, *vide* Ruscus
 Knot-berries, *vide* Chamæmorus
 Knot-grass, *vide* Centinodium polygonum.

L

L Ablab, *vide* Phaseolus
 Labrum Veneris, *vide* Dip-facus
 Labrusca, *vide* Vitis
 Laburnum, *vide* Cytifus
 Lacryma Jobi
 Lactuca
 Lactuca Agnini, *vide* Valerianella
 Ladies Bed-straw, *vide* Gallium
 Lady's-smock, *vide* Cardamine
 Lady's-slipper, *vide* Helleborine
 Lagopus, *vide* Trifolium
 Lake-weed, *vide* Persicaria
 Lamium
 Lampfana
 Lapathum
 Larch-tree, *vide* Larix
 Larix
 Larkspur, *vide* Delphinium
 Laserwort, *vide* Laserpitium
 Lathyrus
 Lavatera
 Lavender, *vide* Lavendula
 Sea Lavender, *vide* Limonium
 Lavender Cotton, *vide* Santolina
 French Lavender, *vide* Stœchas
 Laureola, *vide* Thymelæa
 Laurocerafus
 Laurel, *vide* Laurus
 Alexandrian Laurel, *vide* Ruscus
 Dwarf Laurel, *vide* Thymelæa
 Laurel-bay, *vide* Laurocerafus

Laurus
 Laurustinus, *vide* Tinus
 Laying of Trees
 Leadwort, *vide* Plumbago
 Leeks, *vide* Porrum
 Lemon-tree, *vide* Limon
 Lens
 Lens palustris
 Lentiscus
 Leontopetalon
 Leonurus
 Leopard's-bane, *vide* Doronicum
 Lepidium
 Lepidocarpodendron
 Lettuce, *vide* Lactuca
 Lambs Lettuce, *vide* Valerianella
 Leucanthemum
 Leucoium
 Level
 Lichen
 Lignum Vitæ, *vide* Guaiacum
 Ligusticum
 Ligustrum
 Lily, *vide* Lilium
 Lilio-asphodelus, *vide* Asphodel, *et*
 Day-lily
 Lilio-fritillaria, *vide* Fritillaria
 Lilio-hyacinthus
 Lily-daffodil, *vide* Lilio-narcissus
 May Lily, *vide* Lilium Convallium
 Lilium Persicum, *vide* Fritillaria
 Lilium superbum, *vide* Methonica
 Water Lily, *vide* Nymphaea
 Lime-tree, *vide* Tilia
 Limon
 Limonium
 Linaria
 Lingua cervina
 Linum
 Linum umbilicatum, *vide* Omphalodes
 Lippia
 Lion's-foot, *vide* Leontopodium
 Candy Lion's-foot, *vide* Catanance
 Liquid Amber, *vide* Styrax
 Liquorice, *vide* Glycyrrhiza
 Lithospermum
 Live-ever, *vide* Anacampferos
 Noble Liverwort, *vide* Hepatica
 Lobelia

I N D E X.

Lobelia
Lobus echinatus
Locker Goulons, vide Helleboror-
ranunculus
Lonchitis
London Pride, vide Geum
Loofe-frife, vide Chamænerion
Spiked Loofe-frife, vide Salicaria
Lopping
Lote-tree, vide Celtis
Balfard Lote-tree, vide Guaiacana
Love-apple, vide Lycopersicon
True-love, vide Herba Paris
Lovage, vide Lignisticum
La Lucern, vide Medica
Luffa
Lunaria
Lungwort, vide Pulmonaria
Cows Lungwort, vide Verbaſcum
Lupine, vide Lupinus
Lupulus
Luteola
Lychnidea
Lychnis
Lycopersicon
Eycopus
Lysimachia galericulata, vide Caſſida
Lysimachia non pappoſa, vide Ona-
gra
Lysimachia filiquoſa, vide Chamæ-
nerion.

M

M **Acaleb, vide Ceraſus**
Madder, vide Rubia Tincto-
rum
Mad-apple, vide Melongena
Magnolia
Mahaleb, vide Ceraſus
Maiden-hair, vide Adiantum
White Maiden-hair, vide Ruta Ma-
raria
Majorana
Malabar Nut, vide Adhatoda
Mala Æthiopica, vide Lycopersicon
Mala Armeniaca, vide Armeniaca
Mala cotonea, vide Cydonia
Mala inſana, vide Melongena
Malacoides
Male Balfam-apple, vide Momordica

Mallow, vide Malva
Mallow-tree, vide Althæa
Marſh-mallow, vide Althæa
Jews-mallow, vide Corchorus
Roſe-mallow, vide Malva roſea
Malpighia
Malva
Malva arborea, vide Althæa
Malus
Malus Armeniaca, vide Armeniaca
Malus Aurantia, vide Aurantia
Malus Limonia, vide Limonia
Malus Medica, vide Citreum
Malus Perſica, vide Perſica
Mamei
Mançanilla
Mandrake, vide Mandragora
Manihot
Lady's-mantle, vide Alchimilla
Maple, vide Acer
Maracock, vide Granadilla
Maranta
Marjoram, vide Majorana
Balfard Marjoram, vide Origanum
Marl
Marrubiaſtrum
Marrubium
Marrubium Nigrum, vide Ballote
Marſh Elder, vide Opulus
Martagon, vide Lilium
Martynia
Marvel of Peru, vide Jalapa
Marum
Marum Vulgare, vide Maſtichina
Marygold, vide Caltha
African Marygold, vide Tagetes
Corn Marygold, vide Chryſanthe-
rum
French Marygold, vide Tagetes
Fig Marygold, vide Ficoides
Marſh Marygold, vide Populago
Maſterwort, vide Imperatoria, alſo
Aſtrantia
Maſtich, vide Marum
Maſtich Thyme, vide Maſtichina
Maſtich-tree, vide Lentifcus, alſo
Molle
Maſtichina
Matricaria

I N D E X

- Maudlin, *vide* Ageratum
 May-weed, *vide* Chamæmelum fœ-
 tidum
 Mayz
 Meadow-rue, *vide* Thaliſtrum
 Meadow-saffron, *vide* Colchicum
 Mealy-tree, *vide* Viburnum
 Medica
 Medic, *vide* Medica
 Medic-vetchling, *vide* Onobrychis
 Medica Cochleata
 Medicago
 Medlar, *vide* Mespilus
 Melancholy-thistle, *vide* Cirsium
 Melampyrum
 Melianthus
 Melilot, *vide* Melilotus
 Melilotus
 Melissa
 Melissa Turcica, *vide* Moldavica
 Melo
 Melocactus
 Melo Carduus, *vide* Melocactus
 Melon, } *vide* Melo
 Muſk Melon, }
 Melon-thistle, *vide* Melocactus
 Melongena
 Melopepo
 Melonry
 Menispermum
 Mentha
 Mentha Cataria, *vide* Cataria
 Spiked-mint, Spear-mint, Pepper-
 -mint, Water-mint, Orange-mint,
vide Mentha
 Mentaclia
 Menyanthes
 Mercurialis
 Mercury, *vide* Mercurialis
 Mespilus
 Methonica
 Meum
 Mezereon
 Mildew
 Milfoil, *vide* Millefolium
 Milium
 Milkwort, *vide* Polygala
 Milleria
 Millet, *vide* Milium
 Miltwaſte, *vide* Aſplenium
 Mimosa
 Mirabilis Peruviana, *vide* Jalapa
 Miſleto, *vide* Viſcum
 Mitella
 Mock-orange, *vide* Syringa
 Mock-privet, *vide* Phillyrea
 Moldavica
 Molle
 Moluca Balm, *vide* Molucca
 Moly
 Momordica
 Monbin
 Moneywort, *vide* Nummularia
 Monk's Rhubarb, *vide* Lapathum
 Monk's-hood, *vide* Aconitum cœru-
 leum
 Montia
 Moon-trefoil, *vide* Medicago
 Moonwort, *vide* Lunaria
 Morina
 Morus
 Moſcatellina
 Moſs, *vide* Muſcus
 Motherwort, *vide* Cardiaca
 Mother-of-thyme, *vide* Serpyllum
 Mould
 Mountain-heath, *vide* Saxifraga
 Mouſe-ear, *vide* Auricula Muris,
alſo Myofotis
 Mucilage
 Mucilaginous
 Mullein, *vide* Verbaſcum
 Moth Mullein, *vide* Blattaria
 Mugwort, *vide* Artemiſia
 Mulberry-tree, *vide* Morus
 Mulberry-blight, *vide* Chenopodium
 Muntingia
 Murucua
 Muſa
 Muſcari
 Muſcipula, *vide* Lychnis
 Muſcus
 Muſhrooms
 Muſtard, *vide* Sinapi
 Mithridate Muſtard, *vide* Thlaſpi
 Baſtard - mithridate Muſtard, *vide*
 Thlaſpidium
 Tower Muſtard, *vide* Turritis
 Myagrum

I N D E X.

Myagrurn
Myofotis
Myrrhis
Myrtle-tree, *vide* Myrtus
Myrtus
Myrtus Brabantica, *vide* Gale
Myxa.

N

NApellus, *vide* Aconitum
Napus
Narcissus
Narcisso-leucojum
Nateberry-tree, *vide* Anona
Nasturtium
Nasturtium Indicum, *vide* Acriviola
Navelwort, *vide* Cotyledon
Venus Navelwort, *vide* Omphalodes
Navew, *vide* Napus
Nectarine
Nepeta, *vide* Cataria
Nettle, *vide* Urtica
Nettle-tree, *vide* Celtis
Dead-nettle, *vide* Lamium
Stinking Dead-nettle, *vide* Galeopsis
Deadly-Nightshade, *vide* Belladonna
American Nightshade, *vide* Phyto-
lacca
Nicotiana
Nigella
Nightshade, *vide* Solanum
Inchanters Nightshade, *vide* Circæa
Climbing Nightshade, *vide* Basella
Nil, *vide* Anil
Nissolia
Noli me tangere, *vide* Balsamina
mas
None-such, *vide* Lychnis
None-so-pretty, *vide* Geum
Nose-bleed, *vide* Millefolium
Northern Aspect
Nummularia
Nurfery
Nut, *vide* Nux
Peas Earth-nut, *vide* Lathyrus
Physic-nut, *vide* Ricinoides
Nux Avellana
Nux Juglans

Nux Vesicaria, *vide* Staphyloden-
dron
Nymphæa.

O

OAk, *vide* Quercus
Ever-green Oak, *vide* Ilex
Oak of Jerusalem, *vide* Chenopo-
dium
Oak of Cappadocia, *vide* Chenopo-
dium
Obeliscotheca
Ochrus
Oculus Christi, *vide* Horninum Syl-
vestre
Ocymum
Oenanthe
Oily-grain, *vide* Sefamum
Oldenlandia
Olea
Olive-tree, *vide* Olea
Omphalodes
Onagra
One-berry, *vide* Herba Paris
Onions, *vide* Ceba
Onobrychis
Ophioglossum
Ophris
Opulus
Opuntia
Orach, *vide* Atriplex
Orange-tree, *vide* Aurantium
Mock-orange-tree, *vide* Syringa
Orange-mint, *vide* Mentha
Orchard
Orchis
Oreoselinum
Origanum
Organy, *vide* Origanum
Ornithogalum
Ornithopodium
Orobis
Orpine, *vide* Anacamperos
Wild Orrach, or Orach, *vide* Che-
nopodium
Stinking Orrach, *vide* Chenopodi-
um
Osier, *vide* Salix
Ox-eye, *vide* Buphthalmum
5 G 3 Oxyacantha,

I N D E X.

Oxyacantha, *vide* Berberis
 Ox-lips, *vide* Primula Veris
 Ox-eye Daisy, *vide* Leucanthemum
 Oxys.

P

PAdus, *vide* Cerasus
 Pæonia
 Paigles, *vide* Primula Veris
 Paliurus
 Palma
 Palm-tree, *vide* Palma
 Palma Christi, *vide* Ricinus
 Pancratium
 Panicum
 Pansies, *vide* Viola tricolor
 Papaver
 Papaver corniculatum, *vide* Glau-
 cium
 Papaver spinosum, *vide* Argemone
 Papaya
 Papaw-tree, *vide* Papaya
 Paradise-apple, *vide* Malus
 Parietaria
 Parkinsonia
 Parnassia
 Paronychia
 Parsley, *vide* Apium
 Bastard Parsley, *vide* Caulalis
 Fools Parsley, *vide* Cicuta
 Parsnep, *vide* Pastinaca
 Prickly-headed Parsnep, *vide* Echi-
 nophora
 Parterre
 Partheniastrum
 Pasque-flower, *vide* Pulsatilla
 Passion-flower, *vide* Granadilla
 Pastinaca
 Herb Patience, *vide* Lapathum
 Pavia
 Pigeon-pea, *vide* Phaseolus
 Peach, *vide* Persica
 Pear-tree, *vide* Pyrus
 Peas, *vide* Pisum
 Peas-everlasting, *vide* Lathyrus
 Heart-peas, *vide* Corindum
 Peas Earth-nut, *vide* Lathyrus
 Pedicularis
 Pelecinus

Pellitory of the Wall, *vide* Parie-
 taria
 Double Pellitory, *vide* Parmica
 Penny-royal, *vide* Pulegium
 Pentaphylloides
 Peony, *vide* Pæonia
 Pepo
 Pepper-mint, *vide* Mentha
 Water Pepper, *vide* Persicaria
 Pereskia
 Periclymenum
 Periploca
 Periwinkle, *vide* Pervinca
 Persca
 Persica
 Persicaria
 Pervinca
 Petasites
 St. Peter's-wort, *vide* Ascyrum
 Petiveria
 Petroselinum, *vide* Apium
 Petty-whin, *vide* Anonis
 Peucedanum
 Phalangium
 Pheasant's-eye, *vide* Adonis
 Phaseoloides
 Phaseolus
 Phillyrea, *vide* Alaternus
 Phlomis
 Physic-nut, *vide* Ricinoides
 Phytolacca
 Pilewort, *vide* Chelidonia
 Pilosella, *vide* Hieracium
 Pimpinella
 Pinastr, *vide* Pinus sylvestris
 Pine-tree, *vide* Pinus
 Ground-pine, *vide* Chamæpytis
 Pine-apple, *vide* Anana
 Pink, *vide* Caryophyllus
 Indian Pink, *vide* Caryophyllus Si-
 nensis
 Pinus
 Pimpillow, *vide* Opuntia
 Pipe-tree, *vide* Lilac
 Pudding-pipe-tree, *vide* Cassia Fi-
 stula
 Pipperidge-tree, *vide* Berberis
 Pishamin, *vide* Guaiacana

Pisonia

I N D E X.

Pifonia
 Pistachia, *vide* Terebinthus
 Pifum
 Pifum Cordatum, *vide* Corindum
 Pittonia
 Plane-tree, *vide* Platanus
 Planta
 Plantain-tree, *vide* Musa
 Bucks-horn Plantain, *vide* Coronopus
 Planting
 Platanus
 Plinia
 Plum-tree, *vide* Prunus
 Plumbago
 Plumeria
 Poinciana
 Poison-tree, *vide* Toxicodendron
 Virginian Poke, } *vide* Phytolacca
 Pork Physic, }
 Polemonium
 Poley, *vide* Polium
 Polium
 Polyanthus, *vide* Primula Veris
 Polygala
 Polygonatum
 Polypody, *vide* Polypodium
 Pomegranate, *vide* Punica
 Pomum Adami, *vide* Aurantium
 Populago
 Poplar-tree, *vide* Populus
 Spatling Poppy, *vide* Lychnis
 Poppy, *vide* Papaver
 Horned Poppy, *vide* Glaucium
 Prickly Poppy, *vide* Argemone
 Populus
 Porrum
 Portulaca
 Potatoes, *vide* Solanum
 None-so-pretty, *vide* Geum
 Primrose, *vide* Primula Veris
 Primrose-tree, *vide* Onagra
 Privet, *vide* Ligustrum
 Pruning of Trees
 Prunus
 Pseudo-acacia
 Pseudo-dictamnus
 Pfyllium
 Ptarmica

Pulegium
 Pulmonaria
 Pulfatilla
 Pumpkin, } *vide* Pepo, Melopepo
 Pumpkin, }
 Punica
 Purslain, *vide* Portulaca
 Pyracantha, *vide* Mespilus
 Pyrola
 Pyrus.

Q

Quamoclit
Queen's Violet, *vide* Hel-
 peris
 Quercus
 Quick
 Quick-beam, *vide* Sorbus sylve-
 stris
 Quicken-tree, *vide* Sorbus
 Quince-tree, *vide* Cydonia
 Quincunx Order
 Quinquefolium.

R

Radish, *vide* Raphanus
Radish, *vide* Cochle-
 aria
 Ragwort, *vide* Jacobæa, *also* Doria
 Ragged Robbin, *vide* Lychnis
 Rampions, *vide* Campanula radice
 esculenta
 Ramsons, *vide* Allium sylvestre
 Randia
 Ranunculus
 Rapa
 Raphanus
 Rapunculus
 Rapuntium
 Raspberry-bush, *vide* Rubus
 Rauwolfia
 Reed, *vide* Arundo
 Refeda
 Rest-harrow, *vide* Anonis
 Rhabbarum Monachorum, *vide*
 Lapathum
 Rhamnoides
 Rhamnus
 Monk's Rhubarb, *vide* Lapathum
 Rhus
 Ribes

I N D E X.

Rice, *vide* Oryza
 Ricinoides
 Ricinus
 Rie, *vide* Secale
 Ripening of Fruits
 Rocambole, *vide* Allium fativum
 Rocket, *vide* Eruca
 Corn Rocket, *vide* Erucaago
 Rocket, the double, *vide* Hesperis
 Rock-rose, *vide* Cistus
 Golden Rod, *vide* Virga Aurea
 Rondeletia
 Hollow Root, *vide* Fumaria
 Rosa
 Rosa Sinensis, *vide* Ketmia Sinensis
 Gelder Rose, *vide* Opulus
 Rose-tree, *vide* Rosa
 Rose-root, *vide* Anacamperos
 Rosemary, *vide* Rosmarinus
 Rubeola
 Rubia
 Rubus
 Rue, *vide* Ruta
 Goats Rue, *vide* Galega
 Wall Rue, *vide* Ruta muraria
 Wild Rue, *vide* Harmala
 Ruellia
 Cheese Runnet, *vide* Gallium
 Rupturewort, *vide* Herniaria
 Rufcus
 Ruyschiana
 Flowering Rush, *vide* Butomus
 Ruc
 Ruta Canina, *vide* Scrophularia
 Ruta muraria
 Rye, *vide* Secale.

S

S Abina
 Saffron, *vide* Crocus
 Meadow Saffron, *vide* Colchicum
 Sage, *vide* Salvia
 Sage-tree, *vide* Phlomis
 Jerusalem Sage, *vide* Phlomis
 Shrubby wild Sage, *vide* Scordium
 Saint-foin, *vide* Onobrychis
 Salicaria
 Salicornia
 Salix
 Corn Sallad, *vide* Valerianella

Salt
 Salvia
 Salvia agrestis, *vide* Scordium
 Sambucus
 Samoloides
 Samolus
 Samphire, *vide* Crithmum
 Sanguis Draconis, *vide* Palma
 Sanicle, *vide* Geum
 Sanicula
 Santolina
 Sapindus
 Saponaria, *vide* Lychnis
 Sapadilla, *vide* Anona
 Sapota
 Sarracena
 Sassafras-tree, *vide* Cornus
 Satten-flower, *vide* Lunaria
 Satureia
 Satyrion, *vide* Orchis
 Savin, *vide* Sabina
 Savory, *vide* Satureia
 Saururus
 Saxifraga
 Golden Saxifrage, *vide* Chrysofle-
 nium
 Scabiosa
 Scandix
 Sciatica Cress, *vide* Lepidium
 Scilla
 Sclaria
 Scolymus
 Scordium
 Scorpioides
 Scorpion Sena, *vide* Emerus
 Scorzoner
 Scrophularia
 Scurvygrass, *vide* Cochlearia
 Sea Buckthorn, *vide* Rhamnus
 Sea Pink, *vide* Statice
 Sea Lavender, *vide* Limonium
 Secale
 Securidaca
 Sedum
 Self-heal, *vide* Brunella
 Senecio
 Senna
 Senna Spuria
 Bastard Senna, *vide* Colutea

Bladder

I N D E X.

- Bladder Senna, *vide* Colutea
 Scorpion Senna, *vide* Emerus
 Sensitive Plant, *vide* Mimosa
 Serjania
 Serpyllum
 Serratula
 Service-tree, *vide* Sorbus
 Wild Service-tree, *vide* Cratægus
 Sefamum
 Sefeli
 Shepherd's Pouch, } *vide* Burfa Pa-
 Shepherd's Purse, } storis
 Shepherd's Teasel, *vide* Dipsacus
 Sherardia
 Sideritis
 Sicyoides
 Silaum
 Siler
 Siliqua
 Siliquastrum
 Virginian Silk, *vide* Periploca
 Silver-bush, *vide* Barba Jovis
 Sinapi
 Sifarum
 Sifymbrium
 Sifyrinchium
 Sium
 Skull-cap, *vide* Cassida
 Skirret, *vide* Sifarum
 Lady's Slipper, *vide* Helleborine
 Sloe-tree, *vide* Prunus
 Smallage, *vide* Apium
 Smilax
 Smyrnum
 Snail Trefoil, *vide* Medica Cochle-
 ata
 Snap-tree, *vide* Adhatoda
 Snap-dragon, *vide* Antirrhinum
 Snake-weed, *vide* Biftorta
 Sneezewort, *vide* Ptarmica
 Snow
 Snow-drop, *vide* Narcisso-leucoium
 Snow-drop-tree, *vide* Arbor Zeyla-
 nica
 Double Soapwort, *vide* Lychnis
 Solanum
 Soldanella
 Solomon's-seal, *vide* Polygonatum
 Sonchus
 Sorbus
 Sorrel, *vide* Acetofa
 Sour-tops, *vide* Anona
 Southern-wood, *vide* Abrotanum
 Sow-bread, *vide* Cyclamen
 Sparrow-grafs, *vide* Asparagus
 Spartium
 Spatling-popy, *vide* Lychnis
 Speedwell, *vide* Veronica
 Spiderwort, *vide* Phalangium &
 Ephemeron
 Spike-mint, } *vide* Mentha
 Spear-mint, }
 Spignel, *vide* Meum
 Spina Alba, *vide* Mespilus
 Spinachia
 Spinage, *vide* Spinachia
 Spindle-tree, *vide* Euonymus
 Spleenwort, *vide* Asplenium
 Rough Spleenwort, *vide* Lonchitis
 Spiræa Frutex
 Spurge, *vide* Cataputia & Tithy-
 malus
 Bastard Spurge, *vide* Tithymaloides
 Spurge-laurel, *vide* Thymelæa
 Squashes, *vide* Melo-pepo
 Squills, *vide* Scilla
 Stachys
 Stag's-horn-tree, *vide* Rhus
 Staphylodendron
 Star-flower, *vide* Ornithogalum
 Starwort, *vide* Aster
 Yellow Starwort, *vide* Asteriscus
 Statice
 Stickadore, *vide* Stœchas
 Stock-gilly-flower, *vide* Leucoium
 Dwarf Annual Stock, *vide* Hesperis
 Stœchas
 Stone-crop, *vide* Sedum
 Stone-crop-tree, *vide* Vermicularis
 Frutex
 Stoves
 Stramonium
 Strawberry, *vide* Fragaria
 Strawberry-tree, *vide* Arbutus
 Strawberry Spilage, *vide* Chenopo-
 dio-morus
 Styrax
 Suber

Succory,

I N D E X.

Succory, *vide* Cichorium
 Gum Succory, *vide* Chondrilla
 Sugar-cane, *vide* Arundo
 Sweet Sultan, *vide* Cyanus
 Sumach, *vide* Rhus
 Venice Sumach, *vide* Cotinus Cori-
 aria
 Little Sun-flower, *vide* Helianthe-
 mum
 Sun-flower, *vide* Corona Solis
 American Sun-flower, *vide* Chry-
 santhemum Corona Solis
 Swallow-wort, *vide* Asclepias
 Sweet-William, *vide* Caryophyllus
 Barbatus
 Sweet-willow, *vide* Gale
 Sycomore, *vide* Acer majus
 Symphytum
 Syringa.

T

T Abernæmontana
 Tagetes
 Tamarind-tree, *vide* Tamarindus
 Tamarisk-tree, *vide* Tamariscus
 Tamnus
 Tanacetum
 Tansey, *vide* Tanacetum
 Hig or High-taper, *vide* Verbascum
 Tare, *vide* Vicia
 Tarragon, *vide* Draco Herba
 Taxus
 Teasel, *vide* Dipsacus
 Telephoides
 Telephium
 Terebinthus
 Ternatea
 Tetragonocarpus
 Teucrium
 Thalictrum
 Thapsia
 Sooth-Sea Thea, *vide* Cassine
 Thistle, *vide* Carduus
 Distaff-thistle, *vide* Cnicus
 Blessed-thistle, *vide* Cnicus
 Melon-thistle, *vide* Melocastus
 Sow-thistle, *vide* Sonchus
 Globe-thistle, *vide* Echinopus
 Torch-thistle, *vide* Cereus
 Thlaspi

Thlaspidium
 Thorn-apple, *vide* Stramonium
 Glastenbury-thorn, *vide* Mespilus
 Hawthorn, *vide* Mespilus
 Egyptian-thorn, *vide* Acacia
 Christ's-thorn, *vide* Paliurus
 Evergreen-thorn, *vide* Pyracantha
 Thrift, *vide* Statice
 Thymbria
 Thuya
 Thyme, *vide* Thymus
 Thymelæa
 Mother-of-Thyme, *vide* Serpyllum
 Hairy wild Thyme, *vide* Serpyllum
 Lemon-Thyme, *vide* Serpyllum
 Thyme the Marum, *vide* Marum
 Thyme the Mastich, *vide* Masti-
 china
 Tilia
 Tinus
 Tithymaloides
 Tithymalus
 Toad-flax, *vide* Linaria
 Tobacco, *vide* Nicotiana
 Tordylium
 Tormentilla
 Tower-mustard, *vide* Turritis
 Toxicodendron
 Trachelium
 Tragacantha
 Tragia
 Tragopogon
 Tragofelinum
 Transportation of Plants
 Travelers Joy, *vide* Clematis
 Trefoil, *vide* Trifolium
 Bird's-foot Trefoil, *vide* Lotus
 Shrub Trefoil, *vide* Dorycnium
 Bean Trefoil, *vide* Cytisus
 Moon Trefoil, *vide* Medicago
 Snail Trefoil, *vide* Medica cochle-
 ata
 Chaste-tree, *vide* Vitex
 Mealy-tree, *vide* Viburnum
 Cork-tree, *vide* Suber
 Tree Germander, *vide* Teucrium
 Tribulus
 Trifolium
 Triosteospermum

Tripodium,

I N D E X:

Tripolium, *vide* Aster
 Triticum
 Triumphetta
 True-Love, *vide* Herba Paris
 Trumpet-flower, *vide* Bignonia
 Trumpet-Honeyfuckle, *vide* Periclymenum
 Tuberoſe, *vide* Hyacinthus tuberoſus
 Tulip, *vide* Tulipa
 Tulip-tree, *vide* Tulipifera
 African Tulip, *vide* Hæmanthus
 Turks-cap, *vide* Liliū flore reflexo
 Turkey-Wheat, *vide* Mayz
 Turkey-Balm, *vide* Moldavica
 Turnep, *vide* Rapa
 French Turnep, *vide* Navew
 Turnera
 Turnſole, *vide* Heliotropium
 Turrītis
 Tuſſilago
 Tutſan, *vide* Androſæmum
 Twy-blade, *vide* Biſolium.

V

Vaccaria, *vide* Lychnis
 Vaccinia, *vide* Vitis Idæa
 Valerian, *vide* Valeriana
 Valeriana
 Valeriana Græca, *vide* Polemonium
 Valerianella
 Vanilla
 Venus Navelwort
 Veratrum
 Verbaſcum
 Verbena
 Veronica
 Vervain, *vide* Verbena
 Vetch, *vide* Vicia
 Bitter Vetch, *vide* Orobus
 Hoſeſhoe Vetch, *vide* Ferrum equinum
 Liquorice Vetch, *vide* Apios
 Chichling Vetch, *vide* Lathyrus
 Medic Vetchling, *vide* Onobrychis
 Crimſon-graſs Vetch, *vide* Niſſolia
 Hutchet Vetch, *vide* Securidaca
 Viburnum

Vine, *vide* Vitis
 Vincetoxicum, *vide* Aſclepias
 Viola
 Violet, *vide* Viola
 Queen or Dames Violet, *vide* Heſperis
 Leſſer bulbous Violet, *vide* Narcifſo-leucoium
 Viorna, *vide* Clematītis
 Virga Aurea
 Virgins-bower, *vide* Clematītis
 Virginian Silk, *vide* Periploca
 Virginian Acacia, *vide* Pſeudo-acacia.
 Viſcum
 Viſnaga
 Vitex
 Vitis
 Vitis Idæa
 Ulmaria
 Ulmus
 Urtica.

W

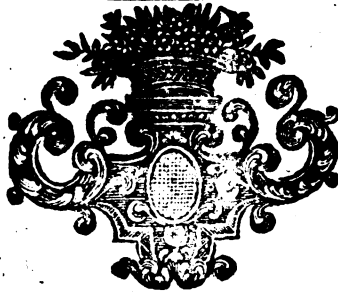
Widow-wail, *vide* Chamælea
 Waſte Robin, *vide* Arum
 Walks
 Walls
 Wall-flower, *vide* Leucoium
 Walnut, *vide* Juglans
 Water
 Water Calamint, *vide* Mentha
 Water Dropwort, *vide* Oenanthe
 Water Germander, *vide* Scordium
 Water Horehound, *vide* Lycopus
 Water Lily, *vide* Nymphæa
 Water Pepper, *vide* Perficaria
 Way-faring Tree, *vide* Viburnum
 Dyers Weed, *vide* Luteola
 Yellow Weed, *vide* Luteola
 Weld, *vide* Luteola
 Wheat, *vide* Triticum
 Cow-wheat, *vide* Melampyrum
 Indian Wheat, *vide* Mayz
 Whin, *vide* Geniſta ſpinofa
 Petty Whin, *vide* Anonis
 Wilderneſs
 Sweet Williams, *vide* Caryophyllus barbatus

Willow-

I N D E X.

<p>Willow-tree, <i>vide</i> Salix Willow-Herb, <i>vide</i> Chamænerion, <i>and also</i> Lyfimachia. Sweet-willow, <i>vide</i> Gale Willow-wort, <i>vide</i> Salicaria French Willow, <i>vide</i> Chamænerion Wind-flower, <i>vide</i> Anemone Wine Winter Cherry, <i>vide</i> Alkekengi Woad, <i>vide</i> Isatis Wolfs-bane, <i>vide</i> Aconitum Wood of Life, <i>vide</i> Guaiacum Wood-roof, <i>vide</i> Asperula Wormwood, <i>vide</i> Absinthium.</p>	<p style="text-align: right;">X</p> <p>X Anthium Xeranthemum Xiphium Xylon Xylosteon.</p> <p style="text-align: right;">Y</p> <p>Y Ucca.</p> <p style="text-align: right;">Z</p> <p>Z Acintha Zinziber Ziziphus.</p>
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F I N I S.



RECORD OF TREATMENT, EXTRACTION ETC.

Shelfmark: 966 C10

S&P Ref No. DE0493/21263

Microfilm No. 2004 PSM

Date	Particulars	
14 NOV 2005	pH Before or Existing	pH After
	4.9	7.1
Deacidification	mag - bi - carb gelatine size	
Adhesives	wheat starch paste animal glue	
Lined / Laminated	2 lvs 5.8 gsm kozo 11v kense lined 5.8 gsm kozo repair	
Chemicals / Solvents		
Cover Treatment		
Other Remarks		

BCG - I

PRESERVATION SERVICE

SHELFMARK 966 c.10

**THIS BOOK HAS BEEN
MICROFILMED (20 of)
PSM**

MICROFILM NO SEE ESTC

**DEBBY NOTTINGHAM
2005**

