With Compliments from the Author

THE

GEOGRAPHICAL DISTRIBUTION

OF

BRITISH PLANTS.

BY

HEWETT COTTRELL WATSON.

THIRD EDITION.

PART I.

LONDON:
PRINTED FOR THE AUTHOR.
1843.

ADDITIONS.

While the pages of this Part were going through the press, Dr. Lemann obligingly supplied me with an unpublished list of plants collected in Madeira, by himself or by the Rev. Mr. Lowe; and also with a manuscript list of the species described in Webb and Berthelot's Natural History of the Canary Isles, as far as that work is yet printed. The number of Ranunculaceæ common to Britain and the Atlantic Isles must now be made into five, on page 40. Ranunculus aquatilis and R. Philonotis occur in the Canaries. Aquilegia vulgaris is found in Pico (Azores), Madeira, and Canaries. Papaver Rhœas and P. dubium both grow in Madeira. The Fumaria of Madeira and the Azores, I am informed by Dr. Lemann, is F. media of Loiseleur.

Thames Ditton, Surrey. January, 1843.

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THE

GEOGRAPHICAL DISTRIBUTION

OF

BRITISH PLANTS.

(*Third Edition.*)

PRELIMINARY EXPLANATIONS.

In a former volume on the Distribution of British Plants, some years since published by the Author of the present work, it was stated that he then contemplated the printing of another treatise on a more extended scale; in which he hoped to include a detailed account of the distribution of every species indigenous in Britain, with the view of recording in connection those numerous and necessary data, from which only can there be any prospect of forming accurate generalisations respecting the geographical relations of plants.

The objects then looked forward to will be seen in the contents of the present work, which is denominated a "Third Edition" in order to avoid any confusion that might arise through the near resemblance of names; and also because it embraces views and facts on a larger scale, which are essentially similar to those printed in the smaller treatises, under the titles, "*Outlines of*, &c." and "*Remarks on* the Geographical Distribution of British Plants." The more complete form of the work

now commenced may be held to justify an abbreviation of its title, by the omission of those unpretending additions of *Outlines* and *Remarks*, which were required and appropriate in the two former editions.

Looking to the enlarged scale on which this Third Edition is now commenced, it is almost needless to remark that some volumes must be required to include the whole series of British Plants; independently of tables and other general views which should follow these details regarding the distribution of individual species. A probability of the work running out to an extent so voluminous, and an unwillingness to give such a pledge for the completion of the whole, as ought always to be implied by the publication of any portion of a work, have induced the author to print the Parts for private distribution only, and from time to time as the materials may become ready. The copies are offered to those botanical friends who have assisted the author in his investigations concerning that department of botanical science to which the treatise relates.

The first object to be accomplished in the following pages, is that of bringing together, under a methodical form, those facts which are calculated to assist in showing both the general range and local habitats of such plants as are reputedly indigenous, or pretty well naturalised, in the island of Great Britain and its islets immediately adjacent, from Scilly to Shetland.

It is impossible to include the sister island, on account of the backward condition of our knowledge respecting the localities of its indigenous plants, and the almost utter want of any published data towards illustrating the geographical relations of its flora. Those relations might no doubt be ascertained by diligent investigation; but so far

as the writer of this work is concerned, he finds too much still left undone in the larger island of Britain proper, to allow him opportunities for extending his own personal investigations into Ireland; and he is not aware that any thing worth mentioning has been published on the subject there, excepting some details of localities for various species.

The cluster of islets near the coast of France, comprehending Guernsey and Jersey, with their more diminutive neighbours, belongs naturally to that country rather than to England, both by geographical proximity, and by the character of their vegetation; all their indigenous plants being apparently common to those islets with France, while several of them are unknown among the native plants of England.

After bringing together such data as may be found conveniently within the author's reach, for exhibiting the ascertained distribution of each species considered by itself, it will then become comparatively easy to add illustrative maps, statistical tables, and more comprehensive and generalised views respecting those various physical conditions which are apparently most influential in determining the present distribution of the plants. To this end, it is unquestionable that copious and accurate details are necessary in the first place, and before the aid of maps and tables can be called in for the sake of explicitness and precision in conveying to others the knowledge so acquired. Interesting as it may be in itself to many minds, the public value of that knowledge must be measured by the degree in which it can tend to elucidate the causes of vegetable distribution; since it is only by first ascertaining those causes that we can reasonably expect to render the knowledge beneficially applicable to

human affairs. But much time may yet elapse before any such application of knowledge can be made.

Notwithstanding the long-accumulated stores of individual facts relating to the indigenous plants of this country, and to the particular localities for the rarer species, as well as many full lists of the plants of single counties or other definite tracts; and notwithstanding the lively impulse which has of late years been given to such inquiries, we are still sadly short of accurately observed facts that bear directly upon the ultimate object here proposed. The facts not having been observed or recorded with reference to any such end, they have consequently been, so far as that end is concerned, too often only inadequately observed and recorded; the most valuable or interesting circumstances having been either noticed insufficiently or wholly passed over. With the botanists of these islands, at least, the zeal for collecting specimens of "rare" plants, merely for the sake of possessing the specimens, or for describing and arranging species, has almost entirely excluded more philosophical labours—here designated more philosophical, because more likely to prove conducive to human welfare if carried out to anything like the same extent. Let it be recollected by those botanists who do not relish this distinction, that it is not by knowing the names, the forms, and the resemblances of plants—that is, their descriptions and classifications,—but by knowing the causes which chiefly affect their health or their existence, that mankind are to be benefitted on a large scale; and the true conditions of vegetable distribution must be identical, to a considerable extent, with those which determine the health and unaided existence of plants.

The leading objects of the work having been thus cursorily alluded to, its form or method will next require a

few explanatory statements. For explanations not given at present, a general reference must be made to the concluding portion of the present work, to the volume published in 1835, under the title of "Remarks," &c., and to various papers by the same writer, in the scientific periodicals. Some other points seem to require a more immediate explanation here.

The so-called Natural System of arranging plants determines the order in which they will be spoken of in these volumes, and which will be very nearly that of Decandolle's Prodromus. Nature's own system of practical arrangement is clearly a geographical one; but for the convenience of technical botanists, it has been deemed more advisable to follow the abstract system, by which plants are supposed to be united into groups according to general resemblances. For the names of genera and species, the British Flora of Sir W. J. Hooker (1842) is taken as a standard authority; the names applied to the same plants by some of the best antecedent writers being also added when different from those used in the fifth edition of the British Flora. The works thus referred to for synonyms are, Smith's English Flora (1824-8), Gray's Arrangement of British Plants (1821), Withering's Arrangement of British Plants (1812), and Hudson's Flora Anglica (1798). These works are selected from the rest, as having been most original or most esteemed in their day. The Floras of Hull, Lindley, Macreight, &c. are merely copies of inferior authority, and for the most part made by botanists who had little practical knowledge of the plants of Britain itself.

No species will be introduced into this work, as indigenous, unless the author has seen specimens alleged to be of British growth. Many species are included in our best descriptive floras, which have probably never been

found in a wild state in these islands; also others which, if they have been found occasionally, have again disappeared, or are at best of uncertain continuance. Such plants will be rejected, as the retaining of them in the lists of British plants must tend much to mislead the younger botanists, and often to give needless trouble to their seniors. On the contrary, it has appeared desirable to retain some species which have become pretty well established, although they are generally supposed to have been formerly introduced into Britain, from other countries, by human agency; and which are therefore rarely pronounced "truly indigenous," except by very young or very shallow botanists, who are ambitious of distinguishing themselves as discoverers. Many of these introduced species are yearly becoming more fully mingled and identified with the natural vegetation of Britain; and some others, if introduced, have already become so completely naturalised, as to render it almost impossible to decide whether they should be joined with the "truly indigenous," or with the "certainly introduced." But it being desired, in the present work, to describe more fully the distribution of the former of these two classes of plants, an attempt must be made to divide them, one from the other, although there is little prospect of all botanists concurring with the author's own views on this point.

In example of the difficulty of tracing any abrupt line of separation between the two classes of native and naturalised plants, the following series of half a dozen common trees may be cited:—

Betula alba - - -	Birch.
Fagus sylvatica - - -	Beech.
Tilia europæa - - -	Lime.
Acer pseudo-platanus - -	Sycamore.

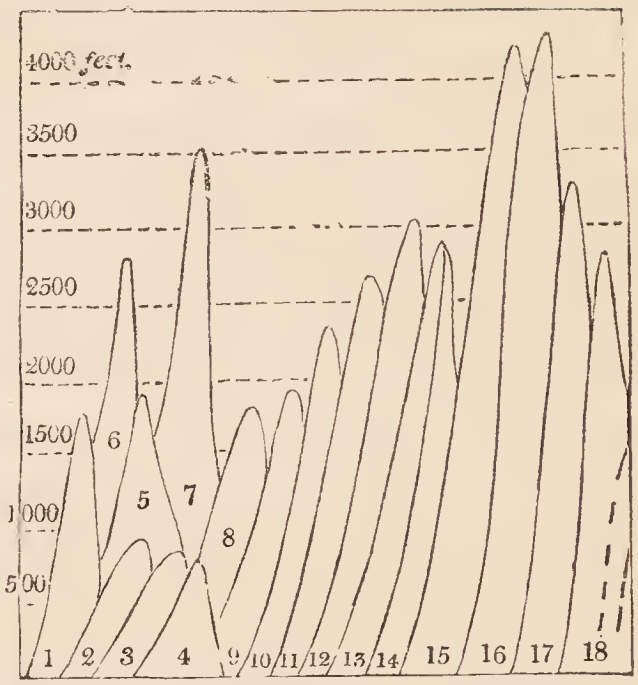
Castanea vesca	-	-	-	Chesnut.
Juglans regia	-	-	-	Walnut.

The first is "truly indigenous," and the last as "certainly introduced;" but between which two, among the remaining four intermediately placed names, must we draw the line that divides the naturalised from the native species? It would be extremely difficult to obtain an unanimous decision from botanists, in reply to this question. And if it be so difficult to place such a line in the case of half a dozen conspicuous trees, how much more difficult would it be to do the like with numerous weeds in our corn-fields, gardens, road-sides, and sea-shores! The first order of plants, which falls to be considered in this Part of the work now commenced, will fully illustrate the uncertainty respecting the proper place of several species, as witness those included under the genera Pæonia, Adonis, Helleborus, and Delphinium.

In the first paragraph following the name of the plant, is a simple enumeration of certain districts in which the species under consideration has been ascertained to grow; and the wood-cut above the paragraph is designed to give the same information by a diagram which will convey it in a more direct manner to the eye. These districts being artificial divisions of the surface, it will be needful to give some explanations of their boundaries and object.

The left-hand figure in the diagram on page 8. represents a miniature map of Britain, divided into eighteen districts, by one longitudinal and several transverse lines, so drawn as to throw the counties into that number of groups. The second figure shows the absolute and comparative heights attained by the highest hills of the respective districts; the cones of this figure corresponding with the districts on the map, as numbered from south to north.

Districts.



Altitude of Districts.

1. Peninsula.
2. Channel.
3. Thames.
4. Ouse.
5. Severn.
6. South Wales.
7. North Wales.
8. Trent.
9. Mersey.
10. Humber.
11. Tyne.
12. Lakes.
13. West Lowlands.
14. East Lowlands.
15. East Highlands.
16. West Highlands.
17. North Highlands.
18. North Isles.

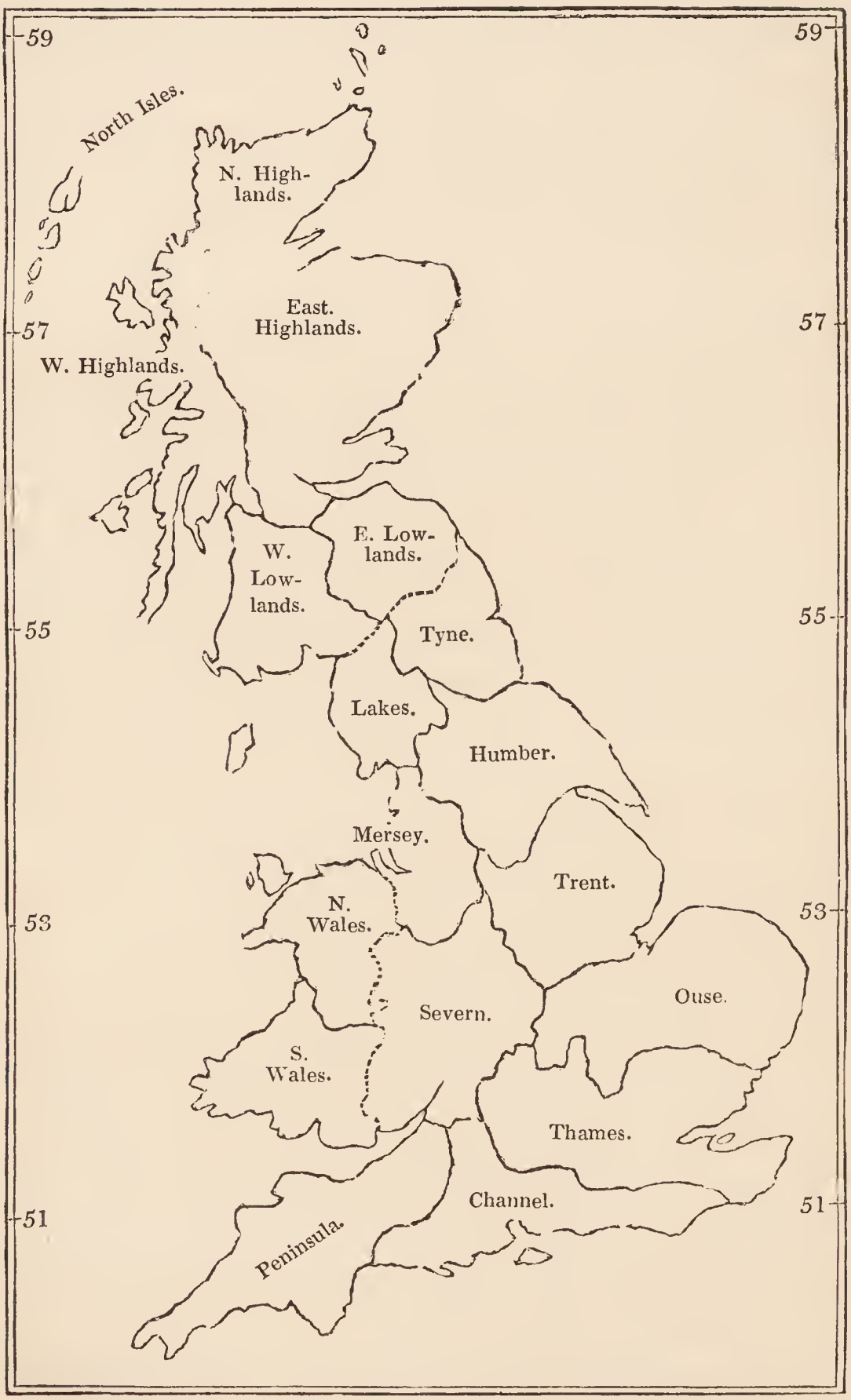
By introducing a copy of this diagram under each species whose distribution is to be illustrated, and omitting the figures from those spaces which correspond to districts within which the species has not been ascertained to grow, a tolerably exact notion of its topographical area may be instantly conveyed to the eye of a reader. Those botanists who are sufficiently interested in such investigations, may give greater precision to the diagram by colouring the spaces in accordance with the details of distribution given in the text for each species. This course will be more especially requisite with the scale of altitudes; since the mere elevation of the highest hill of the district cannot show at what particular height the species in question has been ascertained to grow, although it may often show that a given species is to be found only in districts including

lofty hills. In each copy of the work, one or more of the diagrams will be so coloured by way of example, but the manual labour of applying colour to all of them would be far too great; while the cost of engraving equally prevented the substitution of printed shades or markings in the diagram, the introduction of which would have necessitated the cutting of a separate block for each of twelve hundred species. These diagrams, however, are intended only as index maps to others on a larger scale, as will be afterwards explained.

Two useful objects are gained by thus dividing the whole island into a fixed number of arbitrary but definite districts. First, we have certain portions of the surface which can be spoken of, and compared together, under single names; so that much circumlocution and inconvenience can thus be avoided in describing the distribution of species. The three leading divisions, into England, Wales, and Scotland, were too unequal and too few for this purpose; while the county divisions were much too numerous. Intermediate districts were required, and this grouping of the counties afforded the readiest method of determining the boundaries of such districts.

A second object attained, is that of forming so many tolerably complete local lists of plants, by ascertaining the species found in each district, and thus affording materials for comparisons between the floral productions of different parts of the islands, east and west, north and south, low or mountainous. Many years must elapse before any near approach to a set of complete county lists can be made, but we may now come much nearer the mark by taking districts of larger size.

The relative positions of the districts and their names will perhaps be more clearly shown in the annexed cut, on a larger scale than the first figure in the diagram on page 8.


59
59
North Isles.
N. High-
lands.
East.
Highlands.
57
57
W. Highlands.
W.
Low-
lands.
E. Low-
lands.
55
55
Tyne.
Lakes.
Humber.
Mersey.
Trent.
N.
Wales.
53
53
Severn.
Ouse.
S.
Wales.
Thames.
Channel.
51
51
Peninsula.

The subjoined list of the counties included under each district will enable these districts to be traced on any other map, whose scale is sufficiently large for the limits of counties to be accurately shown upon it.

List of Districts and their included Counties.

1. Peninsula. — Cornwall, Devon, Somerset.
2. Channel. — Dorset, Wilts, Isle of Wight, Hants, Sussex.
3. Thames. — Kent, Surrey, Berks, Oxford, Bucks, Middlesex, Herts, Essex.
4. Ouse. — Suffolk, Norfolk, Cambridge, Bedford, Huntingdon, Northampton.
5. Severn. — Gloucester, Worcester, Warwick, Stafford, Salop, Hereford, Monmouth.
6. South Wales. — Glamorgan, Caermarthen, Pembroke, Cardigan, Brecon, Radnor.
7. North Wales. — Montgomery, Merioneth, Caernarvon, Denbigh, Flint, Anglesea.
8. Trent. — Leicester, Rutland, Lincoln, Notts, Derby.
9. Mersey. — Cheshire, Lancashire.
10. Humber. — York.
11. Tyne. — Durham, Northumberland.
12. Lakes. — Westmoreland, Cumberland. (Isle of Man.)
13. West Lowlands. — Dumfries, Kirkcudbright, Wigton, Ayr, Lanark, Renfrew.
14. East Lowlands. — Berwick, Roxburgh, Peebles, Selkirk, Haddington, Edinburgh, Linlithgow.
15. East Highlands. — Fife, Kinross, Clackmannan, Stirling, Perth, Forfar, Kincardine, Aberdeen, Banff, Moray (including Nairn, Elgin, and the north-east of Inverness).

16. West Highlands.—Dumbarton, Argyle, Inverness, westward of Loch Erricht. Isles adjacent, from Arran to Skye.
17. North Highlands.—Ross and Cromarty, Sutherland, Caithness.
18. North Isles.—Hebrides, Orkneys, Shetlands.

In certain cases, owing to political or other circumstances, small portions of one county are included within the ordinary boundaries of some adjoining county; and where this happens with counties in different districts, the included portions are to be regarded as parts of the district within which they are actually situated. For instance, the extreme northern part of Lancashire, one of the Mersey counties, runs like a wedge into the Lake district, and is truly a part of the latter district in its physical relations.

In some few cases a little additional extension to the limits of the districts may be unavoidably given, where the exact position of habitats on the borders of counties has not been recorded in such terms as to indicate within which county or district the plant does really grow. Thus, in the floras or catalogues of plants found about Bristol, Bath, Tonbridge Wells, and Glasgow, situate on the borders of districts, the localities of several species are so recorded as to leave untold their true position with relation to county or district boundaries. In these cases, the doubtfully placed localities are assumed to be within the same county as the town itself, although the fact may be otherwise; but any misposition that may arise out of this assumption must fall within a small distance, and can rarely be an error of any material consequence to the subject under consideration.

It is to be observed that these eighteen districts do not

correspond with the districts suggested by Mr. Brand for a widely different purpose, and published under the auspices of the Botanical Society of Edinburgh. The present writer had already traced his own, before he was made aware of Mr. Brand's plan and objects; and even had it been otherwise, the more numerous districts of Mr. Brand would not have been so suitable for his purpose, on several grounds.

As to the names, they are either familiar designations that have been long applied to the same tracts, or they are taken from the principal river or some other natural character of the district. The additions of *district, lands,* or *counties,* would entirely prevent any possible ambiguity of meaning; but for ordinary use these additions will not be necessary. *Thames, Ouse, Severn,* will commonly prove sufficient in description; but where necessary they can be lengthened into Thames-district, or Thames-lands, or Thames-counties. In naming his districts from a principal town, Mr. Brand may be found to have occasionally prepared the way for increased ambiguity and error, if those names should ever come into use with botanists, and be applied in their abbreviated form. For instance, there is a district denominated "Cambridge;" and if a botanical label should bear that name only, how is it to be known whether the town, or the parish, or the county, or the district only, was intended by the writer? A reader might understand it to mean the town or county of Cambridge, while the writer of the label might have intended some other of the counties within the district of Cambridge.

After enumerating the districts within which the species has been ascertained to grow, another paragraph adds an enumeration of the Local Floras and Catalogues in which the same species is mentioned. Twenty Floras

and thirty Catalogues have been used for this purpose; the distinction between a *Flora* and a *Catalogue* being unavoidably somewhat uncertain. All manuscript lists given to the author, as well as lists published in periodicals, or under such forms as seem to imply less enduring or less devoted attention to the subject, have been considered Catalogues. They differ from the Floras in being usually less complete lists of species; and more especially by the occasional omission of very common plants, or the species of difficult genera which would not have been so passed over in a published Flora. The distinction is made for statistical purposes, in estimating the relative frequency of the species; the absence of any species from some of the Catalogues being, on the whole, less indicative of rarity than its absence from some of the Floras. At the same time, it is extremely probable that some of the Manuscript Catalogues are really more exact than some of the Published Floras. For instance, the Floras of Berwick, Bath, and Liverpool were published before their authors had devoted sufficient time to their subject; while the Catalogues for Somerset, Denbighshire, and Richmond probably contain the results of much longer and more devoted attention to the botany of the tracts to which they relate. In saying that the Floras are more complete or exact, it is the general rule only that is intended, and not by any means that the least complete Flora is more exact than the most complete Catalogue.

This enumeration of the Floras and Catalogues answers the twofold purpose, first, of indicating authorities for the general range of the species, and, secondly, of affording a tolerably good test of their relative frequency, by counting the number of such local lists in which the species respectively occur. The number of districts, of Floras, and of Catalogues, in which any species is included, will give

a very fair approximation to the degree of its prevalence in the general vegetation of Britain; attaching to them an arithmetical or statistical value in accordance with the order in which they are here named. When two species have been ascertained to grow in an equal number of districts, the Floras may decide their comparative frequency; if the latter also happen to be equal, then the Catalogues may be resorted to as a discriminating test. Beyond this we cannot at present go; since the number of counties, parishes, or specially recorded localities, is rather a test of our published knowledge, than a test of the actual distribution of the plants.

The succeeding paragraph enumerates the localities from which specimens are preserved in the author's herbarium; either gathered by himself in the places named, or received from others with labels indicating that the specimens were gathered there by the donor or by some other party. The initials of *H. W.* will consequently indicate that the author is himself responsible for the accuracy of the locality stated. But it will not always be the case that the name of the donor implies his own like responsibility; since specimens often pass from hand to hand, and errors may have been made by other parties through whose hands they have passed, even assuming the original collector to have been morally trustworthy and scientifically accurate, which is not always the case. Specimens and labels sent out by the Botanical Societies must be liable to such errors in a more than ordinary degree. Accidental misplacements of labels, and other causes of error will occur at head-quarters, as well as in the hands of those who contribute the specimens; and many of the latter are no doubt too careless and incompetent for much credit to be attached to their labels. With the most careful botanists, errors and inadvert-

encies will occasionally happen, and where labels and specimens come to be written and sorted by thousands and tens of thousands, it is morally impossible that mistakes can be wholly avoided.

On the whole, the most trustworthy labels are those received from individual collectors, who adopt the form — or, at least, the spirit — of the labels now used by the Botanical Society of London; namely, those in which the names both of the contributor and of the collector are expressly stated. That unmeaning substitute of dog-latin, "Ex Herbario John Smith," so ill-advisedly recommended by the Botanical Society of Edinburgh, must greatly detract from the value of their labels as indications of localities. "Ex Herbario" gives no information whether the botanist whose name follows those words was himself the *collector* of the *specimen*, and consequently the *authority for the locality*, or, whether he had merely received and transmitted the specimen, the accuracy of its alleged locality resting on the fidelity of some unknown collector and all others through whose hands the same specimen might have passed before reaching the Edinburgh Society. Certain it is, however, that the two last parcels received from Edinburgh, by the present writer, contain strong presumptive evidence that some of the specimens were really *not* collected in the localities specified on the labels which accompanied them. This false position may sometimes happen through the crossing of labels and specimens in Edinburgh; but more frequently, perhaps, it is owing to the reprehensible practice of those contributors who mingle their specimens of the same species (or specimens supposed to be of the same species) from different localities. In these cases, not only is a false locality given for some of the specimens, but sometimes also a false locality for the species.

Previous to the year 1841, the Botanical Society of London was far more faulty in these respects than that of Edinburgh. The funds of the London Society have never been adequate to secure the services of a competent Curator; and for several years after its first institution in 1836, so much confusion and carelessness prevailed in its management as to give good grounds for believing that hundreds of specimens were annually distributed with wrong names or false localities on their labels. Considerable improvement and increased care in the labelling of the specimens commenced in 1841. In the autumn of that year the Council of the Society adopting the judicious plan of having the labels written and *attached* to the specimens of each individual contributor, as his parcel came under examination. If this regulation shall continue to be honestly acted up to by the Society's Curator, the localities on the labels will be accurate, although some errors may still be made in the names of the plants.

These explanations are necessary, because the words "*Bot. Soc. Edinburgh,*" and especially "*Bot. Soc. London,*" will frequently appear in the pages of the present work, as the authorities for localities confirmed by specimens. The author could, indeed, have placed much less reliance on the labels of the London Society, had not its Council liberally allowed him to take specimens direct from the parcels of the various contributors, before any risk of crossing or misplacing their labels had occurred. That privilege was granted to him, because the localities were wanted expressly for publication in this work; and they are numerous in consequence of the author having been a very large contributor of specimens to the Society, and thus becoming entitled to a corresponding return in exchange.

It would no doubt have been very easy to increase

greatly the number of localities confirmed by specimens in the author's own herbarium; but for the commoner species, whose general distribution may be ascertained by local lists and other means, it was not wished to accumulate more than a few specimens collected in different and distant localities, so as to prove their wide distribution. Yet even this apparently easy task has been in some instances too much neglected.

The occasional paragraphs, headed "*Uncertain Localities*" will sufficiently explain themselves. The same remark may be extended in part to the two succeeding paragraphs. In the first of these, where the distribution of the species in Britain is slightly sketched out, one or other of the terms, *Local*, *Partial*, *General*, is used, either with or without the qualifying additions of *rather* or *very*. Their signification will be understood as follows: —

Local. — In few and isolated localities.

Partial. — In many localities, but absent from some considerable and continuous portion of Britain.

General. — In many localities, and wanting in no very large and continuous tract.

Afterwards another series of three terms is applied in the same way, as a general indication of altitude or climate, namely: —

Agrarian. — Applied to plants found only within the limits of cultivation, or within the limits of Pteris aquilina in waste lands whose elevation or climate would not forbid successful cultivation.

Agro-Arctic. — Applied to plants found within the region of cultivation, and also above those limits.

Arctic. — Applied to plants found only above the limits of cultivation.

These terms are temporary substitutes for those used in the second edition, or "Remarks," namely, Plain — Upland — Median — Subalpine — Alpine. The latter terms are better when correctly applied; but the single test, of cultivation or no cultivation, is every where applicable, and obvious to the most superficial observer. About fifteen hundred feet is the extreme limit of cultivation in the Highlands; the general line scarcely exceeding one thousand feet. In England, cultivation is seldom seen above the same height; but the Pteris aquilina and Ulex europæus may possibly attain two thousand feet in favourable situations; and where these plants grow, the climate is such as will admit the cultivation of oats, barley, or potatoes. The Agrarian plants are those of the Plains and Uplands. The Arctic plants are those of the Median, Subalpine, and Alpine regions. The Agro-arctic are those found in one or both of the lower regions, and also in one or more of the three upper regions.

It is to be observed also, that in stating the latitudinal range of species in these two paragraphs, the figures indicate the mathematical line of latitude immediately north or south of the extreme localities, fractions of degrees not being distinguished.

The concluding paragraphs, headed by the names of the districts, embrace a miscellaneous compilation of localities brought together from various sources of information; the observations of the author, the specimens in his herbarium, the manuscript communications of botanical friends, and published botanical works* have supplied this

* Should the author of any botanical work published in this country express a desire that the localities published by himself should not be incorporated with the general collections in this present work, his intimation will be attended to. Otherwise, such isolated facts as

assemblage of localities. It has not been deemed worth while to add the authority for each locality by itself. The Floras, Catalogues, and specimens, quoted in preceding paragraphs, will sufficiently indicate authorities for the general distribution of the plants; and a copious enumeration of authorities for the localities of the rarer species may be found in the New Botanist's Guide. Few manuscript Catalogues have been used besides those already mentioned in the Guide; the increasing number of published works, or lists of that description, affording sufficient substitutes. To the Rev. W. H. Coleman the author is indebted for full catalogues of species observed about East Grinstead, Dedham, and Hertford; and to Dr. Bromfield he is under the like obligation for a list of plants belonging to the orders Ranunculaceæ—Fumariaceæ, found in the Isle of Wight, whose Flora will shortly be published by that very accurate and persevering botanist. It is to be hoped, also, that we may have a Flora of Hertford from the equally careful observer and exact botanist above named. Mr. Lees kindly assisted this work with many localities for Ranunculaceæ, &c. in South Wales; without which, and the recently published lists of Swansea plants, by Mr. Gutch, in the Phytologist, many blanks must have been left for plants in the district of South Wales. But, as a general list of the botanists whose manuscript notes are used will be published before the conclusion of the work, it is not necessary to enter upon

botanical localities will be collected from any trustworthy authorities; since it is chiefly by being collected and arranged together for a common object, that they can be said to have a scientific value. Such a work as the present necessarily requires its author to take all aids within reach, and thus far it is a compilation from the observations of many others; though the author is himself by far the largest contributor of facts connected with localities, and these have been derived from his own direct researches in the wilds of Nature.

farther explanations at present. It may, however, be observed, that the localities which rest on the personal observations of the author are distinguished by the word "Seen" at the commencement of the sentence. Of course he has really *seen* the commoner plants in many other places besides those expressly named; but not having made any notes or memoranda of the circumstance, he avoids stating the facts upon vague recollection. Thus, for example, he feels very confident that he must have seen Anemone nemorosa in the West Highlands; yet, finding no note of the fact, he leaves that district a blank; though introducing the name of the district, in its turn, followed by asterisks (* * *), to indicate probability without positive authority for the existence of the plant in that district.

It is scarcely needful to add, that the author is not responsible for the accuracy of localities copied from other writers; though he endeavours to distinguish those which seem very likely to be erroneous, in the paragraph of "Uncertain localities." Nor is it to be expected that he can avoid repeating sometimes the same locality over again under a different description, or falling into other occasional errors in copying notices of habitats which have not been visited by himself. Those botanists who are best able to detect them, will be most ready to make allowances for any such unavoidable inadvertencies, should they appear.

I. RANUNCULACEÆ.

Ranunculaceous plants are very widely distributed over the surface of the globe. They were found — in the typical form of the order, the genus Ranunculus — on all the arctic and polar coasts visited by Sir Edward Parry and other northern voyagers; even under the highest latitudes attained, as in Melville Island and at the northern extremity of Spitzbergen. They are still to be seen at the contrary extremes both of the old and new worlds, about the Cape of Good Hope and the Straits of Magellan; and they have also been gathered on the islands of the Southern Pacific, in New Holland, Van Dieman's Land, New Zealand, &c. Between these remote positions representatives of the order may be found in every part of the world, numerously in cold and temperate climates, but much more sparingly scattered over intertropical countries. Within and about the tropics, the plants of this order are chiefly seen on the mountains, although not invariably so.

Ranunculaceæ are found to bear the highest proportion, relatively to other flowering plants, in high northern latitudes; but it is within the more temperate latitudes of the northern hemisphere that the highest absolute number of species will be found; namely, in Europe, between the Mediterranean and Baltic seas, and in or about the corresponding latitudes of Asia and America. Hence, the order decreases in numbers towards the polar regions — like all other orders including many species; and it also decreases in the contrary direction, towards the Equator — unlike several other orders which exhibit a numerical

increase from the temperate towards the torrid regions of the globe.

In his Prodromus, Decandolle described 545 species of Ranunculaceæ; but so numerous have been the additions to this order since the publication of the first volume of Decandolle's work, that we now find Steudel's Nomenclator containing the names of 830 species, reputedly distinct.* The sum total of species, whose names appear in that work, cryptogamic plants being omitted, is rather above 78,000; so that Ranunculaceæ may be estimated to constitute about a 94th part of the whole known phanerogamic flora. In all probability, however, that proportion is too high; the species of this order being better known than are those of several other orders prevalent within the tropics, or in the southern hemisphere.

In most extra-tropical countries of the northern hemisphere, the proportion of Ranunculaceous plants to others is much greater, varying from a 14th to a 50th part of the phanerogamic flora. Mirbel made laborious calculations of the flowering plants of a large section of the northern hemisphere, extending from the North of Africa to the polar shores, both inclusive, and comprehending all Europe, Western Asia, Siberia and Kamtschatka, and the polar coasts of the old and new worlds. He ascertained that this wide space afforded 10,292 phanerogamic plants, including 272 species of Ranunculaceæ. These numbers indicate so high a proportion for the order as a 38th part of the whole flora (always excepting cryptogamic plants),

* The elaborate and valuable *System*, by George Don, would have been much more convenient for consultation and reference, in respect of the number of species in certain orders, and also on other grounds; but it was necessary for the purposes of this work, to use a Catalogue which professedly includes all the species of phanerogamic plants, for the purpose of reckoning the proportions of each order to the whole.

which is probably somewhat too high as an average for extra-tropical countries, since Mirbel's geographic section took in only a small range of longitude at its southern extremity, that is, in latitudes where Ranunculaceous plants are relatively, and even absolutely, less numerous. For Mirbel's immediate object, namely, that of contrasting the floras of different latitudes, this extension of longitudes in the higher latitudes was of less practical consequence; the floras of different tracts in high latitudes being much more alike in species, than is usually found to be the case in those of the lower latitudes. But in taking the general number, as an indication for extra-tropical proportions, it is to be recollected that the species of warm latitudes were much less fully reckoned by Mirbel. It is not improbable that the proportions will be about a 40th or 45th for extra-tropical latitudes, a 100th for the earth generally, and a 200th or 300th for intertropical latitudes; but looking only to the low grounds, instead of including the mountains, whose elevation modifies the climatic effect of latitude, the proportion of Ranunculaceæ in the general flora will be still lower, especially within the tropics.

In very high northern latitudes, though the species are few — as those of any order must be, where the whole flora becomes so scanty — yet the proportion which this order bears to the general flora is very great. In the extreme polar regions, beyond latitude 72°, we find Ranunculaceæ constituting a 14th part of the whole flora, and from a 15th to a 19th part of the floras of islands or other small tracts. Under the arctic circle of Europe and Asia, or between latitudes 55° — 70°, the order still constitutes a 25th part of the whole flora; being a 24th for Siberia generally, and a 26th for Sweden generally, in Lapland a 25th, about Upsal a 29th, about Petersburgh a 23rd. In Middle

Europe, between the Baltic and Mediterranean seas, the constituent proportion sinks to a 29th, as shown by the floras of France and of Switzerland; as also by that of Central Europe, or Germany in the widest sense (Koch's Synopsis), comprehending the dominions of Austria and Prussia, along with Switzerland and the smaller territories of Germany. In the extreme south of Europe, the proportion becomes only a 37th (Rome, Zara), a 38th (Portugal, Arragon), or a 39th (Sicily, Greece). In Northern Africa, the constituent proportion sinks to a 50th, that is, just half the proportion for Lapland.

Turning from the old to the new world, the proportion of Ranunculaceous species in the polar lands is a 14th, as above stated; for it is unnecessary there to make distinctions of longitude. Under the arctic circle in America, we find it as high as a 17th or 18th. This proportion, at least, is obtained by reckoning up the flora of a tract lying to the northward of a line traced from Kotzebue Sound, in latitude 67°, on the north-west coast, across Point Lake, in latitude 64°, in the interior, and through Hudson's Strait, in latitude 62°, on the east coast of America; including also Greenland, to its southern extremity, in latitude 60°. In this tract the climate is well known to be greatly more severe than in the same latitudes of Europe; and here, accordingly, we see the proportion of Ranunculaceous plants approximating to that found on the polar shores;—not, of course, because a very cold climate increases the number of Ranunculaceæ, but because it tends to the decrease of several other phanerogamic orders, at a still greater ratio than the decrease of the one now under consideration. The calculation made for that tract gives 22 Ranunculaceous species in 386 phanerogamous species.

In British America, or the large tract whose flora has

been so admirably illustrated in Sir W. J. Hooker's great work, the Flora Boreali-Americana, we have 74 species of this order among rather more than 2400 flowering plants; thus indicating that Ranunculaceæ constitute about a 33rd part of the whole. Perhaps this proportion is rather too low, the printing of the work having extended through some years, during which the author may have been adding to the number of his species in those orders which were later published. In Pursh's general Flora of North America, including 3050 species, we find only 73 Ranunculaceæ; and though these numbers are greatly below the present knowledge of North American botany, it may be that their relative proportion is not widely wrong; Ranunculaceæ constituting, in this case, a 42nd part of the whole flora of North America. Torrey and Gray describe 136 species of this order, in their lately commenced Flora of North America; but what will be their whole number of flowering plants cannot appear for a long time to come. Should they go on nearly doubling the species of Pursh, they will describe 5700 species, which is not by any means an unlikely number, except so far as it may be deemed too low. Among upwards of 4000 species brought from intertropical America, by Humboldt and Bonpland, and described by Kunth, there are only a score of Ranunculaceæ; and as far as these numbers can show it, the proportion of the order is there only a 200th part of the whole, notwithstanding that the plants of Humboldt were many of them collected at high elevations.

In the more limited floras of the islands situate between the continents of Europe and America, the same general fact, of Ranunculaceæ having a relative predominance in the colder latitudes, is equally obvious. In Spitzbergen, at its northern extremity, the proportion for the order is

a 15th. In Greenland, it is a 19th. In Iceland, according to the list given in Sir W. J. Hooker's Tour, the proportion is reduced to a 32nd part. The same proportion is found in Zealand; but in the intermediate Isles of Faro, the order constitutes a 27th part of the Flora, as enumerated by Mr. Trevelyan. In Ireland, we find the same proportion as that indicated by Pursh's Flora of America, namely, a 42nd part; which is lower than the proportion for any part of Europe above named. In Britain, we vary the proportion according to the strictness with which introduced and mistaken species are rejected from the flora. The number of Ranunculaceæ adopted in this work is 25, and the assumed number of phanerogamic species is 1200; thus giving for the former a 48th part. Mr. Babington's Flora of the Channel Isles brings down the proportion to a 52nd part; and nearly the same proportion is observed in the Azores. In Höll's list of Madeira plants it is reduced to an 87th part.

By these facts it is made sufficiently apparent that the proportion of Ranunculaceous plants, in the general phanerogamic floras, decreases from north to south, or from the polar to the equatorial countries; a fact which will be clearly seen by reference to the table intended to come in a few pages forward, and marked "List 1." Some local variations nevertheless occur, which are worthy of attention. For the most part, the proportion of Ranunculaceæ rises in the mountainous tracts, and sinks in the low and maritime countries of Europe; allowance, of course, being made for changes of latitude. In the Russian and Austrian territories, the proportion also rises; and a maximum for the old continent seems to be attained on the Altai, in Central Asia, where we find the polar and arctic proportion of a 19th, even in a latitude nearly corresponding with that of England and the Channel Isles, in which

Ranunculaceæ are a 48th and 52nd. It would hence seem that, besides the rise from south to north, and from low to mountainous tracts, there is also a rise from west to east, in the relative proportion of Ranunculaceæ to Phanerogamæ in general. It should be observed, however, that at very high elevations on the Alps, the proportion also rises to that of arctic and polar latitudes, as appears from tables published by Dr. Beilschmied. The peculiarity on the Altai is, the proportion being so high for the whole tract together.

Estimating the numbers from Steudel's Nomenclator, it appears that among phanerogamous plants there are 11 or 12 species to a genus, on the average. But among Ranunculaceæ, the average is between 28 and 29 species to a genus, more or less, according to the facility with which botanists admit generic divisions. This high average is owing to the great number of specific forms included under the genera of Ranunculus (250), Clematis (130), Thalictrum (82), Delphinium (82), Anemone (50—or, if Pulsatilla be combined with Anemone, 69), Aconitum (42), Pæonia (37), and Aquilegia (22). None of the remaining 20 or 22 genera include so many as 20 species. But exact numbers unavoidably vary from year to year, with the progress of botanical discovery;—not to mention the progress of botanical vanity, which so frequently prompts to the splitting of species, for the very questionable honour of being quoted as the authority for a name, which is to be perpetuated in books as the representative of nothing more real than the inventor's mis-reading of nature.

Some of the above-named genera are very widely spread over the earth; the multitudinous genus Ranunculus, in particular, being found almost as universally as the order itself. It is to be seen in the distant islands of Spitz-

bergen, Melville, Unalaschka, Japan, Java, Bourbon, New Zealand, New Holland, Van Dieman, &c.; also in several parts of South America, in South and North Africa, and almost everywhere in Europe, Asia, and North America, ascending from the sea coast, up the sides of the mountains, almost or quite within the limits of perpetual snow. The genus Clematis, more limited than that of Ranunculus, has still a wide distribution, occurring in Middle and South Europe, in Siberia, China, Japan, North and South America, South Africa, New Holland, New Zealand, and the intermediate countries; ascending likewise to a considerable elevation on the mountain ranges, although not to the heights attained by several species of Ranunculus. The highest habitat for a Clematis, recorded by Humboldt, in intertropical America, is at 9000 feet; while the highest locality for a Ranunculus is stated at nearly 14,000 feet. In Britain, also, the difference of elevation for the two genera is striking; our only native Clematis being a shrub of the low grounds in England, and not wild in Scotland, where Ranunculus acris is seen at nearly 4000 feet of elevation on the Highland mountains. But it is impossible to afford space for notices of the distribution of genera singly. Let it suffice to say, that the other genera above mentioned, as being those most numerous in species, together with the less numerous genera, Adonis, Caltha, Trollius, and Actæa, are all common to North America, Europe, Caucasus, and Altai; constituting in each of these distant places the great bulk of the order under consideration. It would seem, too, by a passage in Dr. Royle's Illustrations of Himalaya, that the same genera are still repeated on the great mountain ranges northward of India. The passage alluded to runs thus, but the genus Myosurus,—common to America and Europe, and extending eastward as far as

the Caucasus, though not found on the Altai mountains, —was probably overlooked by the writer.

"The Himalayan genera of Ranunculaceæ, with the exception of Ceratocephalus, are exactly those enumerated by Ledebour, as those of which species are found in the Altai mountains; and also, with the exception of Helleborus and Nigella, which do not extend either eastward to the Altai or southward to the Himalaya, the same genera as those enumerated by Meyer and Bieberstein, as being indigenous to the ranges of Taurus and Caucasus." *

Within the narrow limits of Britain, the order of Ranunculaceous plants, though not among the most numerous, still constitutes a considerable portion of the general flora, estimating its proportion by the number of species; and it holds a very prominent place in the general vegetation, if we take into account the number of individual specimens, or the frequency of the different species. About twenty-five species may be received as truly indigenous in this country. Eight others now occur wild, but have probably been introduced by human agency. Three others have either been mistakenly reported as British, or are so im-

* *For* Taurus *read* Crimea, in the passage copied above. Bieberstein's *Flora Taurico-Caucasica* has nothing whatever to do with the "ranges of Taurus," which are hundreds of miles distant from those of Caucasus. It is passing strange, that a writer on the geographical relations of the plants of Asia should have confounded a peninsula of Russia with a range of mountains far in Asia Minor; or, that he should have consulted a Flora of the one, without finding out that it was not a Flora of the other. Good botanists do at times commit errors in regard to the habitats of some species, just as they may occasionally mistake their names or technical characters; but the transposition of a whole Flora, of many hundred species, all in the lump, from latitude 45° to latitude 38°, will be likely long to remain unique among the curiosities of botanical literature. Where was that most useful of botanical prompters, the late Mr. David Don, when the above-quoted passage was penned and printed by the author of the Illustrations?

perfectly established as to be in no way entitled to enumeration among British plants. The species included under these heads may be ascertained by turning to the pages where their distribution is given more specially and individually. Of the twenty-five native species, three only can be denominated strictly "local," namely, Ranunculus alpestris, Actæa spicata, and Anemone Pulsatilla. Ten others are so widely distributed as to merit the epithet of "general;" the remaining twelve species taking the intermediate character of "partial." Of the ten general species, five only have been clearly ascertained to grow in every district, though all of them are included in each of the twenty published local floras. There can be no question that those five are truly among the most general and commonest of our indigenous plants, according to the situations in which they occur, namely, Ranunculus acris, R. aquatilis, R. Flammula, R. repens, and Caltha palustris. Three of the other five are almost equally common, if we except the northern districts and the mountainous tracts, where they occur less frequently or wholly disappear; namely, Anemone nemorosa, Ranunculus Ficaria, and R. bulbosus. Indeed, over great part of England, these latter three species are more frequent than Caltha palustris; though, with respect to the whole of Britain, the Caltha may be pronounced the commoner species, on account of its greater frequency in the northern and hilly districts. Ranunculus hederaceus and R. sceleratus will complete the list of the ten most generally distributed species of this order.

In "List 3" the names of all the indigenous Ranunculaceæ are set down in a series according to the number of districts in which they have been ascertained to grow. This is one test of their relative frequency, as estimated by the greater or less generality of their occurrence; and the number of local floras and number of catalogues in

which the same species is included constitute secondary tests of a similar kind. A glance at the "List," however, will suffice to show that the three tests do not precisely correspond; the differences being far greater for the partial and local plants, than for those of general occurrence. The discrepancy is partly owing to the circumstance, that for some of the districts — South Wales, Lakes, West Highlands, especially — we have no sufficiently ample and complete local catalogues or floras, and without the aid of these it is difficult to find any published record to certify the occurrence of the commoner species in some of the districts. Moreover, the twenty floras used for comparison do not relate to any portion of the two most northern, or of some other districts, and hence a plant may happen to be named in all the floras, although totally absent from one or more districts. The three tests — districts, floras, catalogues — taken together will give a near approximation to the relative frequency of the species.

The want of a full enumeration of species for some of the districts reduces likewise the number of plants set opposite the names of the districts in "List 4," where the local distribution of the order is attempted to be shown by the number of species in each district. As far as those numbers may authorise the conjecture, it seems probable that Ranunculaceous species will vary in their proportion to the phanerogamic flora, in the different districts, between a 45th and a 35th; and that on the mountains, perhaps also in the North Isles, they will be found a still larger constituent of the flora than a 35th. At present, it is difficult to say what will ultimately appear to be the true numbers of indigenous species in the several districts. We may conjecture that they will be from 800 to 900 in the English districts, and 600 to 800 in the Scottish districts; though, in the North Isles, it is not likely they

will reach 500 species for the entire district, consisting of the three subordinate groups of islets, so different in their latitude,—Hebrides, Orkneys, and Shetlands,—and naturally constituting two, if not three small districts.

The districts of the Humber and Severn come first in regard to the number of their Ranunculaceous species; a pre-eminence arising from the circumstance of their being sufficiently southern in position to produce some of the species having an early limit northward—Clematis, Pulsatilla, Myosurus, Ranunculus parviflorus,—while the character of their surface, rocks, or position, adapts them for the more northern species—Trollius, in the Severn district; and also Thalictrum alpinum, in addition to Trollius, in that of the Humber, although extremely local there. The latter, too, is almost exclusively the district of the Actæa spicata; which is said to grow in three others, and possibly may be found in two of them. The only species of the order which is quite absent from Yorkshire, is the exceedingly rare Ranunculus alpestris; but whether the Clematis is indigenous within that district or county has yet to be ascertained.

On the contrary, the districts of the North Highlands, North Isles, and West Highlands have low figures in List 4., on account of their small number of Ranunculaceous plants. This is partly explained by the scantiness of their general floras; partly, perhaps, arises out of our incomplete list of species in those districts. Had we a full enumeration of the plants of those districts, the entire absence of several southern species of Ranunculaceæ would necessarily keep the districts low in a list of absolute numbers, although there can be no doubt that the order bears a high relative proportion in them.

Since there is in Britain only one exclusively arctic or subalpine species of the order, Ranunculus alpestris, and

that one so exceedingly local, the influence of our mountains is seen more in the reduction of absolute numbers, than in the change of species. Thalictrum alpinum, indeed, is a second mountain species, never found in the non-mountainous districts; but in the two most northerly districts it is a plant of the sea level, and probably descends so low as the agrarian region in Wales.

With respect to the distribution of British species of Ranunculaceæ in other parts of the world, the slight details given under the several species will show where each one is known to grow; and "List 7." will indicate the number of species common to this country and each of several other parts of the world. After all the other orders have been treated as fully, more ample and perfect estimates and generalisations may be made, in the form of concluding summaries. At present, it may suffice to point attention to a few leading circumstances. All our British species grow in France; and all, likewise, are mentioned in the Helveto-Germanic Synopsis of Koch, as growing in Central Europe. More northward, in Sweden and Norway, there are still 22 of the British species; those absent being Ranunculus alpestris, R. parviflorus, and Clematis Vitalba. Ten others fail to reach Lapland, besides the three first named; so that the number common to Britain and Lapland is only 12. In the Mediterranean countries, southward of the Pyrenees, the river Po, and the Euxine, we have all save two species, Thalictrum alpinum and Ranunculus alpestris, which possibly may not extend farther south than the Pyrenees and Southern Alps, although the lofty Sierras of Spain seem not unlikely habitats. Ranunculus acris and R. auricomus are very rare in the Mediterranean countries. In Africa only few of our species appear to grow. Russia has at least 20 of them in the low country between the Baltic and the Black seas;

the mountain species, Thalictrum alpinum and Ranunculus alpestris, being there absent; as also the more southern species, Ranunculus parviflorus and Clematis Vitalba, and the western Ranunculus hederaceus. Three of these five, however, grow in the extreme South of Russia, that is, in the Crimea or Caucasus. We still find 22 or 23 of the British species extending their range into Asia; the two exceptions here being Ranunculus hederaceus, which has been said to grow in Siberia, and Ranunculus alpestris. Two other species, Ranunculus hirsutus and R. parviflorus, are perhaps not found eastward of the Crimea; but in reckoning the Asiatic plants the Crimea has been taken along with Asiatic Caucasus. In Northern India, including the Himalaya, five British species of Ranunculus are stated to occur; and Thunberg names four additional species of the order as having been found in Japan, though it is not improbable that other species were confused with those of Europe, by that author. Five or more of our species occur in Kamtschatka. What may be the true number indigenous in America it is not easy to determine; probably ten, or fewer, may be the full number. Four have been said to grow in Greenland, namely, Thalictrum alpinum, Ranunculus acris, R. auricomus, R. hederaceus: the two first being not unlikely, the two latter less probable. It is rather remarkable that Ireland should have no more of the British Ranunculaceæ than the number found in the distant countries north and east of the Black Sea. Those omitted in Mackay's Flora Hibernica are, Anemone Pulsatilla, Myosurus minimus, Ranunculus alpestris, and Actæa spicata. Clematis Vitalba, described in that work, is stated to be merely an introduced plant. Ireland has no species which are not also found in England. The Channel Isles, according to Mr. Babington's Flora, possess only 14 of the British species; the exceptions con-

sisting of the mountain and boreal species, and those growing usually in woods, marshes, or calcareous ground. The genera Thalictrum, Clematis, Anemone, Trollius, Caltha, Aquilegia, and Actæa, with Ranunculus alpestris, make up the deficiencies of the Sarnican Flora. One additional species appears in Jersey, which is not found in Britain, namely, Ranunculus ophioglossifolius. Of all the British species, probably of all known species of this order, the most widely distributed one is Ranunculus sceleratus.

List 1.

Proportions of Ranunculaceæ relatively to Latitude.

	Ranunculaceæ.	Phanerogamæ.	Proportions of same.
Polar America, beyond 72° N. lat.	8	113	1 in 14
Arctic America - - -	22	386	18
Boreal America. (Hooker.) -	74	2410	33
North America. (Pursh.) - -	73	3050	42
Tropical America. (Humboldt.) -	20	4170	208
Lapland. (Wahlenberg.) - -	20	495	25
Sweden. (Wahlenberg.) - -	44	1163	26
Central Europe. (Koch.) - -	109	3210	29
France. (Decandolle and Duby.) -	129	3695	29
Portugal. (Brotero.) - -	42	1613	38
Sicily. (Presl.) - - -	47	1814	39
Greece. (Sibthorpe.) - -	60	2330	39
North Africa. (Desfontaines.) -	30	1500	50
Spitzbergen. (Parry's Voyage.) -	3	46	15
Greenland. (Giesecke.) - -	9	175	19
Iceland. (Hooker's Tour.) -	11	357	32

	Ranunculaceæ.	Phanerogamæ.	Proportions of same.
Faro. (Trevelyan.) - -	10	271	1 in 27
Zealand. (Drejer.) - -	31	985	32
Ireland. (Mackay.) - -	24	1000	42
Britain. (1200, assumed.) - -	25	1200	48
Channel Isles. (Babington.) -	16	828	52
Madeira. (Höll.) - - -	3	261	87

List 2.

Proportions of Ranunculaceæ varied locally.

Altai. (Ledebour.) - -	85	1606	1 in 19
Petersburg. (Sobolewsky.) - -	29	658	23
Siberia. (Gmelin.) - -	46	1116	24
Carniola. (Scopoli.) - -	50	1251	25
Carpathians. (Wahlenberg.) -	40	1001	25
Volhynia, Podolia, &c. (Besser.) -	64	1606	25
Gallicia. (Besser.) - -	46	1216	26
Halle. (Leysser.) - - -	39	1015	26
Upsal. (Wahlenberg.) - -	22	642	29
Switzerland. (Koch.) - -	78	2299	29
North Alps. (Wahlenberg.) -	34	1028	30
Belgium. (Lejeune.) - -	59	1796	30
Posony. (Lumnitzer.) - -	34	1007	30
Berlin. (Kunth.) - - -	27	867	32
Silesia. (Beilschmied.) - -	43	1422	33
Frankfurt. (Reichard.) - -	27	925	34
Alsace. (Kirschleger.) - -	50	1714	34
Crimea and Caucasus. (Bieberstein.)	67	2360	35
Hamburg. (Sickman.) - -	25	930	37
Rome. (Sebastiani.) - -	32	1200	37
Zara. (Alschinger.) - -	31	1160	37
Arragon. (C. A. R.) - -	28	1073	38
Holland. (Miquel.) - -	31	1210	39

List 3.

Comparative Frequency of British Ranunculaceæ.

	Districts.	Floras.	Catalogues.
1. Ranunculus acris - -	18	20	30
2. Ranunculus repens - -	18	20	30
3. Ranunculus Flammula - -	18	20	30
4. Ranunculus aquatilis - -	18	20	30
5. Caltha palustris - -	18	20	28
6. Ranunculus Ficaria - -	17	20	29
7. Ranunculus bulbosus - -	17	20	27
8. Ranunculus hederaceus - -	17	20	26
9. Anemone nemorosa - -	16	20	26
10. Ranunculus sceleratus - -	16	20	23
11. Thalictrum minus - -	16	10	10
12. Ranunculus hirsutus - -	15	16	15
13. Ranunculus auricomus - -	15	18	21
14. Ranunculus Lingua - -	15	15	12
15. Aquilegia vulgaris - -	13	17	21
16. Ranunculus arvensis - -	13	17	20
17. Thalictrum flavum - -	13	17	20
18. Trollius europæus - -	13	10	8
19. Ranunculus parviflorus - -	11	11	13
20. Myosurus minimus - -	9	10	13
21. Thalictrum alpinum - -	9	3	4
22. Clematis Vitalba - -	6	13	14
23. Anemone Pulsatilla - -	5	4	0
24. Actæa spicata - - -	2	1	2
25. Ranunculus alpestris - -	1	0	0

List 4.

Number of Ranunculaceæ in the Districts of Britain.

1. Peninsula	20	10. Humber	23
2. Channel	19	11. Tyne	21
3. Thames	20	12. Lakes	16
4. Ouse	21	13. West Lowlands	19
5. Severn	22	14. East Lowlands	17
6. South Wales	19	15. East Highlands	18
7. North Wales	20	16. West Highlands	10
8. Trent	21	17. North Highlands	12
9. Mersey	20	18. North Isles	11

List 5.

Number of Ranunculaceæ in the Regions of Britain.

Peculiar to the Agrarian Region	14
Common to the Agrarian and Arctic Regions	10
Peculiar to the Arctic Region	1

List 6.

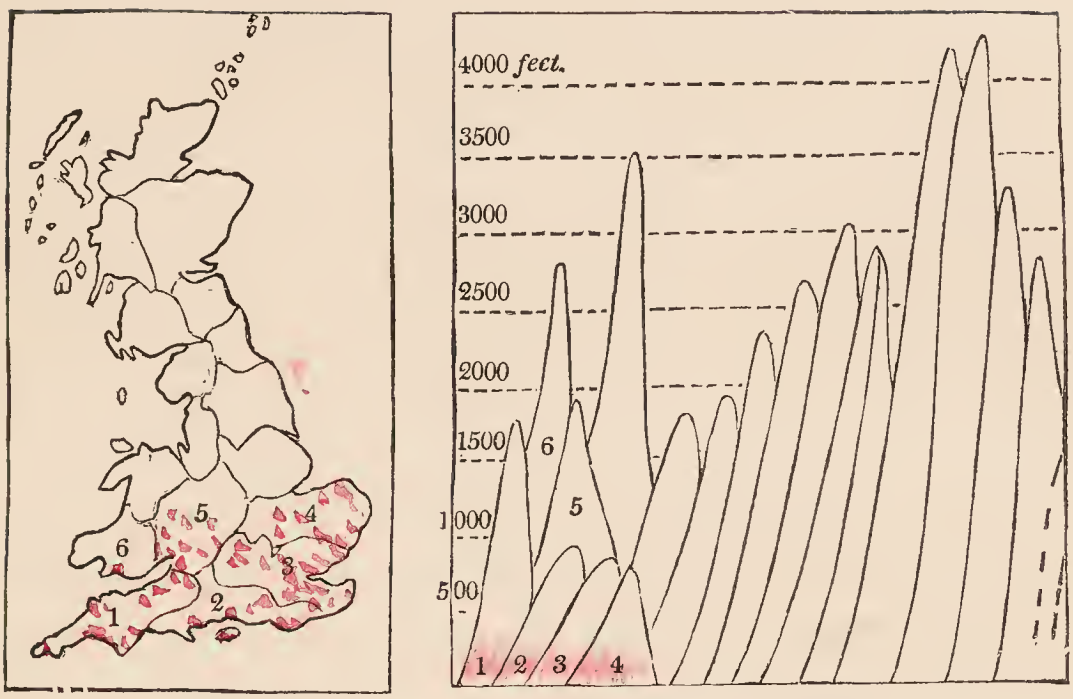
Number of Ranunculaceæ as varied by Altitude, in Britain.

	Scottish Highlands.	England & Wales.
Above 4000 feet	0	0
3000 feet	4	0
2000 feet	8	7
1000 feet	10	10
Sea-level	18	24

List 7.

Number of British Ranunculaceæ in other Countries.

Lapland	12	Polar America	1
Sweden and Norway	22	Arctic America	4
France and Netherlands	25	Boreal America	8
Germany & Switzerland	25	North America	9
Italy	25	Western America	4
Greece and Levant	19	Mexico and California	2
Spain and Portugal	17	South America	1
Sardinia, Sicily, Baleares	14		
North Africa	9	Arctic Isles	10
		Spitzbergen	0
Arctic Russia	12	Iceland	7
Northern Russia	17	Faro	8
Middle Russia	21	British Isles	25
Southern Russia	21	Scotland	20
Caucasus and Crimea	20	Ireland	21
Siberia and Altai	16	England	24
Kamtschatka	5	Channel Isles	14
Aleoutian Isles	3	Atlantic Isles	2
China and Japan	3	Azores	2
India and Himalaya	5	Madeira	1
Australian Islands	0	Canaries	1
Polynesian Islands	0	West Indies	?



Districts. Altitude of Districts.

1. Clematis Vitalba, *Linn.*

Clematis dumosa—Gray's Arrangement, 1821.

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. (Trent, Humber, Tyne, East Lowlands.)

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Shropshire. Notts. York. Tyne (Northumberland and Durham). Edinburgh. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. South Kent. Banbury. Hertford. Dedham. Ipswich. Bungay. Warwick. Worcester. Richmond.

Specimens.—Near Penzance, and near Mount Edgecumbe, Cornwall—*H. W.* Near Plymouth, Devon—

H. W. Clifton Downs, Somerset — *Bot. Soc. London.* Between Shanklin and Luccomb, in the Isle of Wight — *H. W.* By a bridge over the river Test, above the north-west end of Southampton Water, Hants — *H. W.* Greenhithe, Kent — *H. W.* Cobham, Kent — *Bot. Soc. London.* Guildford, Surrey — *H. W.* Between Leatherhead and Box Hill, Surrey — *H. W.* Harefield, Middlesex — *Bot. Soc. London.* Hitchin, Herts — *Bot. Soc. London.* Coggleshall, Essex — *Bot. Soc. London.* Chedburgh, Suffolk — *Miss Bell.* Sproughton, Suffolk — *Miss Bell.* Mellis, Suffolk — *Miss Bell.* Earlham, Norfolk — *Miss Bell.* Bottisham, Cambridgeshire — *Bot. Soc. Edinburgh.* Cheltenham, Gloucestershire — *Bot. Soc. London.* Swansea, Glamorganshire — *Bot. Soc. London.* Tresilien, Glamorganshire — *Bot. Soc. London.*

Uncertain Localities. — Near Callander, Perthshire — *Mr. Arnott, in Hooker's Flora Scotica.*

Britain. — Latitude, 50—53 (or 55). Partial. Agrarian. The only species of Clematis indigenous in Britain is seldom classed among the rare plants of the island, although it has not hitherto been ascertained to grow really wild in more than six out of the eighteen districts, into which Britain is here considered to be subdivided, for the convenience of describing the geographical relations of its plants. Even within these six districts the Clematis is more frequently absent than present over large continuous tracts; but, where present, it often occurs in such great profusion, and becomes so conspicuous an ornament, as well as detriment also, of the hedges and coppices, that the prevailing tendency with English botanists, to look upon it as a common rather than a scarce plant, is readily accounted for; and more particularly when we recollect

that most describers of the plants and localities of this country have been either residents or natives of the south of England, and hence often more accustomed to see the counties where the Clematis prevails than those from which it is absent. The districts of the Channel, of the Thames, and of the Ouse, may be considered as most congenial to this shrub, and productive of it in largest quantity; and it occurs likewise in profusion in some counties of the Severn and Peninsula. It will be observed from the general enumeration of localities presently to be appended, that habitats for the Clematis have been ascertained in only one county of South Wales; but so little being yet known respecting the botany of that district, not much reliance can be placed upon any apparent rarity or absence of certain plants. Some few years ago it was stated in our descriptive floras, that the Clematis was wholly wanting in Wales, and probably enough this may be the case in North Wales; as it is also absent from the adjoining district of the Mersey, embracing the counties of Chester and Lancaster. In the districts of Trent and Humber, it is recorded either too vaguely for confidence, or as growing in spots to which it had probably been introduced by human agency; unless, indeed, the locality of Whitby, on the coast of Yorkshire, may prove a natural one. It is on account of the alleged locality of Whitby that the latitude of (55) has been added in extension of the admitted range of 50—53. The occurrence of the Clematis on ballast hills in the Tyne district, and in planted pleasure grounds in the East Lowland district, must of course be attributed to the hand of man; while the alleged locality of Callander, bordering on the mountain tracts of the East Highland district, must be received with distrust. For the present, the counties of Norfolk and Salop may be named for the natural northern limits of the Clematis, with a possible ex-

tension of its range, up the eastern coast as far as Whitby in Yorkshire. It is a plant of the sea level in its most southern localities; and probably is nowhere seen in England above a very few hundred feet of elevation. Indeed, there appears to be a marked tendency to shun even the vicinity of the mountain tracts, the Clematis not being seen in the lowest valleys among the mountains, although partially encircling the hilly districts of Wales, by its habitats in Glamorgan, Monmouth, Hereford, and Salop. The usual situation of the Clematis is in coppices and hedgerows, or on banks and rocky places freely exposed to the sun. Most of its recorded habitats are on calcareous ground, and it may probably be found to occur in greatest plenty over rocks of the cretaceous and oolitic systems; but it is not wholly confined to calcareous substrata.

General Distribution.—Latitude 37—53. Europe. Asia. Netherlands. Germany. Switzerland. France. Portugal. Spain. Italy. Greece. Turkey. Russia. Crimea. Caucasus. Arabia? Limited to the southern and western countries of Europe, and the western parts of Asia. It is reported not to be indigenous in Ireland, on the coasts of the Baltic, or in Silesia; and it is omitted from the published floras of Berlin, of Leipsic, of Gallicia, of the Carpathians, as also from the enumeration of plants observed by Besser in Volhynia and other provinces of the south-west of Russia. In the flora of Hamburg, it appears as a naturalised plant, "quasi spontanea;" and in those of Holland, Hanover, Brunswick, Halle, and Presburg, as a native plant. Ledebour questions the existence of this Clematis in Middle Russia; that is, northward of the limit of the Vine; but indicates it to have been found on the Tanais and in other parts of South Russia. Forskael observed it near Constantinople, and by Bieberstein

it is stated to be common in the tracts of the Crimea and Caucasus. From this it appears that the northern limit on the Continent may run in the general direction of a line traced from the mouth of the Elbe to that of the Danube, and thence carried round the north coast of the Black Sea to the Caucasian mountains. Southward, the plant occurs in Portugal, Spain, Sicily, Greece, and, according to Forskael, in Arabia Felix; the latter habitat implying a lower latitude than is given for it by the figures at the commencement of this paragraph. Is the Clematis Vitalba found in North Africa?

1. PENINSULA. — Seen near Penzance, but only in one spot, about a mile inland. Seen also about Mount Edgcumbe. Abundant in several parts of Devon; but rare in the northern portion of the county. Seen on cliffs, and at the quarries, about Plymouth. Chudleigh. Teingmouth. "Torrington, road from Barnstaple, and at Braunton." Generally through the lias tract of Somerset. Street. Common about Bath. Clifton downs. St. Vincent's rocks, near Bristol. Seen by the high-road, in the first stage from Bristol towards Taunton.

2. CHANNEL. — Rare within eight miles of Poole. Common in the western parts of Wilts. Profusely in the Isle of Wight, on chalk or where the substratum is calcareous. Seen abundantly in the Undercliff. Seen also between Luccombe and Shanklin. Seen also at Carisbrooke Castle. Seen also near Ryde. Frequent in Hants. Seen in one place only during several walks and drives between Southampton and the New Forest; namely, a single plant by a bridge over the Test, above the termination of Southampton Water. Between Eridge and Boarhead, near Tonbridge Wells, in plenty.

3. THAMES. — South Kent. Very common about Tonbridge Wells. Faversham. Gravesend. Northfleet. Seen in chalk pits, and elsewhere, about Greenhithe. Many parts of Surrey. Seen in several places on the south and west sides of Guildford; as also about Box Hill. Abundant about Reigate. Near Egham. Near Deddington,

Oxfordshire, by the road to Oxford city. Wickham Toll-gate, the only locality near Banbury. Road side westward from Uxbridge, Middlesex. Harefield chalk pit. Hitchin, Herts. Common about Hertford. Near Woodford, Essex, in Hagger lane, which leads from the Forest to Walthamstow. On the side of the road from Chigwell to Abridge. Copford. Coggleshall.

4. Ouse. — Common in Suffolk. About Holton, near Dedham. High road from Stratford to Ipswich. Common about Ipswich. Common about Bury. Very common about Bungay. Earlham, Norfolk, where it grows in the church-yard, and in hedges. Occasionally in hedges about Yarmouth, but doubtful whether wild there. Eaton. Long Stratton. Brooke. Hockering. Near Dereham. By the road side, near Ringstead, but scarce there. Bottisham, Cambridgeshire. Hinton. Teversham. Common in Bedfordshire. Between Bedford and Thurleigh. Plentifully near Finshed, Northamptonshire.

5. Severn. — Seen on the road sides in travelling from Gloucester to Bristol. Near Gloucester. Cheltenham. On Brockeridge Common, near Twining. Between Tewkesbury and Deerhurst. Wall's Shrubberies, near the Lower Lode. Common about Alcester. Rare about Allesley. On high ground between Norbrooke and Norton Lindsay. Rare near Worcester. At Powick. Abundant about Ankerdine. Abundant about Malvern. Rare in Shropshire. Whitecliff, near Ludlow. Harley church-yard. Lincoln Hill, near Coalbrookdale. Brown Hill, near Ruyton. Between Willington and Dothill Park. Hedges between Dudley and Wolverhampton. Abundant about Ledbury. Abundant on limestone, on the western side of the Malvern Hills. In profusion about Pontnewydd, in Monmouthshire. Abundant on the rocks about Chepstow. At Skenfreth, northward from Monmouth. At the northern base of the Blorenge Mountain, near Abergavenny. At Glyn Clydack, on the boundary of Monmouthshire and Breconshire.

6. South Wales. — Neighbourhood of Swansea. Between Swansea and Penrice. Tresilien, Glamorganshire.

8. Trent. — Nottingham Castle. Here and there in hedges in Nottinghamshire; but not found by the author of the Flora of Nottinghamshire.

10. Humber. — In woods and hedges near Whitby. In the plantation at Duncombe Park, probably introduced. In Mr. Yorke's grounds at Bewerley, probably introduced. Rare near Richmond, where probably it was planted.

11. Tyne. — On Hebburn ballast hills. Naturalised on St. Anthon's and Willington ballast hills.

14. East Lowlands. — Collinton woods, near Edinburgh. By the bridge near the palace, in Dalkeith Park.

Districts. Altitude of Districts.

2. THALICTRUM FLAVUM, *Linn.*

THALICTRUM FLAVUM and T. NIGRICANS — Gray.

DISTRICTS. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. West Lowlands, 13. East Lowlands, 14. East Highlands, 15.

FLORAS. — Devon. Bath. Tonbridge. Oxford. Bedford. Cambridge. Yarmouth. Shropshire. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. CATALOGUES.—Somerset. Poole. Wight. Sussex. South Kent. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norfolk. Lynn. Warwick. Worcester. Denbigh. Leicester. Derby. Settle. Tees.

Specimens.—In the marshes about the Test and Canal, at the upper end of Southampton Water, Hants—*H. W.* Thames side at Moulsey—*H. W.* Surrey side of the Blackwater, at Frimley Bridge—*H. W.* Uxbridge moor, Middlesex—*Bot. Soc. London.* Sea marshes, in Essex—*Bot. Soc. London.* Near Coldham ferry, Norwich—*Mr. George Cooper.* Banks of the Severn, "below Kensey," Worcestershire—*Bot. Soc. London.* Notts—*Mr. T. H. Cooper.* Nun Monckton, near York—*Rev. J. E. Leefe.* Banks of the Skern, near Darlington; and Hell Kettles, near Croft—*Mr. R. B. Bowman.* By the side of the Team, Newcastle—*Mr. R. B. Bowman.* Lanarkshire—*Dr. Joseph Hooker.* St. David's, Fifeshire—*Professor Balfour.*

Uncertain Localities.—At North Queensferry, Fifeshire—*Dr. Parsons, in Lightfoot's Flora Scotica.* It is supposed that there was an error in regard to this locality, though the occurrence of the plant elsewhere, in Fifeshire, gives some probability to the habitat. Sandside, Caithness—*Mr. Torrie, in Watson's Outlines Geogr. Distrib.* It is exceedingly likely that T. minus was the species seen by Mr. Torrie, in this latter locality, as it certainly grows there.

Britain.—Latitude, 50—57. Partial. Agrarian. Although occurring in so many as seventeen out of the twenty local floras, and in twenty out of the thirty local catalogues, referred to in this work, the Thalictrum flavum is still by no means a common plant. It is distributed from the south coast of England, as Devon and Kent, to the counties of Lanark and Fife, northwards; and doubtless it occurs in the greater number of the intervening counties. Yet are there many counties in which no locality has been

found recorded; and so far as yet appears, the plant must be regarded in the light of an absentee from the whole districts of South Wales and the Lakes. That it should grow in the former of these districts, seems likely enough; nor can it be regarded as at all an unlikely plant for the Lake district; but whether it is really absent, or whether it has merely been overlooked, in either or both of the districts named, will remain for future observers to determine. No doubt, however, many other localities for the Thalictrum flavum may be ascertained, in addition to those presently to be enumerated as illustrations and evidences of its topographical distribution; since it is not so rare a plant in England as to have induced botanists to record all the habitats in which it has been observed by them, although sufficiently infrequent to be wanting in about one-fourth of the local floras and catalogues. Thalictrum flavum is a plant of the sea level in the southern districts of England, and in no part of Britain does it appear to be found at much elevation. In respect of climate and elevation, it is limited to the lower part of the Agrarian region, quite within the zone of wheat-cultivation. It is usually seen about the banks of rivers, or in marshes and wet meadows. Whether limited to any particular kind or quality of soil, remains to be ascertained.

General Distribution. — Latitude, 38—65. Europe. Asia. Ireland. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Italy. Greece. Turkey. Russia. Caucasus. Altai. Siberia. Distributed nearly throughout Europe and over the northern and western portions of Asia. In Europe, we find it extending northward as far as Swedish Lapland and Petersburg; and in Asia, Gmelin reports it to grow through all Siberia. Southward, it

occurs in Portugal and Spain, in Italy, and in Greece. Thunberg included it among the plants of Japan; but more recent authors describe the species of Japan under the name of T. Thunbergii, as being distinct from T. flavum. It would seem to remain pretty constantly a plant of the low grounds, botanical geographers not indicating the altitude of its habitats, nor assigning it to any of their zones or regions above the cultivated tracts.

1. Peninsula.—Bishop's Clyst bridge, Devonshire, at the corner next the turnpike. Banks of the Avon, and in moist meadows, near Bath. Neighbourhood of Bristol. In a hedge fronting Earl's Mead, near Bristol.

2. Channel.—Common within eight miles of Poole. Extremely rare in the Isle of Wight; but occurs on the west shore at Wootton. Seen in the marshes near Redbridge, at the upper end of Southampton Water. In Sussex.

3. Thames.—South Kent. Not uncommon about Tonbridge Wells. In Battersea meadows. Banks of the Thames, Battersea. Seen by the Thames half a mile above Kingston bridge; and a quarter of a mile above Hampton Court bridge. Seen also by the Blackwater, at Frimley bridge. By the side of the Cherwell, near Kirtlington. Peat pits, at Weston, Oxfordshire. Cowley. Binsey. South Leigh meadows, Oxford. Mill meadows, Banbury. North Newington. Uxbridge moor. Rare about Hertford. Sea marshes in Essex. About Woodford. Springfield, near Chelmsford. Rare about Dedham.

4. Ouse.—In various parts of the borders of Gipping, near Ipswich. Very common about Bungay. Burgh Castle, near Yarmouth. Rare about Yarmouth. Near Coldham Ferry, on the river at Norwich. Meadows at Thorpe. Not common in the west of Norfolk. Setch. Barton Bendish. King's hedges, Cambridge. Cow Fen. Hinton. Common in Bedfordshire.

5. Severn.—On the banks of the Severn, but very partially diffused. Eastern side of Pitchcroft. Banks of the Arrow, near Beauchamp Court. Banks of the Avon,

at Bidford. Barford meadow, Warwick. Banks of the Leam, between Leamington and Radford. Banks of the Severn, opposite Buildwas. Oakley Park meadows, Salop. Banks of the Wye, between Ross and Monmouth.

6. * * *

7. North Wales.—In a hedge, near the Court, Wrexham, the only habitat known to the late Mr. Bowman, in the county of Denbigh. A patch of Crymllwyn, in the parish of Pentraeth, Anglesea, is covered with it. Plentiful likewise in hedges and ditches, near Plas y Brain, in the parish of Llanbedr.

8. Trent.—Rare in Leicestershire; but found in the river Soar. Groby pool. Near Loughborough. Frequent in Notts.

9. Mersey.—Seaforth, near Bootle, in plenty. Sparingly in a field by the side of the footpath leading from the Leeds and Liverpool Canal to Waterloo. South shore, beyond the Dingle, near Liverpool. In marsh ditches, near the village of Bidston, Cheshire.

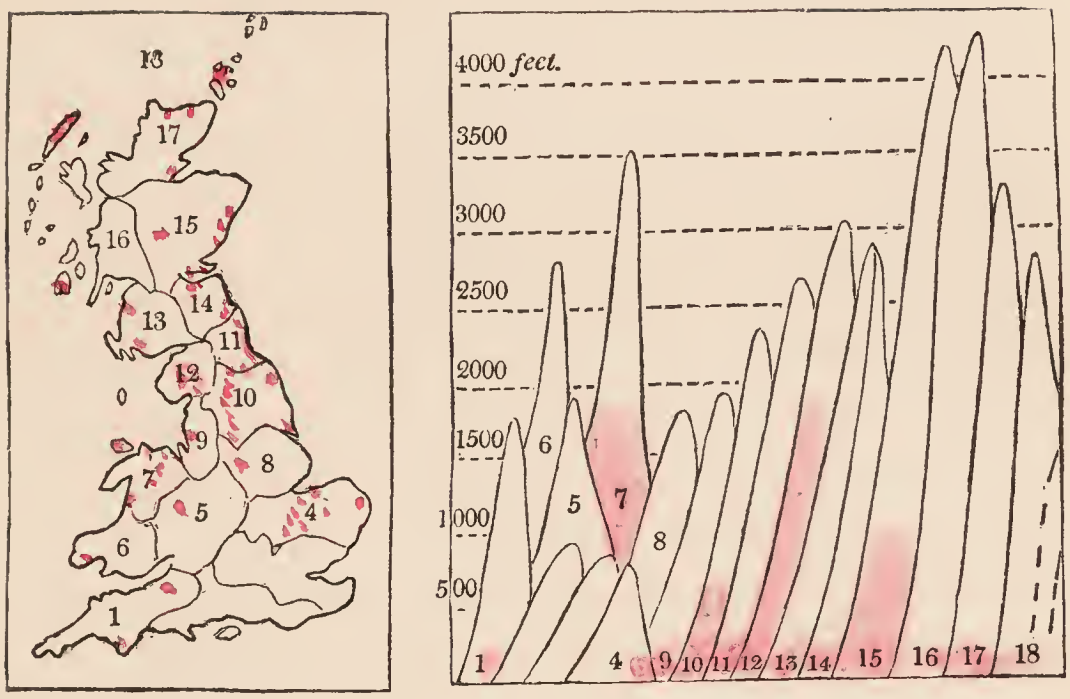
10. Humber.—Near Rotherham. Common in the Vale of York. Nun Monckton, near York. Banks of the Ribble, and on the Willow Island, near Settle. Near Northallerton.

11. Tyne.—In the lower part of the Tees tract. Hell Kettles, near Croft. Banks of the Skern, near Darlington. Banks of the Team, near Lamesley. Banks of the Wear, near Ayre's Quay. Banks of the Tyne, above Ovingham.

13. West Lowlands.—Several places on the Clyde. Bowling Bay. Dalbeth. Rutherglen bridge. Carmyle. Daldowie. Bottom of the rocks between Corehouse and Bonnington, on the Lesmahagow side, very abundantly.

14. East Lowlands.—Porterhaugh, Berwick. Woods at Netherbyres.

15. East Highlands.—St. David's, Fifeshire.



Districts. Altitude of Districts.

3. THALICTRUM MINUS, *Linn.*

THALICTRUM MINUS and T. MAJUS — Withering, Gray, Smith.

DISTRICTS. — Peninsula, 1. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18. (T. majus is stated to occur in North Wales, Humber, Tyne, Lakes, West Lowlands, East Lowlands, and East Highlands.)

FLORAS. — Devon. Cambridge. Shropshire. Anglesea. Liverpool. York. Tyne. Berwick. Edinburgh. Aberdeen. CATALOGUES. — Somerset. Bristol. Lynn. Denbighshire. Derbyshire. Settle. Tees. Hebrides.

Orkney. (T. majus is included in the FLORAS of York, Tyne, Berwick, and Edinburgh; and in the CATALOGUES of Richmond and Tees.)

SPECIMENS.—Caistor, near Great Yarmouth, Norfolk —*Bot. Soc. London.* Odsey, Cambridgeshire—*Bot. Soc. London.* Bottisham, Cambridgeshire — *Nat. Hist. Soc. Swaffham.* Ormeshead, Caernarvonshire — *Dr. Howitt.* Talargoch Hill, near Disserth, Flintshire — *Mr. J. E. Bowman.* About Peveril Castle, Castleton, Derbyshire— *H. W.* Malham Cove, Yorkshire — *Mr. Churchill Babington.* Arncliffe, Yorkshire — ("T. majus") *Mr. R. B. Bowman.* Near Middleton in Teesdale, Durham—("T. majus") *Mr. R. B. Bowman.* Links at Embleton, Northumberland—*Mr. R. Embleton.* In a ravine of Scawfell, nearly fronting Wastdale, Cumberland—*H. W.* On the shore of Derwentwater, between Keswick and Borrodale, Cumberland—(T. majus) *H. W.* Shore of the Forth, near Caroline Park, westward from Edinburgh—*H. W.* Hilly cliffs, a short distance from North Queensferry, Fifeshire — (T. majus) *H. W.* Near Montrose, Forfarshire—*Bot. Soc. London.* St. Cyrus, Kincardineshire— *Bot. Soc. Edinburgh.* Nigg, Ross — *Mr. William Stables.*

UNCERTAIN LOCALITIES.— Sides of rivulets above Salisbury—*Dr. Maton, quoted in Bot. Guide.* By the river side between Marlow and Templehouse — *Rev. H. Davies, in Bot. Guide.* Near Askern, near Doncaster, in "marshes and ditches" — *Dr. Lankester, in Baines's Flora.* These three localities are recorded for T. majus, but the situations seem to indicate that T. flavum has been there mistaken for the former. The Castleton specimens approach T. majus in size and character.

BRITAIN.—Latitude, 50—59. Rather partial. Agro-arctic. The habitats of Thalictrum minus are distantly scattered through all the districts of Britain, excepting the two which constitute the south-eastern angle of the island, namely, those of the Thames and Channel; and in these also the larger variety, or T. majus, has been stated to grow, though in localities which are not very probable, and which have not been confirmed by any botanists of the present day. Without including those two "uncertain localities" and districts, the present species may be said to range over an area considerably more extended than that of T. flavum; and yet it is so thinly scattered over that larger space as scarcely to be called a more common plant than the latter. If we estimate the comparative frequency of the two species by the number of districts in which they are known to grow, or by the area over which they are distributed, then the present species will be called certainly more common than T. flavum; but if we make the estimate according to the number of floras and catalogues, in which the species are mentioned, in this case T. flavum will seem to be the commoner species. The discrepancy arises from the circumstance of T. minus being more widely distributed, but its localities being so far apart that it is frequently absent from tracts of such extent as are embraced in a local flora or catalogue. The ascertained southern or south-eastern limit of T. minus is found in the counties of Devon, Somerset, Salop, Cambridge, and Suffolk; its northern limit being in the Hebrides and Orkney Isles. T. minus probably occurs more southward, and more northward, and also at a greater elevation, than T. majus; but the difficulty of constantly distinguishing the two varieties throws much doubt upon their alleged habitats considered separately. In its most southern localities, of

Babbicombe and Berryhead, in Devon, Thalictrum minus grows very little above the sea level; and the greater number of its other localities are on or near the sea shore. From these low situations it ascends in some places to a considerable altitude. On the rocks above Llyn Idwel, in Caernarvonshire, it was seen at an estimated altitude of 1850 feet, on an exposure towards the north, whose damp and sunless aspect would necessarily imply a climate much colder than is found on a southern declivity of equal elevation; so that taking both elevation and aspect into account, it may be said to grow there certainly above the agrarian region. On the Scawfell range of hills in Cumberland, it was estimated to grow, in two spots, at about 1500 and 2000 feet, though the estimates there were by no means very exact. In Lightfoot's Flora Scotica, this plant is stated to grow in the pastures about Loch Rannoch, which can scarcely be lower than 1000 feet, and may be considerably higher. Some of the localities in Yorkshire may likewise be at several hundred (1000—1500?) feet of elevation. The usual situation of this species is on slate or limestone rocks, about the stony margins of lakes, and on stony or sandy sea shores; but what is to be attributed to the chemical, or what to the mechanical nature of the ground, in explanation of this predilection, it may be difficult to determine. The sands of the shore are ordinarily much mingled with lime derived from broken shells; and, on the other hand, the fissures of limestone and slate rocks may adapt them for the support of plants whose roots are fitted to grow among sand and loose stones.

General Distribution.—Latitude, 37—68. Europe. Asia. Ireland, Norway. Sweden. Netherlands. France. Switzerland. Germany. Northern Italy. Spain. Sardinia.

Greece. Russia. Siberia. Kamtschatka? Prevalent chiefly in middle Europe and Siberia. The northern limit crosses Norway, Sweden, middle Russia, and Siberia. Southwards, we find it recorded as growing on the Sierra Nevada in Spain, on the mountains of Sardinia, in Laconia, and also, in the form of T. majus, on Mount Athos. The Russian Local Floras indicate it to grow about Moscow and in the south-western provinces, and also in Crimea and Caucasus. Gmelin states it to grow through all Siberia; and an imperfect specimen, supposed to be one of the variety T. majus, was brought from Avatschka, in Kamtschatka. It is not known to grow in America. On the Carpathians, it was observed by Wahlenberg in the subalpine region, near the upper limit of Pinus Abies. In Switzerland, the same author records it in the upland and subalpine regions, and there also rising to the limit of Pinus Abies. In France, according to De Candolle, it grows on the plain, near Paris, at 130 feet, and rises on the mountains to 4200 feet. In Sardinia, it occurs at 3300 feet.

1. Peninsula. — Berry Head, Devon. Cliffs near Babbicombe. Plentiful on Cheddar Cliffs, Somerset.

4. Ouse. — In Field lane, and chalk pit near St. Peter's Barn, Risby Gate Street, Bury, Suffolk. Caistor, near Great Yarmouth. Hedges at Marham, Norfolk. Shouldham. Burnham. Narborough. Ringstead. Odsey, Cambridgeshire. Bottisham. By the side of the footpath from Shelford to Gogmagog hills. Saxon lane, Newmarket. Field at Linton. Bartlow.

5. Severn. — Near Button Oak, in Wyre Forest.

6. South Wales. — Rocks near sand hills, a little west of Tenby. At Giltar Point, a limestone promontory, three miles west of Tenby; possibly the same locality.

7. North Wales. — On Cader Idris. Sides of Bala Pool. Snowdon. Seen on the rocks of Cwm Idwel, above Llyn Idwel. Great Ormeshead, Llandudno, and

Gloddaeth, are perhaps one and the same locality. Lime rocks, in Denbighshire. Abundantly on Talargoch mountain, near Disserth. Disserth Castle Hill, Flintshire. Above the beach at Red Wharf, Anglesea. Tywyn Trewan, Anglesea. Tywyn Maelog, Anglesea.

8. TRENT. — Seen at Peveril Castle, near Castleton, Derbyshire. Middleton Dale. Litton Dale. Monsal Dale. Between Matlock and Castleton.

9. MERSEY. — Little Hilbre Island. Shore northwestward from Parkgate. In the vicinity of Lytham, Lancashire.

10. HUMBER. — Holderness. Common near Redcar. Sparingly on the moor between Coatham and Redcar. Limestone hills about Settle. Malham Cove. Skirreth Wood, near Ingleton. Ingleborough. Kilnsay. Plentiful in Gordale. Wensleydale. Arncliffe. Near Whitcliffe limekilns. In hedges on the Yorkshire side of the Tees, near Egglestone. West Kenyon. Mackershaw wood. Moist situations at Thorpe Arch. Bramham.

11. TYNE. — On the banks of the Skern, near Darlington. Common near Hartlepool. Shore between Shields and Sunderland, plentifully. South Shields. Castle Eden. Seaton. Limestone craigs, at Hilton ferry. In several places along the course of the Tees. Banks of the river, and in hedges, near Barnardcastle. Near Middleton in Teesdale. Along the coast of Northumberland. Tynemouth. Cullercoats. Hartley. Blyth. Newbiggen. Embleton. Bamborough. Holy Island. Spittal Point. Banks beyond Hudshead, from Berwick. Tweed bank, opposite Spring Gardens, Berwick. By the Tweed opposite Milne Garden.

12. LAKES. — Seen near Kendal, by the side of the Lancaster road. Borders of Winandermere. Margin of Ullswater, near Gowbarrow Park. Near Isall Church; but only a single plant observed there. By the Eden, in the grounds at Nunnery. Seen in a ravine of Scawfell, near Wastwater. In a ravine of the Screes, near Wastwater; possibly the same as the preceding locality. Seen on the shore of Derwentwater, between Keswick and Lowdore.

13. WEST LOWLANDS. — Banks of the Dee, Kirkcudbrightshire. Fenwickland, Ayrshire.

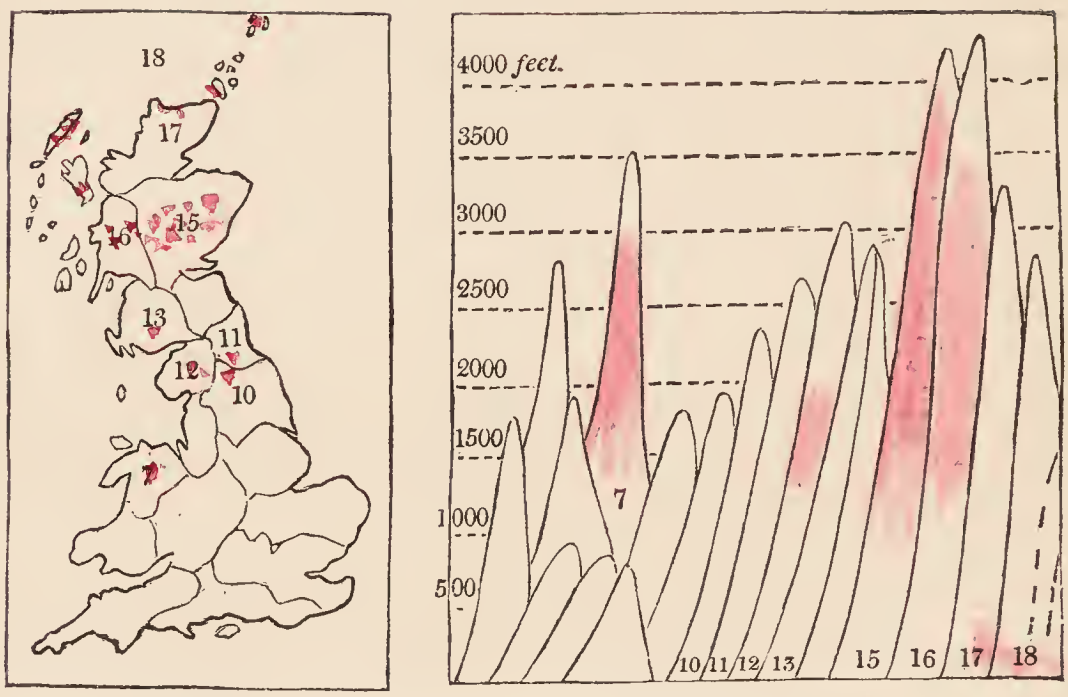
14. East Lowlands. — Common on the coast of Berwickshire. Banks of the Eye, at Netherbyres, Berwick. Makerston, Roxburghshire. Seen on the shore of the Forth, near Caroline Park, westward of Edinburgh.

15. East Highlands. — Coast westward of Kirkcaldy, Fife. Seen near North Queensferry. In pastures about Loch Rannoch. In the low and high parts of Forfarshire. Links on the coast near Montrose. St. Cyrus, Kincardineshire. Links of Rattray, Aberdeenshire. East side of Broad Hill, Aberdeen. In the links behind the Preventive Station at Don mouth. In Banffshire.

16. West Highlands. — Great quantities about Kilchomin, in Islay. Sandy ground at Icolumbkill.

17. North Highlands. — Nigg, Ross-shire. Seen on the coast near Farr Kirk. Seen on the coast at Sandside, near Reay, Caithness.

18. North Isles. — Near Taumisgary, in North Uist. Harris. Lewis. Island of Orinsay. Orkneys.



Districts. Altitude of Districts.

4. Thalictrum alpinum, *Linn.*

Districts. — North Wales, 7. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras. — York. Tyne. Moray. Catalogues. — Tees. Ross. Hebrides. Orkney.

Specimens. — On Snowdon, Caernarvonshire — *Dr. Howitt.* Between Sprinkling Tarn and Styehead Tarn, at the head of Borrodale, Cumberland — *H. W.* Ben Lomond, Stirlingshire — *Dr. Joseph Hooker.* Ben Lawers, Perthshire — *H. W.* Clova Mountains, Forfarshire — *H. W.* Glen Callater, Aberdeenshire — *Bot. Soc. London.* Drumochter Forest, Moray — *H. W.* Ben Vorrlich, Dum-

bartonshire — *Bot. Soc. Edinburgh.* Ben Buich, northward of Loch Fine, Argyleshire — *H. W.* Ben Aulder, on the west side of Loch Erricht, Inverness-shire — *H. W.* Auchterchlow, in the Black Isle, Ross-shire — *Mr. W. Stables.*

Uncertain Localities. — "Castle of the Peak, Derbyshire. The author has not observed it growing naturally nearer the Metropolis than this County" — *Mr. Irvine, in London Flora.* "Giggleswick Scar. Richardson's Scar. Gordale" — *Mr. Winch* (deriving his information from Mr. Windsor), *as quoted in the New Botanist's Guide.* There seems much probability that Thalictrum minus has been seen in these alleged localities of T. alpinum, and has been mistaken for the latter species.

Britain. — Latitude, 53—61. Partial. Agro-arctic. A very scarce plant in England and the Lowland districts of Scotland; more plentiful, yet still very local, in North Wales; abundant on many of the Highland mountains; and probably frequent in the North Isles, even in low places. Southward of the Highlands, we have it recorded only on or about the elevated hills of Hartfell, Scawfell, Teesdale, and Snowdon; the extreme range of this small species, in Britain, extending from Caernarvonshire to the Shetland Isles. It is a plant of the sea level on the northern coast of Sutherland; and is recorded by Mr. Stables, as growing among corn fields, at a moderate elevation, in the Black Isle, on the east coast of Ross. It was seen by the river Garry, at Dalnacardoch in Perthshire, which is about 1050 feet above the sea. In Cumberland, it may descend as low as 1200 feet; and in Caernarvonshire, it is probably to be seen at a still lower elevation than in

Cumberland. The mountains of Britain are perhaps none of them sufficiently lofty to rise clearly above the natural upper limit of Thalictrum alpinum, though it has not been observed to reach to the loftiest summits, which may be attributable rather to their stony and gravelly character than to their absolute elevation. It is reported to be abundant near the summit of Snowdon — say at 3500 feet. In Perthshire, we find it attaining almost the very summit of Ben Lawers, so that it there rises to between 3900 and 4000 feet. On the Nevis range, in the West Highlands, it has been seen at 3400 feet. The usual situation of the Alpine Thalictrum is in wet spongy places on the declivities of the mountains, and on moist rocks; also, occasionally, on the banks of rivers, and on the sea shore.

General Distribution. — Latitude, 42—71. Europe. Asia. America. Iceland. Faroe. Ireland. Scandinavian mountains. Alps. Pyrenees. Caucasus. Altai. Kamtschatka. North-west America. Canada? Island of Anticosti? Newfoundland? Greenland. The alpine and maritime countries northward of England appear to be the favourite quarters of this diminutive species of Thalictrum. Elsewhere it is seen only on some of the most lofty ranges of mountains, and on a few islands. Its ascertained southern limit, in Europe and Asia, is found on the Pyrenees, Alps, and Caucasus. In America, the islands of Anticosti and Newfoundland are said to produce it, though it does not appear that any botanist now living has seen the plant on either. The locality of Greenland, and that of Beechey's Land, at the north-west corner of America, may be relied on. North Cape, in Lapland, and somewhere in Beechey's Land, latitude 67—71, may be given as the northern limits. In Lapland, it is abundantly diffused over the alpine regions;

ascending to the snowy alps, and descending to the alpine bases on the Norwegian side, and to the wooded region, where Pinus sylvestris grows, on the Swedish side of the Lapland alps. De Candolle fixes its altitudinal range in France from 6500 to nearly 8000 feet. On the Caucasus, according to Meyer, it grows at 1200—1400 fathoms ("hexapodos"). It is a plant of the sea level on the north-west coasts of Scotland and Norway, and probably in other localities northward or westward of those coasts; while to the south-eastward of the same coasts it becomes a plant of the mountains only.

7. North Wales. — Seen in Llanberris Pass, on the Snowdon side; and also on rocks about Llyn ddu'r Arddu, on Snowdon. Round many of the Snowdon lakes, from one to two thousand feet of elevation. Abundant near the summit of Snowdon. Clogwyn y Garnedd, a precipice on Snowdon. Rocks about Llyn y Cwn. Twll du.

10. Humber. — In peat, on the top of Cronkley Fell, in Teesdale.

11. Tyne. — Near Couldron Snout, by the path that leads from thence to Widdy Bank, Teesdale.

12. Lakes. — Seen between Styehead Tarn and Sprinkling Tarn, on the ascent of Scawfell Pikes from Borrodale Head; and also on the side of the same hill, looking towards Wastdale.

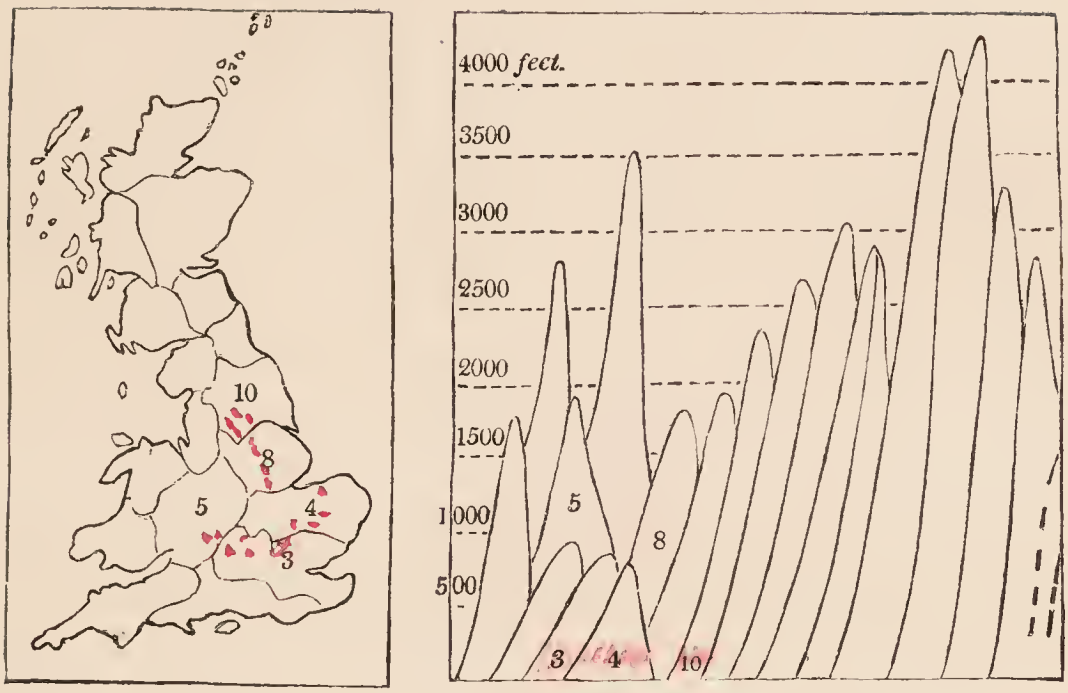
13. West Lowlands. — On Hart Fell, near Moffatt, in Annandale.

15. East Highlands. — Ben Lomond. On Maolghlas, in Breadalbane. Seen in various spots on Ben Lawers; and on other mountains near Killin; also on the Athole Sow, northward of Loch Garry; and by the river Garry at Dalnacardoch. Mountains about Loch Rannoch. Seen in various parts of the Braes of Angus, near Clova. Glen Callater. Seen on Ben-na-buird, one of the Avon Hills. Seen on Ben-na-muic-dhu, in the Cairngorum range. Glen Avon. Craigue, Moray. Seen in various places on the mountains of Drumochter Forest, at the head of Moray.

16. West Highlands. — "Ben Vorrlich, Dumbartonshire." Seen on Ben Buich, a hill six or eight miles northward from Inverary. Seen on Drin Fad, a low hill northward of Loch Eil. On Baikeval, in Rum. On Ben-na-grion, two miles from Mackinnon's castle, in Strath, in the Isle of Skye. On the Cuillin Hills, near Glen Coiruisg, in Skye. On Ben-na-scree, above Arnesdale, by the side of Loch Urn, on the west coast of Inverness. Seen in several places on Ben Nevis. Seen on the Red Cairn, another hill of the same group. Seen on Ben Aulder, a lofty hill, near the south end of the west side of Loch Erricht. Seen on Gnarrow, a hill of three thousand feet elevation, near the north end of the west side of Loch Erricht.

17. North Highlands. — Auchterchlow, in the Black Isle, Ross. On Ben Wevis. On the shore at the mouth of the Naver. On the shore in Keoldale, a few miles westward of Loch Errboll.

18. North Isles. — Hebrides, in various places. On Langa, in Harris Forest. Hoy, Orkney. Abundant on moist heaths, in Shetland.



Districts. Altitude of Districts.

5. Anemone Pulsatilla, *Linn.*

Pulsatilla vulgaris — Gray.

Districts.—Thames, 3. Ouse, 4. Severn, 5. Trent, 8. Humber, 10.

Floras. — Oxford. Bedford. Cambridge. York.
Catalogues. — None.

Specimens. — Unhill, near Streatley Downs, Berks — *Miss Bell.* Ashwell, Herts — *Bot. Soc. London.* Royston Heath, Herts — *Bot. Soc. London.* Pegsdon, Bedfordshire — *Bot. Soc. London.* Gogmagog Hills — *Sir W. J. Hooker.* Near Cheltenham, and banks of the Windrush, near Stow, Gloucestershire — *Bot. Soc. London.*

Britain. — Latitude, 51—54. Rather Local. Agrarian. Not many localities are recorded for the Pulsatilla, which is too conspicuous to be easily overlooked, and too scarce for its known localities to remain unrecorded. It will be seen that habitats are on record for this plant in five out of the eighteen districts, and yet that it is mentioned only in four out of the fifty floras and catalogues; a circumstance which indicates a wide distribution in proportion to the number of ascertained localities. The districts of the Thames and Ouse are apparently most productive of the Pulsatilla, and it occurs likewise in those of the Severn, Trent, and Humber. Its topographical area is bounded by the counties of Berks and Gloucester southwards; and those of Lincoln and York northwards. It is wholly unknown in Wales and Scotland, and also in one half of the ten English districts, namely, those of the Peninsula, Channel (?), Mersey, Tyne, and Lakes. All its habitats are probably at a trifling altitude. The usual situations for it appear to be on open commons and declivities where the soil is calcareous, and more particularly where chalk is the uppermost rock stratum.

General Distribution. — Latitude, 41—60. Europe. Asia. Norway. Sweden. Netherlands. France. Switzerland. Germany. Italy. Levant. Russia. Caucasus. Altai. Siberia. Of limited distribution, but occurring in the majority of local Floras, which relate to tracts in Middle Europe, where the Pulsatilla appears to be frequent, and it is also said to be plentiful in the Crimea and Caucasus. Northward, its range extends to Upsal and Petersburg, and also into Siberia, at the Yenesei and elsewhere. Southward, it reaches the Pyrenees, Tuscany, Constantinople, and Caucasus. Whether indigenous in any place farther south, does not appear from the works

consulted. Its western limit occurs in England; the plant being found neither in Wales nor Ireland, nor is it a native of America. Its northern line also may be considered to cross England, in a latitude much farther south than the latitude attained on the Continent. Wahlenberg met with it only in the lower parts of the Alps and Carpathians. Probably it may require a dry and warm atmosphere in summer.

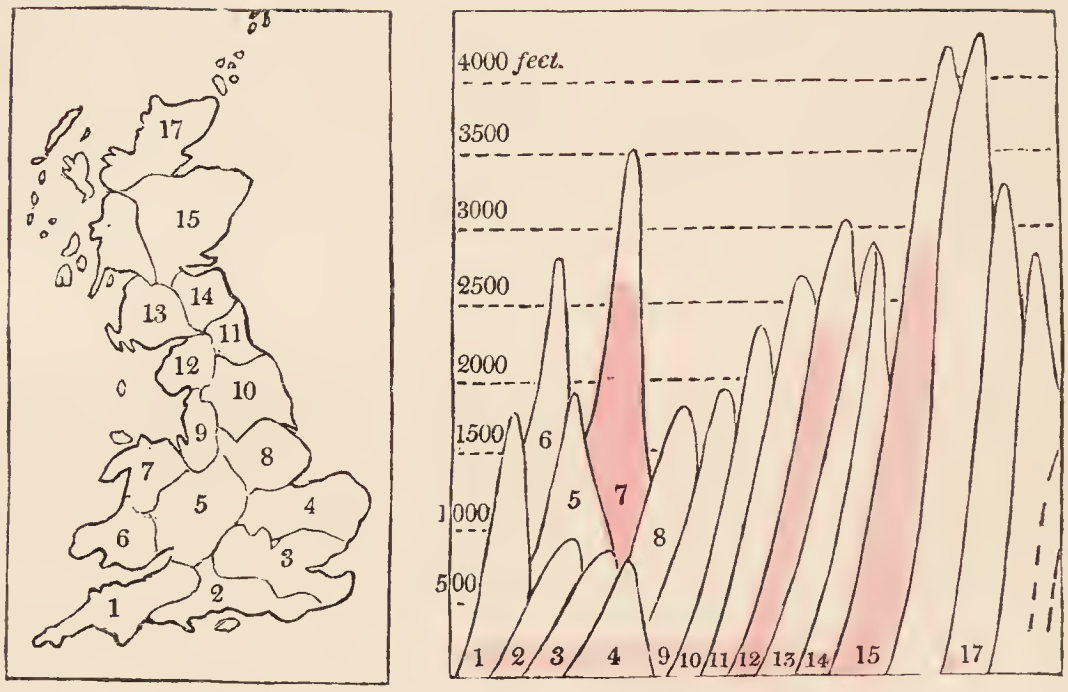
3. THAMES.—Profusely on the downs near Streatley. Cornbury Park, near Charlbury. Wychwood Forest, near Cornbury quarry. Burford downs. Albury Banks, near Ashwell. Abundant on the chalky downs between Tring and Albury. Royston Heath.

4. OUSE.—Cavenham Heath, near Bury. On a chalk bank at Cavenham Severals. At Sporle. On the Tulip Hills, near Lexham. Devil's Ditch, near Newmarket. Gogmagog Hills, four miles from Cambridge, towards Linton. Westhoe Park, near Linton. Barrington Hill, near Linton. Hildersham. Bartlow. Fleam Dyke, near Fulbourn. Barton Hill, in Bedfordshire. Luton Downs. Pegsdon.

5. SEVERN.—Common above Sir J. Paul's, Rodborough (on old authority). Near Cheltenham. Banks of the Windrush, near Stow.

8. TRENT.—Bernack Heath, near Stamford. Lincoln Heath. Southrop Common. Coltersworth, half a mile from the north road, towards Leicestershire.

10. HUMBER.—Near Rotherham. Limestone tract, north-eastward of Leeds. In hilly and dry pastures, near Ledston Hall (Park or Lodge). Above a lake, in a place called the Close, near Pontefract. Heath between Doncaster and Broadsworth. Pastures near Aberford. Encampments at Smeaton Crags, near Askern or Doncaster. In a plantation of larches about a mile north of the road leading from Tadcaster to Bramham.



Districts. Altitude of Districts.

6. Anemone nemorosa, *Linn.*

Anemonanthea nemorosa — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth? Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Norwich. Lynn. Warwick.

Worcester. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross.

SPECIMENS.—Near Barnstaple, Devon—*H. W.* Near Shanklin, Isle of Wight—*H. W.* Claygate, Surrey—*H. W.* Snelsmore, Berks—*Miss Bell.* Near Norwich—*Mr. G. Cooper.* Near Bungay, Suffolk—*Bot. Soc. London.* Between Bangor and Ogwen slate quarries, Caernarvonshire—*H. W.* Notts—*Mr. T. H. Cooper.* Woodside, Cheshire—*H. W.* Prestwich, near Manchester—*H. W.* Ravensworth woods, Durham—*Mr. R. B. Bowman.* Northumberland—*Miss Pringle.* Near Edinburgh—*H. W.* High on the mountains near Killin, Perthshire—*H. W.* Perthshire side of the Toll, in Drumochter Pass—*H. W.* Elgin, Moray—*Rev. G. Gordon.* Dalwhinnie, at the head of Moray—*H. W.*

BRITAIN.—Latitude, 50—58. Rather General. Agro-arctic. Here we have a plant far more common than any of the preceding species, and yet still one that cannot be pronounced quite general. It is highly probable that the Anemone nemorosa grows in every county of Britain, between Cornwall and Ross, which at present must be regerded as the most southern and most northern of the counties which produce the plant. Yet there are several intervening counties in which no habitat has been expressly recorded, including those of the West Highlands. From this latter district, and also from that of the North Isles, Anemone nemorosa would appear to be wholly absent, if we relied implicitly upon the enumeration of its recorded localities; yet the high elevation attained in the East Highlands, and the otherwise general prevalence of the plant, seem to create a presumption that it may grow also in the West Highlands, if not in the Hebrides or

other of the North Isles. The few lists of plants which relate to the Highland and Insular districts, with the exception of two or three in the East Highlands, having been mostly made by summer tourists, an early flowering spring plant might easily have been overlooked, even if not of rare occurrence. Anemone nemorosa is a plant of the sea level on the south coast of England. Hence it ascends to a considerable elevation on some of the mountain tracts, though not a common plant above the agrarian region. In North Wales, it was seen as high as 2700 feet on Carnedd David. On the mountains of the Lake district it occurs above 2300 feet. The highest spot on which it has been noted is on the Killin Mountains, in Perthshire, at 2900 feet of absolute height; and it occurs in several other places in the East Highlands, at 2000 feet and upwards. The usual situations are in coppices and near hedgerows; often also in damp meadows, and in other spots where the plant is exposed to sun and wind while in flower, but shaded afterwards by the growth of overhanging foliage or of larger plants. It grows in stiff and clayey ground, and also in the light loose mould formed by the decay of fallen leaves; probably better in the latter than in the former. The flowers vary in colour, being white or purple, or, less frequently, a light blue; the purple tint being most common in those flowers which are exposed to the sun, the blue flowers occurring in shady places.

General Distribution.—Latitude, 38—67. Europe. Asia. America. Ireland. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Italy. Greece. Russia. Caucasus. Altai. British America. United States. Spread over the greater portion of Europe and adjacent parts of Asia; extending

northwards to Nordland, Petersburg, and Western Siberia; southwards to Portugal, Italy, and Greece. The middle latitudes are most productive of this Anemone, which is said to be exceedingly rare in Swedish Lapland, and it is included in few only of the local Floras relating to small tracts in the Mediterranean. Sibthorpe mentions only one habitat in the Flora of Greece, that of Mount Parnassus. In Caucasus, it is not common. In Siberia, Gmelin indicates that it is found from the Yak to the Yenesei. In America, it occurs from Georgia northward to latitude 53, near the south end of Lake Winipeg, and likewise in the country westward of the Rocky Mountains; the American plant being somewhat different from the European, though held a variety of the same species. Anemone nemorosa does not appear to be much an alpine plant. On the Carpathians, it is said to rise to the subalpine region.

1. Peninsula. — Seen about Penzance. Frequent in Devon. Plymouth. Chudleigh. Seen about Barnstaple. Common in woods about Bath. Neighbourhood of Bristol.
2. Channel. — Very common within eight miles of Poole. Abundant in most woods in the Isle of Wight. Seen about Shanklin, and elsewhere in the Isle. Common about East Grinstead.
3. Thames. — South Kent. Common about Tonbridge Wells. Seen about Darenth Wood. Plentiful about Reigate. Seen in Thames Ditton, and adjacent parishes, in abundance. Snelsmore. In Oxfordshire. Broughton. Wroxton, near Banbury. Common about Hertford. Frequent in copses near Chelmsford. All over the wooded parts of Epping Forest. Frequent about Dedham.
4. Ouse. — Common in woods about Ipswich. Bungay. Rarely or never found near Yarmouth. Mr. Turner used to find it in the plantations about Gunton Hall. Thorpe. Near Norwich. Castle Rising. Abundant in West Norfolk. Madingley. Whitwell. Other parts of Cambridgeshire. Common in Bedfordshire.

5. Severn.—Worcestershire. Warwickshire. Abundant in Shropshire. Very abundant about Pontnewydd.

6. South Wales.—Woods about Brynn Mill, three miles westward of Swansea. Woods at the Devil's Bridge, Cardiganshire.

7. North Wales.—Seen in abundance about Bangor, and on the Snowdon range of hills and valleys. Wrexham. Seen about Llangollin. Seen in Anglesea.

8. Trent.—Common in Leicestershire. Sheet hedges, and other woods adjoining Groby pool, Charnwood Forest. Common in Notts. Seen at Buxton, and in other parts of Derbyshire.

9. Mersey.—Seen about Congleton, and in other parts of the east of Cheshire. Seen in Tranmere wood, and other places between the Dee and Mersey. The Dingle, and elsewhere about Liverpool. Seen in Prestwich, and elsewhere about Manchester.

10. Humber.—Common in Yorkshire. Leeds. Abundant about Settle. About Richmond.

11. Tyne.—Frequent in Durham. Lower part of the Tees. Grindon, or Thorpe, wood. Frequent in Northumberland. Scrammerston Hill, in a place called Maiden Kirk, near Berwick.

12. Lakes.—Seen about Keswick, and on the hills about Derwentwater and Leatheswater, &c. Scarce in the Isle of Man.

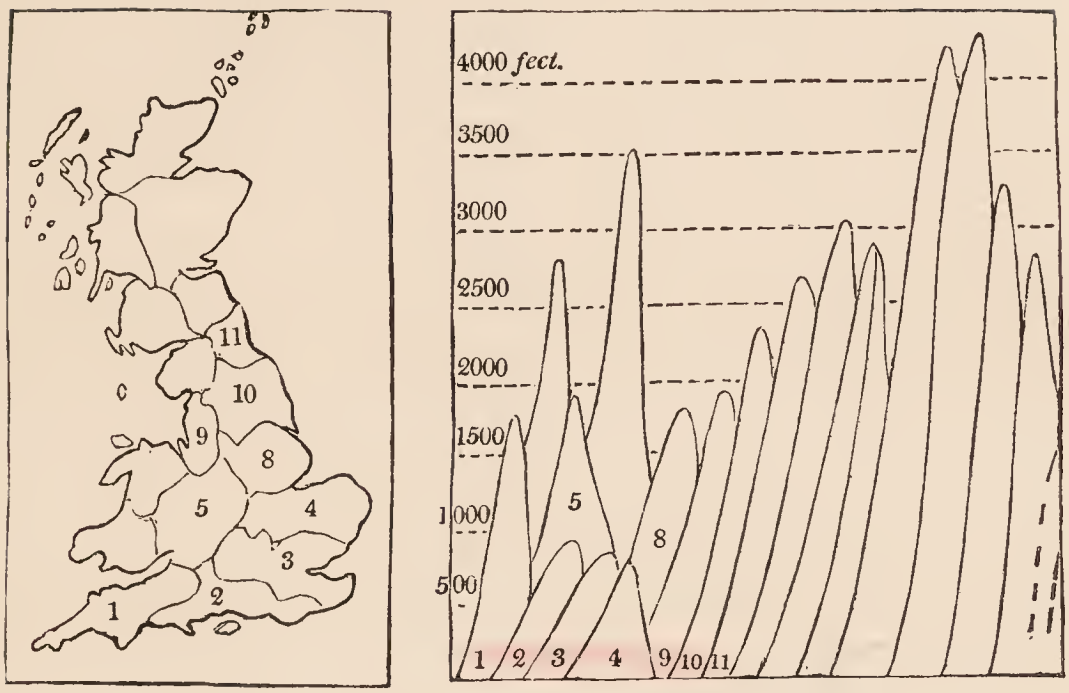
13. West Lowlands.—Frequent in Lanarkshire. Avon, opposite Barncluith. Woods at Jerviston. Renfrewshire.

14. East Lowlands.—Abundant about Berwick. Seen in many places about Edinburgh.

15. East Highlands.—Seen in Fifeshire. Frequent on Ben Lomond. Seen on the hills about Killin. Seen also at Dalnacardoch, and in the Pass of Drumochter. Seen also in Glen Clova, and the hills adjacent. Common about Aberdeen. Banks of the Dee and Don. Den of Rubislaw, near Aberdeen. Seen about Castleton, and on the neighbouring mountains. Alvah, Banffshire. Very common in Moray. Elgin. Seen about Inverness. Seen about Dalwhinnie, and on the mountains adjacent.

16. * * *

17. North Highlands.—Seen about Kessock, Ross.



Districts. Altitude of Districts.

7. Myosurus minimus, *Linn.*

Myosurus europæa — Gray.

Districts. — Peninsula. 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11.

Floras. — Devon. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Notts. York. Tyne. Catalogues. — Poole. Wight. Sussex. Kent. Esher. Hertford. Dedham. Ipswich. Bungay. Lynn. Warwick. Worcester. Tees.

Specimens. — Near Ryde, Isle of Wight — *Bot. Soc. London.* Faversham, Kent — *Bot. Soc. Edinburgh.* Shaw, near Newbury, Berks — *Miss Bell.* Ippolito, near Hitchin, Herts — *Bot. Soc. London.* Dunkirk's Farm, near Bricken-

don — *Rev. W. H. Coleman.* Wimbotsham and Runcton Holme, Norfolk — *Miss Bell.* Congerstone, Leicestershire — *Bot. Soc. London.* Lane near Poulton, between Wrexham and Chester — *Mr. J. E. Bowman.* Newcastle Town-moor, Northumberland — *Mr. R. B. Bowman.*

Uncertain Localities. — "On Weston Green, a little on this side Eltham, abundantly; Mr. J. Sherard" — *Dill. in Ray. Syn.* It seems probable that two localities are here confused, namely, Eltham, in Kent, and Weston Green, in Surrey; the plant is likely enough to grow near the former, and it certainly does grow in fields by the latter place.

Britain. — Latitude, 50—55. Partial. Agrarian. Absent from Scotland, and probably also from Wales and the Lake district. So small and grass-like a plant, growing among the much taller corn, must no doubt be frequently overlooked, and thus render the negative evidence of less weight; yet the entire omission of the Myosurus from the published Flora of Shropshire, and the merely single localities recorded for it in the districts of the Peninsula and Mersey, both give countenance to the assumption of the plant being very rare in the western counties, and perhaps wholly absent from Wales. In the south-eastern districts of England, the Myosurus is rather frequent; and still found occasionally, though much less frequently, in the three north-eastern districts. Its topographical range extends from the neighbourhood of Newcastle on Tyne, as far as Exmouth in Devon; but in the western districts it has not been ascertained to grow more northward than the neighbourhood of Chester. All the localities of the Myosurus appear to be of trifling altitude. It

is usually seen in tilled fields, gardens, gravel pits, and analogous situations, growing either in wet gravel or on stiff clayey ground, and likewise, according to the British Flora, on " chalky ground."

General Distribution. — Latitude 30—60. Europe. Asia. America. Ireland. Channel Isles. Norway. Sweden. Netherlands. France. Switzerland. Germany. Sicily. Turkey. Russia. Caucasus. Southern States of America. Either often overlooked, or a scarce plant except in Middle Europe. Found about Upsal, Petersburg, and Moscow, but not attaining to Lapland or Siberia. It occurs in the South of France, in North Italy, in Istria, about Constantinople, and rarely in the tract of Caucasus. It reappears in Sicily, which creates a presumption in favour of its existence in places between that island and the line above mentioned from the South of France to Caucasus. It attains a much higher latitude on the Continent, than is the case in Britain. It has been ascertained to grow in Ireland since the publication of Mr. Mackay's Flora; possibly introduced thither. Has it been also carried to the States of America? The late Mr. Drummond collected specimens at New Orleans; and Torrey and Gray give a few habitats, namely, on rocky borders of the Wahlamet, in Oregon, — in alluvial situations in Arkansas, — Georgia and Louisiana, — Kentucky. In Sicily, it grows in the colline region, or that of the vine, which ceases at 2000 feet above the sea; but at what particular elevation the Myosurus is found, we are not informed by Presl. It does not appear to attain much elevation on the Alps or Carpathians.

1. Peninsula. — Cliffs near Exmouth.
2. Channel. — Langton fields, near Blandford. In corn fields by the Salterns, Parkstone. Rare within eight

miles of Poole. Not very common in Dorset. Not at all uncommon about Ryde, Shanklin, &c. Corn fields on the coast of Sussex, from Portslade to the western extremity of the county. At Hurstpierpoint.

3. Thames.—Not uncommon about Tonbridge Wells. In corn fields on the greensand, South Kent. Cheriton. Coolinge. Plentiful in fields about Wingham and Canterbury. Seen in corn fields in Claygate, in corn fields between Ditton Marsh and Weston Green, and in other parts of Thames Ditton parish. Reigate. Woodhatch, near Reigate. Wimbledon. Epsom Downs. Fields about Dulwich, especially on the right hand of Lordship Lane, near Dulwich wood. At Shaw, near Newbury. Cookham. Corn fields near Old Windsor. Magdalen College walks, near the Meadow Gate, Oxford. Southleigh. Northaston. Between Bayswater and Stanton St. John's. Corn fields near Slough. Many localities are given in the older botanical works, which are now converted into London streets and roads, and the plant of course extirpated. Edmonton. Rare about Hertford. By the Rib, near Hertford. Dunkirk's Farm, near Brickendon. Ippolito, near Hitchin. In the road between Woodford and Chingford Hatch. About Walthamstow. Copford. Mersea Island. Near Chelmsford, in many of the corn fields. On a bank at the east end of the plantation by the road from Dedham to Manningtree. Near Broxtead Mill, Dedham.

4. Ouse.—Fields at Flatford, Lattenford, and between Dodnash and Bentley, near Dedham. Sea walls at Catawade, and Sutton New Mill, near Dedham. Rare in marshes near the Gipping, at Ipswich. Fields at Bundeston. In a wet meadow, under trees, at Parham. Found only once in the vicinity of Bungay. Dry bank opposite Browston Hall, near Yarmouth. A weed in gardens about Yarmouth. Fields at Ormesby. Fields at Boughton, near Stoke. Wimbotsham. Hardwicke. Formerly found at Runcton Holme. Formerly found at Earsham and Lakenham. Relhan gives the four following localities in Cambridgeshire; but Mr. C. C. Babington intimates that it has not recently been found in the county. Stourbridge Fair Green. Oakington, in a lane leading from the village to the Huntingdon road. Hasenfield, in

the road leading to Cambridge. Eversden. Rare in Bedfordshire. Biddenham. Fenlake. Caldwell. Gardens and fields at Thorpe Malsor.

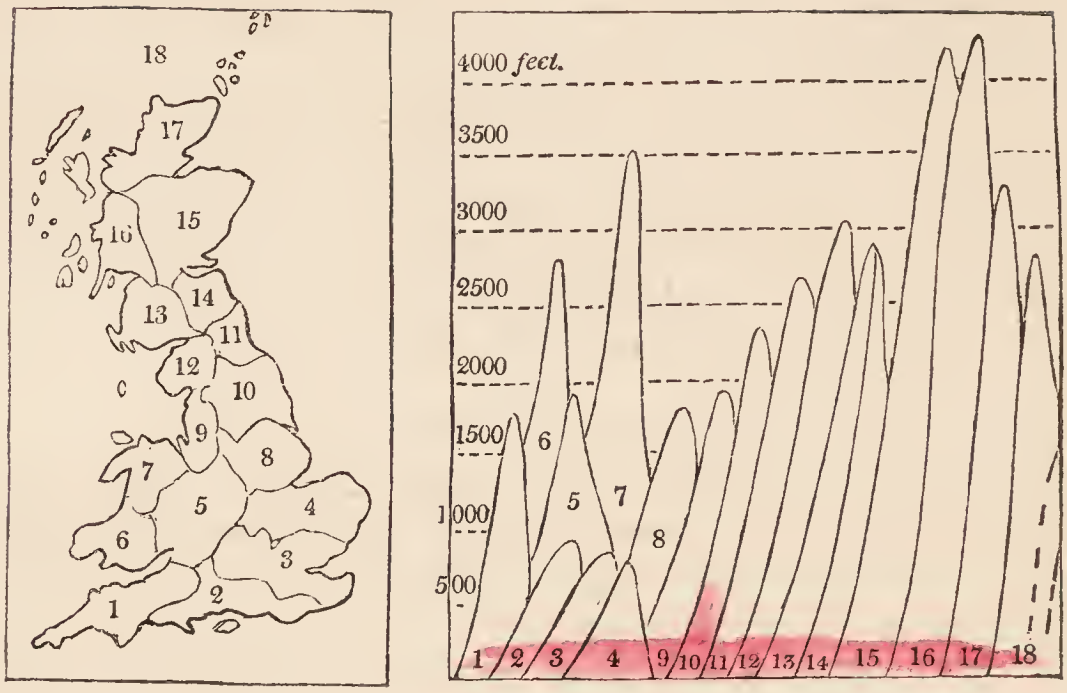
5. SEVERN. — Sandy fields near Penpool and Blaize Castle, north-westward of Bristol. Malvern Chase. Coleshill. Chelmsley Wood, near Coleshill. Alne Hills. At Studley, in a field by the church. In a field near the Cross, between Norton Lindsey and Warwick. In Mr. Dickinson's nursery, near Birmingham. Northern parts of Herefordshire.

8. TRENT. — Congerstone. Once found in a garden at Sheepshead. Fishpool Close, and Tuthill Field, near Loughborough. On the bank of a field between Radford and Woollaton. Coddington. Upton, near Southwell. Normanton. Near Derby.

9. MERSEY. — Lane near Poulton, between Wrexham and Chester, in stiff clay.

10. HUMBER. — Fields south-eastward of Welburn. At Holdgate, near York. In fields at Stanley, near Knaresborough.

11. TYNE. — Lower part of Tees. Fields near Darlington. On the Cow Hill, Newcastle Town-moor. Shores of the Tyne below Newcastle. On St. Anthon's ballast hills.



Districts. Altitude of Districts.

8. Ranunculus aquatilis, *Linn.*

Batrachium heterophyllum, pantothrix, cæspitosum, and fluviatile — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norfolk. Lynn. Warwick. Worcester. Swansea. Denbigh.

Leicester. Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Hebrides. Orkney.

Specimens. — Weymouth, Dorset — *Mr. T. Twining.* Chippenham, Wilts — *Bot. Soc. Edinburgh.* Ditton Marsh and Claygate, Surrey — *H. W.* Near Leatherhead, Surrey — *Bot. Soc. London.* Fray's meadows, near Uxbridge, Middlesex — *Bot. Soc. London.* Between Twickenham and Hounslow — *Mr. T. Twining.* Cambridge — *Bot. Soc. London.* In the Severn, Worcestershire — *Mr. Edwin Lees.* Notts — *Mr. T. H. Cooper.* Woodside, Cheshire — *H. W.* Richmond, Yorkshire — *Mr. J. Ward.* Prestwick Carr, Northumberland — *Mr. R. B. Bowman.* Lanarkshire — *Dr. Joseph Hooker.* Lochend, Edinburgh — *Bot. Soc. Edinburgh.*

Uncertain Localities. — One or more of the various forms which are grouped together by many authors under the common name of Ranunculus aquatilis, may doubtless be found in all the localities specified for that plant; but it has not been attempted, in this work, to keep separate the recorded localities for each named variety. Nor, indeed, could it be done satisfactorily, on account of the different manner in which the names are applied by botanists. R. circinatus is given as a distinct species, in the Catalogue published by the Botanical Society of Edinburgh, and marked as locally abundant in some places within sixteen miles of that city.

Britain. — Latitude 50—59. General. Agrarian. Though widely distributed through Britain, and usually seen in abundance where ponds or other waters offer a suitable situation for its growth, the Ranunculus aquatilis is still not found universally. It occurs, indeed, in all the districts, and is moreover enumerated in every flora

and catalogue used for comparison in this work; but it is not recorded in the list of Shetland plants, nor does it appear to be at all common in the Highland districts, excepting in some of their less mountainous tracts. In this country it remains a plant of the sea level under every latitude; and it rarely or never attains any considerable elevation, although the alleged occurrence of the plant in the Orkney Isles might lead to an expectation that it would be found at several hundred feet of elevation in England and Wales; while this expectation must appear still more probable from the existence of the same species in Iceland. What may be the distribution of R. circinatus, R. fluviatilis, and other semi or demi-semi-species, taken separately from R. aquatilis, must be left for the determination of future writers. Though an aquatic, as the name indicates, and commonly seen on the surface of waters, it will continue to grow and flower on damp ground after evaporation has carried away all the water in which it floated.

General Distribution.—Latitude, 30—69. Europe. Asia. America. Africa. Iceland. Ireland. Channel Isles. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Italy. Greece. Russia. Caucasus. Altai. Siberia. Northern India. American States. Canada. Columbia River. California. As is the case with many other aquatic plants, this proteiform Ranunculus has a very wide geographical range. In the Old World, its northern line may be traced from Swedish Lapland, in latitude 69, across the whole of Siberia. Southward it ranges into Barbary, Sicily, Greece, and the North-western provinces of India. In America, it occurs on the arctic coast eastward of the Rocky Mountains, in latitude

68, and at Columbia River, on the west coast; as also in the island of Unalaschka. Southward it extends into California and South Carolina. Between America and Europe, as we learn from Zoega's list, the north line is continued across Iceland. In the "north-west" of India, its latitude may be lower than 30. In Lapland it ascends to the upper wooded region, where Pinus sylvestris grows. In the Carpathian tract, Wahlenberg indicates it in the lower region only, or that of the apple and pear. In Northern Switzerland, also, according to the same author, it occurs only in the lower region, or that in which the Vine is cultivated in favourable spots. In Sicily, too, Presl gives the habitat in the lower part of the region of the Vine, that is, considerably below 2000 feet. De Candolle quotes Ramond as an authority for the Ranunculus aquatilis at the height of 7000 feet on the Pyrenees. In Caucasus, Meyer states it to grow at 300—400 fathoms. Such a height as 7000 feet would seem to be a rare circumstance; and yet, looking to the high northern latitude attained by this species, and to its early flowering in Britain, there seems nothing very improbable in the altitude stated by Ramond.

1. Peninsula. — Seen near Penzance. In the river Dart, near Totness. Near the coal pits, at Bovey Heathfield. Marychurch. Seen about Barnstaple. Somerset. In the canal at Bath. Bristol.

2. Channel. — Weymouth. Chippenham. In the Isle of Wight, much more common than R. hederaceus; as Dr. Bromfield also finds to be the case with its varieties, named pantothrix and circinatus, and the small-flowered form. Sussex. East Grinstead.

3. Thames. — South Kent. Dimchurch. New Romney. Common about Tonbridge Wells. Abundant about Reigate. Leatherhead. Seen on Mayford Green, between Whitemoor and Woking. Seen also abundantly in Thames Ditton and adjacent parishes. In the Isis. In the Cher-

well. In the Windrush. Christchurch meadow, Oxford. Marston Lane, Oxford. Southleigh. Between Kirtlington and Bletchington Parks. Near Banbury. Near Uxbridge. Between Twickenham and Hounslow. Common about Hertford. Woodford. Common about Dedham.

4. Ouse. — Several places about Ipswich. About Bungay. Abundant about Yarmouth. Common about Norwich. Very common about Lynn. About Cambridge. Chesterton. Common in Bedfordshire.

5. Severn. — Stapleton. In the Severn, Worcestershire, where the variety "fluviatilis" is found by Mr. Lees to attain a length of twenty feet. Warwickshire. Alcester. Stratford on Avon. Common in Shropshire. Common about Pontnewydd.

6. South Wales. — Neath canal, near Swansea. Marshes about St. David's. Pools near Aberystwith.

7. North Wales. — About Wrexham, as well as most of the varieties. Anglesea.

8. Trent. — Common in Leicestershire. Common in Nottinghamshire. Derbyshire.

9. Mersey. — Seen about Congleton. Seen in Alderley. Seen about Seacombe, and other places in the west of Cheshire. Seen in many places about Liverpool.

10. Humber. — Common in Yorkshire, with its varieties. Leeds. Common about Settle. Richmond.

11. Tyne. — Lower Tees. Durham. Northumberland. Prestwick. Holy Island Loch.

12. Lakes. — Seen in Derwentwater. Scarce in the Isle of Man.

13. West Lowlands. — Renfrewshire. Frequent about Glasgow. In the Clyde, below Hamilton bridge, and elsewhere.

14. East Lowlands. — Common about Berwick. Below Calf Hill, Berwick. Pond, near Grives Stead. Whiteadder Island. Seen about Edinburgh. Lochend. Duddingston Loch.

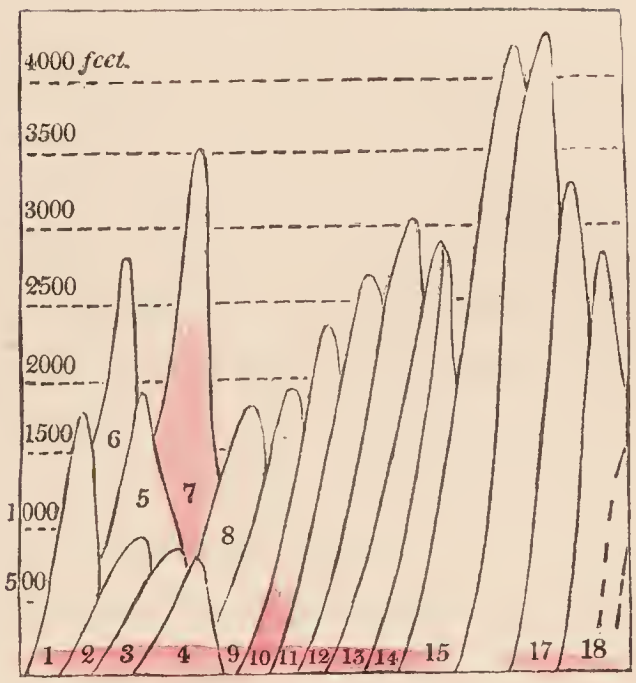
15. East Highlands. — Old-town links, and other places about Aberdeen, abundantly. Canal at Kittybrewster. Parish of Alvah. Very common in Moray.

16. West Highlands. — Seen at the lower end of Loch Lomond.

17. North Highlands. — Ross-shire.

18. North Isles. — Near little Scarristra, in Harris. Near Barvas, in Lewis. Orkney.

Districts.



Altitude of Districts.

9. Ranunculus hederaceus, *Linn.*

Batrachium hederaceum — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Poole. Wight. Sussex. Kent. Grinstead. Esher. Hertford. Dedham. Ipswich. Norwich. Lynn. Warwick. Worcester. Swansea.

Denbigh. Leicester. Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Hebrides.

Specimens. — Redbridge, at the head of Southampton Water, Hants — *H. W.* Thames Ditton, Frimley, and elsewhere in Surrey — *H. W.* Near Birmingham, on the west side of the town — *H. W.* Notts — *T. H. Cooper.* Between the estuaries of the Dee and Mersey, Cheshire — *H. W.* Near Liverpool — *H. W.* Prestwich, near Manchester — *H. W.* About Wooller, Northumberland — *Mr. R. Embleton.* Keswick, Cumberland — *H. W.* Lanarkshire — *Dr. Joseph Hooker.* King's Park, Edinburgh — *H. W.* North Queensferry, Fife — *H. W.*

Britain. — Latitude, 50—59. Nearly general. Agro-Arctic. Less common than R. aquatilis, though still scattered about Britain almost as widely as that species itself. The only district in which no recorded locality for the present species is known, is that of the West Highlands, whose vegetable productions have hitherto been so incompletely ascertained. So far as yet known, we may trace the area of this species from the south coast of England to the neighbourhood of Stornoway in Lewis; the latter being at present the only locality on record for the district of the North Isles. It is enumerated in all the local floras, and likewise in all but four of the local catalogues; those for Bristol, Banbury, Bungay, and Orkney, being the exceptions among the catalogues. R. hederaceus is a plant of the sea level in the southern districts, and perhaps it has been seen at a considerable elevation on the mountains of Clova, although not much trust can be given to the vague recollection which leads to this surmise. On Carnedd David, in Caernarvonshire, it was seen at a height calculated to be 2350 feet above the sea:

an altitude that implies the ascent of the species into the upper or arctic region, although it is but rarely seen above the actual limits of cultivation. Found in ditches, shallow ponds, and about springs; and, like the preceding aquatic species, this will also continue to grow and flower after the water has evaporated, leaving the ground still damp. There are several strongly marked varieties, both as to the form of the leaves and the form and size of the petals, though these are not dignified by different specific names, as are the varieties of the still more changeable R. aquatilis.

General Distribution. — Latitude, 35—65. Europe. Africa? America (Greenland)? Iceland. Ireland. Channel Isles. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Northern Italy. Sicily? Barbary? Russia ("Oesel"). Chiefly or exclusively limited to Western Europe and adjacent isles. Its extreme northern limit occurs in Iceland and on the shores of the Baltic; its southern limit in the Spanish Peninsula or Northern Africa. The species of Sicily and Barbary may be the R. tripartitus, and, if so, possibly distinct from R. hederaceus. It is perhaps pretty general up the West of Europe, from Portugal to the south of Sweden, and rapidly diminishes in frequency to the eastward of the Pyrenees. It is mentioned in the Floras of Brunswick, Frankfort on the Rhine, and Switzerland,—in which latter district it is very rare; while it is omitted from those of Berlin, Leipzig, Halle, Salsburg, Verona, and Tuscany; as also from all others relating to tracts farther eastward. Formerly it was supposed to be indigenous in Siberia, but the species found there is R. Cymbalaria. The only ground for naming America in the range of this species, is the occurrence of its name in

Giesecke's list of Greenland plants, to the correctness of which, in this instance, some countenance is given by the name also appearing in Zoega's list of Iceland plants, printed in Sir W. J. Hooker's Tour. Yet it is wanting in Faro, as far as Mr. Trevelyan's list shows the flora. De Candolle states the range of altitude, from the sea level in Britany to nearly 4000 feet on Mont Calm.

1. Peninsula. — Common in Devon. Plymouth. Chudleigh. Seen about Barnstaple. Somerset.

2. Channel. — Very common within eight miles of Poole. Not frequent in the Isle of Wight. Near Lake. Frequent in Hants. Seen at Redbridge, westward of Southampton. Sussex. Frequent about East Grinstead.

3. Thames. — South Kent. Lyminge. Brabourne. Willesborough. Common about Tonbridge Wells. About Redhill, and elsewhere near Reigate. Seen about Esher Station, and in adjacent parishes. Seen at Woking Heath. Seen near Frimley. Oxford. Stanton Harcourt. Southleigh. Eynsham Common. Littlemore. Marston. Rare about Hertford. Woodford. Epping Forest. Rare about Dedham.

4. Ouse. — Local about Ipswich. Belton Bog, near Yarmouth. Caistor Causeway. Rather rare near Yarmouth. Common at Thorpe. Not common in Western Norfolk. Hardwick. South Wootton. Denver. Near the Castle Hill, Cambridge. Cambridge Common. Cherry Hinton. Gamlingay Bogs. Rare in Bedfordshire.

5. Severn. — Woolands Common, near Bitton. Alcester. Brisland's End, near Birmingham. Rare in the neighbourhood of Warwick. Road side between Halton and Rowington. In a swampy place, on Abberley Hill, above the Hundred House. Seen between Edgbaston and Harborne. Lane between Plealey and the Oaks, near Shrewsbury. Walford. Between the Wrekin and Coalbrookdale. Near Oswestry. Pulley Common. Bicton. Shelton Rough, near Shrewsbury. Seeches, Westfelton. Shrawardine Pool. Common about Pontnewydd.

6. South Wales. — Scarcely a marshy spot, in South Wales, without the plant. Neath Canal, near Swansea.

Common at St. David's. Ramsey Island. Abundant on Pen Glais, northward of Aberystwith.

7. North Wales. — Llanidloes, Montgomeryshire. Seen about Bangor. Seen also high on Carnedd David. Near Wrexham. Seen about Llangollin. Anglesea.

8. Trent. — Common in Leicestershire. Bullwell Bogs, Notts. Blidworth. Farnsfield. Basford Scottum. Mansfield. Coxbench, Derbyshire. Seen in the north of Derbyshire.

9. Mersey. — Seen in Cheshire, between the Dee and Mersey. Seen about Liverpool. Seen in Prestwich, near Manchester.

10. Humber. — Near Rotherham. Leeds. Richmond. Common about Settle. In the high lands of Yorkshire.

11. Tyne. — Lower Tees. Not very common about Stockton. Durham and Northumberland. Near Wooller. Tweedmouth fields, and about East Ord.

12. Lakes. — Seen about Keswick. Very common in the Isle of Man.

13. West Lowlands. — Lochwhinnoch, Renfrewshire. Moist beds of the Clyde and Kelvine, which are nearly dry in summer. Occasionally about Glasgow. Ditch between Chatelherault and the Deer Park. Ditches at Laigh Motherwell; and at Whitemoss and Crosshill, Kilbride.

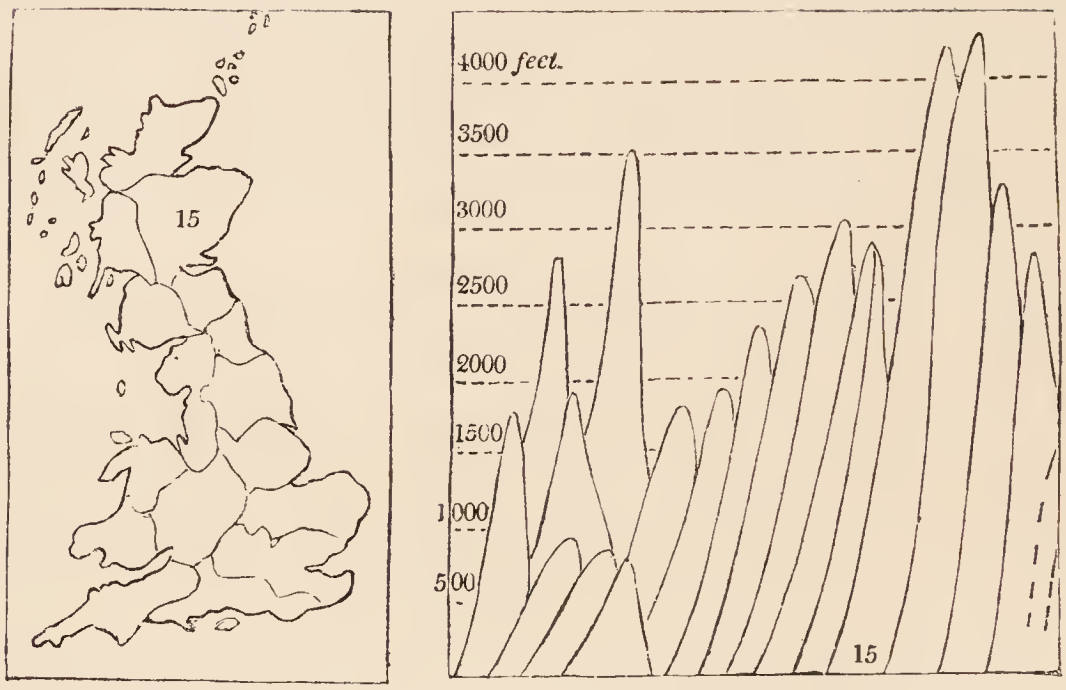
14. East Lowlands. — Common about Berwick. Seen about Edinburgh. Between Roslyn and Lasswade. Near Mordun.

15. East Highlands. — Seen near North Queensferry. Alvah. Very common in Moray.

16. * * *

17. North Highlands. — Seen near Dingwall. Seen near Golspie.

18. North Isles. — Near Stornoway, in Lewis.



Districts. Altitude of Districts.

10. Ranunculus alpestris, *Linn.*

District. — East Highlands, 15.

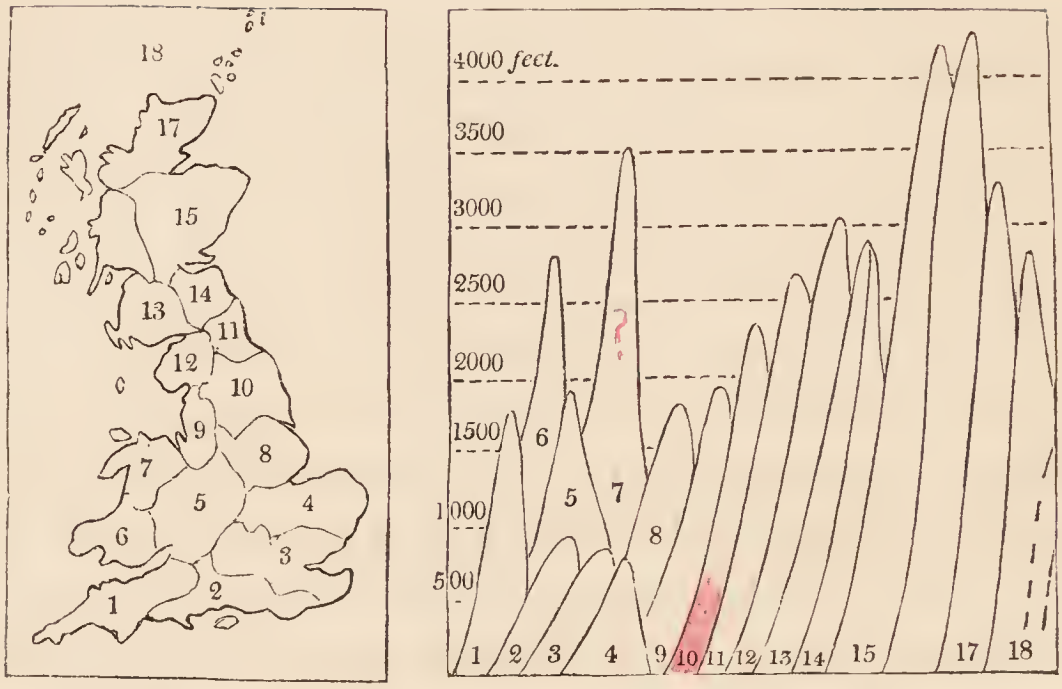
Floras and Catalogues. — None.

Britain. — Latitude, 56—57. Very local. Arctic. Supposed to be confined exclusively to the Clova Mountains, on which it was discovered by Mr. George Don, senior, but has not since been detected by any other botanist. A Clova specimen is preserved in the herbarium of the late Sir J. E. Smith, with a memorandum indicating that it was gathered in April. Probably this early season of flowering may have been one circumstance tending to prevent the re-discovery of the plant by botanists, whose excursions to Clova are commonly some months later in the year. Nothing exact is known regard-

ing the height of its locality, which conjecture may assign to the subalpine region.

General Distribution.—Latitude, 42—57. Europe. France. Switzerland. Germany. North Italy. An extremely circumscribed species, in regard to its geographical range; being found only, but abundantly, on the Pyrenees, Alps, and Carpathians, and on mountains adjacent to those lofty ranges. On the Carpathians, it would seem from the words of Wahlenberg, this plant grows only in the alpine regions. In Switzerland, it is stated to descend into the subalpine region, and to rise almost to the limit of perpetual snow; being most abundant in the upper part of the alpine regions. De Candolle stated the altitudinal range from 1600 metres, on the Jura, to 2800 metres, on the Alps and Pyrenees; say, 5200—9200 feet. The occurrence of Ranunculus alpestris in Scotland gives an addition to its geographical range amounting to about nine degrees of latitude.

15. East Highlands.—Mountains of Clova, Forfarshire.



Districts. Altitude of Districts.

11. Ranunculus Ficaria, *Linn.*

Ficaria verna — Hudson.
Ficaria ranunculoides — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury.

Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Worcester. Swansea. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Orkney.

Specimens.—Near Mount Edgcumb, Cornwall—*H. W.* Barnstaple, Devon—*H. W.* Shanklin, Isle of Wight—*H. W.* Thames Ditton, Surrey—*H. W.* Uxbridge, Middlesex—*Bot. Soc. London.* Notts—*Mr. T. H. Cooper.* Wirrall, Cheshire—*H. W.* Prestwich, Lancashire—*H. W.* Lanarkshire—*Dr. Joseph Hooker.* Near Edinburgh—*Bot. Soc. London.*

Britain. — Latitude, 50—61. General. Agrarian. This familiar flower of spring is one probably of almost universal occurrence in the low grounds of Britain, notwithstanding that no locality for it in the West Highlands has been found on record. It is seen in all the other districts, and is mentioned in all the local floras, and all the local catalogues, excepting that for the Hebrides; and the catalogue of Hebridean plants having been made by its authors after an autumnal excursion of short duration, they may have overlooked this early-flowering plant, whose leaves usually fade away before autumn. The want of recorded locality in the district of the West Highlands may also be attributed to the incomplete state of our knowledge respecting the floral productions of that part of Scotland. In this country, Ranunculus Ficaria, though distributed over its whole latitudinal extent, may be classed with plants more prevalent in the south than in the north, but Mr. Edmonston indicates it to be frequent in the northern isles of Shetland. It is a plant of the sea level in every part of England, and nowhere appears to rise to any considerable elevation; although its occurrence in

Shetland, and under the still more northern latitudes of Faroe and Lapland, might lead to the expectation of seeing it as high as cultivation extends. The usual haunts of this Ranunculus are on hedge-banks and in deciduous woods, as well as in other situations not much shaded during the time of its growth and flowering.

General Distribution.—Latitude, 33—68. Europe. Asia. Africa. Faroe. Ireland. Channel Islands. Norwegian Lapland. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Italy. Greece. Russia. Crimea and Caucasus. Asia Minor. Barbary. Generally spread throughout Europe, except the extreme north. It is said to reach Faroe, the southern part of Nordland, Upsal, Finland, Petersburgh, and Moscow; and being omitted from the lists of plants in Iceland, Swedish Lapland, and Siberia, it is probable that the north limit corresponds nearly with the former line. Southwards, it occurs in Barbary, Sicily, and Greece, and it was among the specimens brought by Mr. Fellowes from Caria and Lycia, in Asia Minor. In the tract of the Carpathians it occurs only in the lower region, or fruit-tree bearing plains. In Switzerland, it ascends to the subalpine region. In Sicily, Presl fixes its habitat in the regions of the oak and beech, that is, somewhere between 2000—6000 feet. In Sardinia, it is reported to grow at 1700 metres,—say 5500 English feet.

1. Peninsula.—About Mount Edgcumb, Cornwall. Common in Devon. Plymouth. Chudleigh. Seen about Barnstaple. Somerset. Common about Bath. Neighbourhood of Bristol.

2. Channel.—Very common within eight miles of Poole. Abundant everywhere, in the Isle of Wight.

Seen about Shanklin. Sussex. Abundant about East Grinstead.

3. THAMES. — South Kent. Very common about Tonbridge Wells. Reigate. Seen in Thames Ditton, and elsewhere in North Surrey, abundantly. Oxford. Very common about Banbury. Uxbridge. Common about Hertford. Very common about Woodford. Common about Dedham.

4. OUSE. — Common near Ipswich. Bungay. Very common about Yarmouth. Common about Norwich. Common in Western Norfolk. Cambridge. Common in Bedfordshire.

5. SEVERN. — Worcestershire. Warwickshire. Abundant in Salop. Common about Pontnewydd.

6. SOUTH WALES. — Frequent about Swansea. Ramsey Island, Pembrokeshire.

7. NORTH WALES. — Seen about Bangor. Seen about Llangollin. Wrexham. Anglesea.

8. TRENT. — Common in Leicestershire. Very common in Notts. Derbyshire.

9. MERSEY. — Seen about Congleton; Alderley; Seacombe; and other places in Cheshire. Very common about Liverpool. Seen in Prestwich; and elsewhere about Manchester.

10. HUMBER. — Everywhere in Yorkshire. Leeds. Richmond. Common about Settle.

11. TYNE. — Lower Tees. Frequent in Durham and Northumberland.

12. LAKES. — Seen about Keswick. Very common in the Isle of Man.

13. WEST LOWLANDS. — Common in Lanarkshire. Common about Glasgow. Renfrewshire.

14. EAST LOWLANDS. — Common about Berwick. Seen abundantly about Edinburgh.

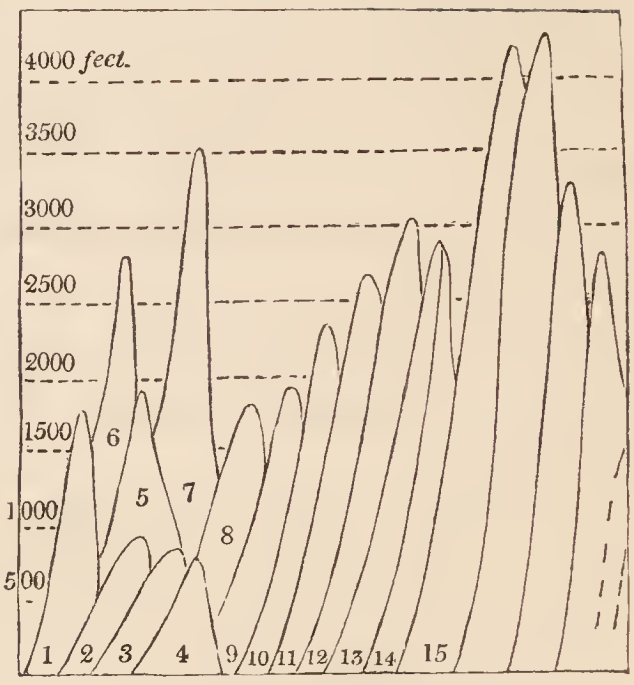
15. EAST HIGHLANDS. — Common about Aberdeen. Alvah, Banffshire. Frequent in Moray.

16. * * *

17. NORTH HIGHLANDS. — Ross.

18. NORTH ISLES. — Orkney. Frequent in Shetland.

Districts.



Altitude of Districts.

12. Ranunculus Lingua, *Linn.*

Ranunculus longifolius — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15.

Floras. — Bath. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. York. Tyne. Berwick. Edinburgh. Lanark. Aberdeen. Moray. Catalogues. — Poole. Wight. Sussex. Kent. Bungay. Norwich. Lynn. Worcester. Swansea. Leicester. Tees. Orkney.

Specimens. — Ditches near Deal, Kent — *Bot. Soc. London.* Sandling, Kent — *Bot. Soc. London.* Cornard (?)

Mere, near Sudbury, Suffolk — *Bot. Soc. London.* Oby, Norfolk — *Mr. J. Paget.* Whittlesea Mere and Stilton Fen, Cambridgeshire — *Bot. Soc. London.* Pool side, near Shrewsbury — *Bot. Soc. London.* Hell Kettles, near Croft, Durham — *Mr. R. B. Bowman.* Lanarkshire — *Dr. Joseph Hooker.* Duddingston Loch, Edinburgh — *H. W.* Loch Earn, Perthshire — *Bot. Soc. London.* Rescobie Loch, Forfarshire — *Bot. Soc. London.* Banks of the Ythan, four miles from the sea, Aberdeen — *Mr. Dickie.*

Uncertain Localities. — Bogs on Malvern Chace — *Mr. Ballard, in Withering and Bot. Guide.* Ockerley Wood, Holt — *Mr. Stretch, in Hastings's Illustrations.* Common in wet pastures about Caernarvon — *Bingley, as quoted in Bot. Guide.* South Normanton, Derbyshire — *Mr. Coke, in Bot. Guide.* In Basford Scottum, and on a moor between Bridgford and Gamston — *Deering, quoted in Bot. Guide.* Orkney — *Barry's History.* These, and probably other localities published for R. Lingua, may all belong to R. Flammula; the large plants of the latter being often mistaken for the former species.

Britain. — Latitude, 50—58. Rather partial. Agrarian. Not a common plant, although distributed into so many as fifteen out of the eighteen districts, and extending from the Isle of Wight northward to Loch Spynie, in Moray. In the two most northerly districts, and perhaps also in the West Highlands, it is wholly wanting; the alleged locality of Orkney, in all likelihood, belonging to R. Flammula; as is too probably the case with several other localities recorded for the present species. It appears to be prevalent more especially in the districts of Ouse, Severn, and Humber; to be scarce in those of the Peninsula and Trent; and to be found only very locally in

Scotland. All its habitats are at moderate elevations; that of Loch Earn may be about 350 feet above the sea, and it is unlikely that any of the others are much above this altitude. The specimen from Loch Earn was communicated to the Botanical Society of London, by Miss Harvey, and is certainly the Ranunculus Lingua. Still, the locality itself may be doubtful, since the specimens of plants gathered by that lady in different localities were too frequently mingled together; a circumstance which rendered it impossible for the receivers to know which of the specimens (sometimes, also, which of the species, when two species were confused) had been really gathered in either of the localities named on their equally mixed labels. The usual situation of R. Lingua is at the sides of pools or rivers, or in other wet places where the lower part of the plant is immersed in the water.

General Distribution. — Latitude, 42—61. Europe. Asia. America? Ireland. Channel Isles. Sweden. Netherlands. France. Switzerland. Germany. Spain. Italy. Dalmatia. Russia. Eastern Caucasus. Altai. Western Siberia. United States? Much more limited than R. Flammula. It occurs in Finland, about Upsal and Petersburg, and also in Siberia, from the Yaik to the Irtysch; places that must be near its northern limit. It is mentioned in the Floras of Arragon, Tuscany, Zara, and Caucasus; and no other more southern localities have been ascertained from the various works consulted. The want of good general Floras of Spain and Italy (that of Bertoloni has not reached Polyandria) is most inconveniently felt by one who attempts to ascertain the southern limits of plants which happen not to be mentioned in the Floras of Sicily or Greece, nor in that of Barbary, by Desfontaines. Though stated to grow in America, by

Pursh, Beck, and De Candolle, there would seem to be some error, the species not appearing in the Flora now publishing by Torrey and Gray. Probably not attaining to any considerable altitude. Wahlenberg has no mention of it in the tract of the Carpathians, and indicates it to be of rare occurrence in Switzerland.

1. PENINSULA.—In Claverdon wood, and in a bog behind the Horse and Jockey, Kingsdown, near Bath.

2. CHANNEL.—Rare within eight miles of Poole. Very local in the Isle of Wight, principally at Freshwater Gate. In a maritime bog, at Easton, near Freshwater. In the water meadows, between Lord Rodney's park and Bishop's Sutton, plentifully. Left hand of the lane from Hastings to Fairlight Place. Near Lewes. Amberley Wild Brooks. Pond near the South Gate, Chichester.

3. THAMES.—The old haven at Sandwich. Sandling. In and about Ham Ponds. Ditches near Deal. Between Rotherhithe and Deptford. Cookham meadows, by the water called the Strand, in Berkshire. In a watery ditch on the right side of the lane, beyond Folly Bridge, Berkshire, in going from Oxford. Ditch at Wexham, Bucks. On Iver Heath, near Uxbridge.

4. OUSE.—Timworth. Cavenham. Rather rare about Bungay. Bungay Common. Beccles Common. Cornard Mere, near Sudbury. Very common about Yarmouth. Oby. Caistor Acle Dam. Marshes between Herringfleet and Reedham. Horning marshes. Not common in Western Norfolk. North Runcton. Stilton Fen, Whittlesea. Isle of Ely. Gamlingay. Audrey Causeway. Stretham ferry, Anglesea Abbey. Teversham Moor. In the Ouse at Stratford. Rare in Bedfordshire. Goldington. Oakley.

5. SEVERN.— Sutton, near Birmingham. Kineson Pool, near Stafford. Almond Park, near Shrewsbury. Mare and Hancot Pools, near Shrewsbury. Colemere, near Ellesmere. Whitemere, near Ellesmere. Round several of the Ellesmere lakes. Snowden Pool, near Beckbury. Near Longnor. Marbury Mere and near Hampton Bank, Coalbrookdale. Littlehales, near Newport.

Tong Lodge lake. Wooton, near Oswestry. In a pool adjoining Cound Hall. Pits near Albrightlee. Marton Pool.

6. South Wales.—Abundant in Tennant's Canal, near Swansea. In Cromlyn morass, three miles eastward of Swansea. Neath Canal, near Swansea. Kenfig Pool, Swansea. Abundant by Llyn Savaddon, Brecon.

7. North Wales.—In a turbary near Barmouth. Near Wrexham. Great Pool, at Upper Leeswood, near Mold. In a bog in the parish of Llangoed; Corsddygai; and other similar places, in Anglesea, not uncommon.

8. Trent.—Groby Pool, Leicestershire. Small pond on the left of the road between Glenfield and Groby.

9. Mersey.—Seaman's moss-pits, Altrincham. Bridgewater Canal, between Manchester and Warrington. In a marshy spot, between Oakfield, North Birkenhead, and the old road to Bidston; also in an adjoining pond, very plentiful. In a ditch which runs into Rimrose brook, by the road side, at Litherland, northward of Liverpool. Crosby Marsh, northward of Liverpool.

10. Humber.—In the mere, at Scarborough. Potteric Car, near Doncaster. Near Leeds. Askham bog, near York. Stockton Forest. Ponds near Ripon. Marsh near Copgrove. Watery place in Kilburne Thicket, near Coxwold. Terrington Car. Wiske, near Northallerton. East side of Giggleswick Tarn, probably now lost. Seamer moor. Wensleydale. Newsham Car, near Thirsk. By the road side between Upsall and Kirby Knowle. Near Kirkham.

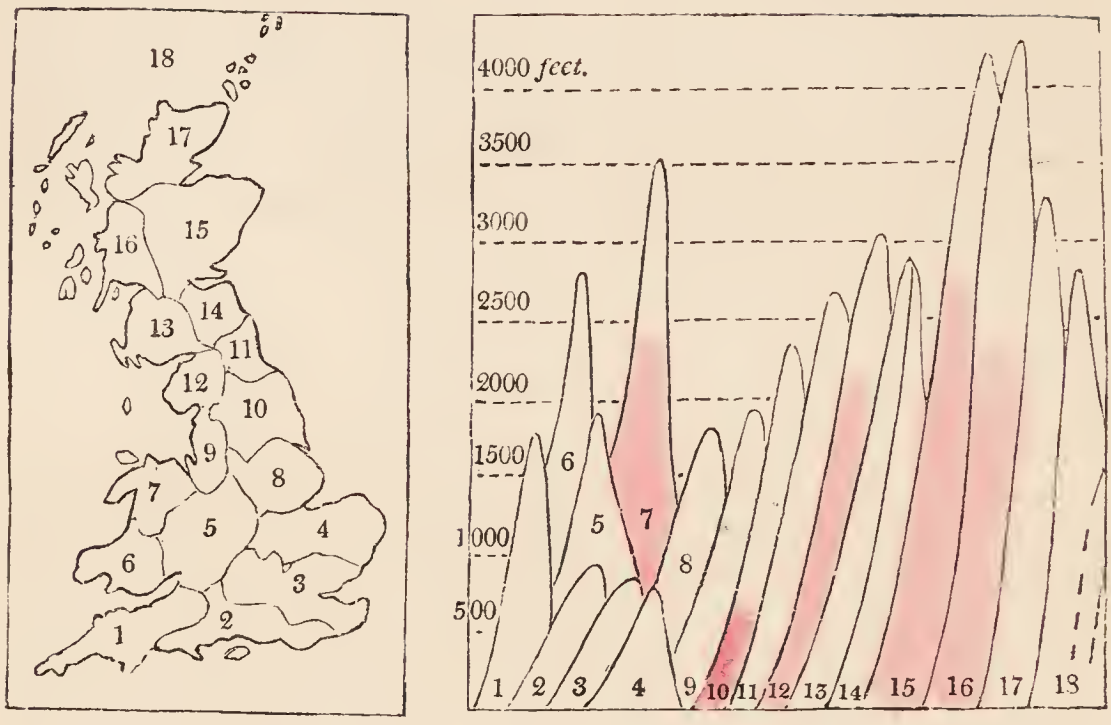
11. Tyne.—Tees tract, between Blackwell and Barnardcastle. Near Darlington. Hell Kettles, near Croft. (Possibly these three descriptions are intended for the same locality.) In ditches at Prestwick Car. In ponds at Widehaugh, near Dilston. In bogs at the west end of Little Cow Lake. In the moat at Dunstanborough Castle. At Newnham Lough. In the pond above Spindlestone.

12. Lakes.—Hawkeshead, North Lancashire. By Esthwaite-water. Emont, by Carleton Hall. Abbey Holm. Ditches in Low Holm Mire.

13. West Lowlands.—By a loch, near Loudon Hill, Lanarkshire. Also by the bank of the Great Canal, near Stockenfield.

14. East Lowlands. — Below Calf Hill, Berwick. Seen in Duddington Loch, near Edinburgh.

15. East Highlands. — Otterston Loch, Fife. Pow Mill, Kinross. Loch Earn. Ditches about Restenet. Beguise Loch. Rescobie Loch. Banks of the Ythan, above Ellon, neighbourhood of Aberdeen. Loch below Lesmurdie Cottage, Moray. Loch of Spynie. Leuchars.



Districts. Altitude of Districts.

13. Ranunculus Flammula, *Linn.*

Ranunculus flammeus and R. reptans — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Worcester.

Swansea. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Hebrides. Orkney.

Specimens. — Millbrook, Hants — *H. W.* Tonbridge Wells, Kent — *Mr. T. Twining.* Reigate, Surrey — *Bot. Soc. London.* Thames Ditton, and neighbouring parishes, Surrey — *H. W.* Norfolk — *Mr. George Cooper.* Gamlingay, Cambridgeshire — *Rev. James Harris.* Swaffham, Cambridgeshire — *Nat. Hist. Soc. Swaffham.* Harborne, Staffordshire — *H. W.* Begalyn Pool, Plynlimmon — *Bot. Soc. London.* Notts — *Mr. T. H. Cooper.* Langreth, York — *Bot. Soc. London.* Hell Kettles, near Croft, Durham — *Mr. R. B. Bowman.* High Force of Tees, Durham — *Mr. R. B. Bowman.* Keswick, Cumberland — *H. W.* Lanarkshire — *Dr. Joseph Hooker.* On the Pentland Hills, near Edinburgh — *H. W.* Ochill Hills — *H. W.* Loch Leven, Kinross — *Mr. W. Campbell.* Dalnacardoch, and on Ben Lawers, Perthshire — *H. W.* Strathmartin, Forfarshire (under name of R. Lingua) — *Bot. Soc. London.* Dalwhinnie, Moray — *H. W.* Dumbartonshire — *Dr. Joseph Hooker.*

Uncertain Localities. — The specimens from Begalyn Pool and from Loch Leven were sent as R. reptans, and appear to have been correctly so named; but they are scarcely distinguishable from specimens of undoubted R. Flammula, gathered on Weybridge Common, Surrey, which had been trodden down by cattle, and had afterwards produced weakly branches and flowers, shooting from the joints of the old flowering stems. No clear distinction is apparent in the carpels; those of the Weybridge specimens being slightly puncticulate (or wrinkled) and terminating in a very short beak. It is possible that the

American R. reptans is a variety of the European R. Flammula; the American plant (bearing the name of R. Flammula) being the distinct species, if two exist. It is quite certain that small prostrate forms of R. Flammula are called "reptans" by many British botanists; and these forms do indeed appear to pass gradually to the Scottish plant of Lightfoot, and to the American plants known as R. reptans.

Britain. — Latitude, 50—61. Very general. Agro-Arctic. One of the most universally distributed among our native plants, being found in every district, and named in every flora and catalogue; and, in all likelihood, is to be seen in every county, from Cornwall to the Shetland Isles. Its range of climate and altitude is considerable; as it occurs about the sea level in the most southern districts of England, and rises to an elevation of 2700 feet, on the south-eastern declivity of Ben Lawers, in Perthshire. On Ben Cruachpen, in the same range of mountains as Ben Lawers, it was seen at 2450 feet; and at 2250 feet on the hills about Loch Erricht, in Inverness-shire. It was also observed in the counties of Forfar and Aberdeen, at corresponding heights. On Helvellyn, in Cumberland, it occurs up to 2100 feet; and if not to be found higher in the Lake district, we may attribute its absence to the want of suitable situations for a marsh plant near the tops of the hills in that district. On the commons in Surrey, R. Flammula varies much. In some spots, it is seen with an erect stem and ovate leaves; in others, the stem is prostrate or creeping, with extremely narrow leaves; and connecting these two extremes there are numerous intermediate links. Late in the summer or autumn, it sometimes happens that the old flowering stems are trodden down by cattle; and then, taking root

at their joints, they again produce fresh branches bearing very narrow leaves and small flowers: in this state approaching near to the habit of the American Ranunculus reptans. Whether the latter is indigenous to Britain, may be questioned; but the specimens from Loch Leven, before alluded to, approximate closely to it in their stems and leaves, if not in their fruit also. R. Flammula occurs abundantly in watery places, and in damp ground liable to be occasionally flooded.

General Distribution.—Latitude, 30—71. Europe. Asia. Africa. America. Iceland. Faroe. Ireland. Channel Isles. Lapland. Norway. Sweden. Netherlands. France. Germany. Portugal. Spain. Italy. Greece. Russia. Altai. Siberia. Northern India. Barbary. United States. Canada. Newfoundland. A widely diffused species, and exceedingly variable in size and habit; connected with which arises some difficulty in determining the geographical limits. In the more typical form of R. Flammula, it occurs in the southern part of Swedish Lapland, in Finland? and in Siberia; and thence extends southwards to Northern Africa and Northern India. In America it is distributed from North Carolina to Canada; but where R. Flammula gives place entirely to R. reptans cannot be determined. R. reptans is stated to be common in the lower part of Swedish Lapland, or the wooded regions of Wahlenberg. This is the form found in Iceland and Faroe; and on the continent of America, it is said to reach the polar shores, in latitude 69. Neither form has been brought from the western side of the Rocky Mountains. In Lapland, it is limited to the wooded regions. On the Carpathians it ascends only to the upland region, or that of the beech. The regions for Northern Switzerland are not specified by Wahlenberg,

who merely says, "in udis ubique." The species is not found at all in Sicily. Neither does it appear in the Flora of the Crimea and Caucasus. And since De Candolle also omits it in his tables of the heights of French plants, the altitudinal range, out of Britain, cannot be given here.

1. Peninsula. — Seen about Penzance. Goonhilly Downs. Common in Devon. Chudleigh. Seen about Barnstaple. Somerset. Neighbourhood of Bath, in several places. Neighbourhood of Bristol.

2. Channel. — Very common within eight miles of Poole. Common in the Isle of Wight. Seen about Millbrook, on Southampton Water. Sussex. Common about East Grinstead.

3. Thames. — South Kent. Very common about Tonbridge Wells. Cheriton. Reigate Heath, Surrey. Earlswood Common, near Reigate. Seen about Kingston; Esher; Weybridge; Whitemoor; and in other places in Surrey. Peat bogs on Bullington Green, near Oxford. Southleigh Heath. Not common about Banbury. Hornton. Wroxton mill. Hanwell. North Newington. Hampstead Heath. Common about Hertford. Very common about Woodford. Frequent about Dedham.

4. Ouse. — Norton Heath, near Ipswich. Bungay. Very common about Yarmouth. Common about Norwich. Castle Rising. Thorpland. Denver. Wimbotsham. Barton Bendish. Fincham. Cambridge. Rare in Bedfordshire. Oakley. Stedington. Ampthill.

5. Severn. — Worcestershire. Warwickshire. Seen between Edgbaston and Harborne, near Birmingham. Abundant in Shropshire. Side of Eaton Marcot Pool. Common about Pontnewydd, Monmouthshire.

6. South Wales. — Neath Canal, near Swansea. Cromlyn bog. Singleton marsh. St. David's, Pembroke. Ramsey Island. By the river side, below Caermarthen. Begalyn Pool, Plynlimmon. Aberystwith.

7. North Wales. — Llanidloes, Montgomeryshire. Seen about Bangor. Denbighshire. Anglesea.

8. Trent. — Common in Liecestershire. Groby pool. Frequent in Notts. Derbyshire.

9. MERSEY.—Seen about Congleton. Seen about Alderley. Seen about Seacombe, Cheshire. Very common about Liverpool. Manchester.

10. HUMBER.—Common in Yorkshire. Near Rotherham. Near York. Leeds. Richmond. Common about Settle.

11. TYNE.—Frequent in Durham. Lower Tees. Hell Kettles. High Force of Tees. Frequent in Northumberland. Alnwick moor. Holy Island. Tweedmouth fields, near Berwick.

12. LAKES.—Margin of Coniston water, North Lancashire. About all the lakes. Seen about Derwentwater; about Watendlath Tarn; high on Helvellyn; and elsewhere in Cumberland. Very common in the Isle of Man.

13. WEST LOWLANDS.—Edge of Castle Loch, Lochmaben, Dumfriesshire. Lanarkshire, abundantly. Common about Glasgow. Renfrew.

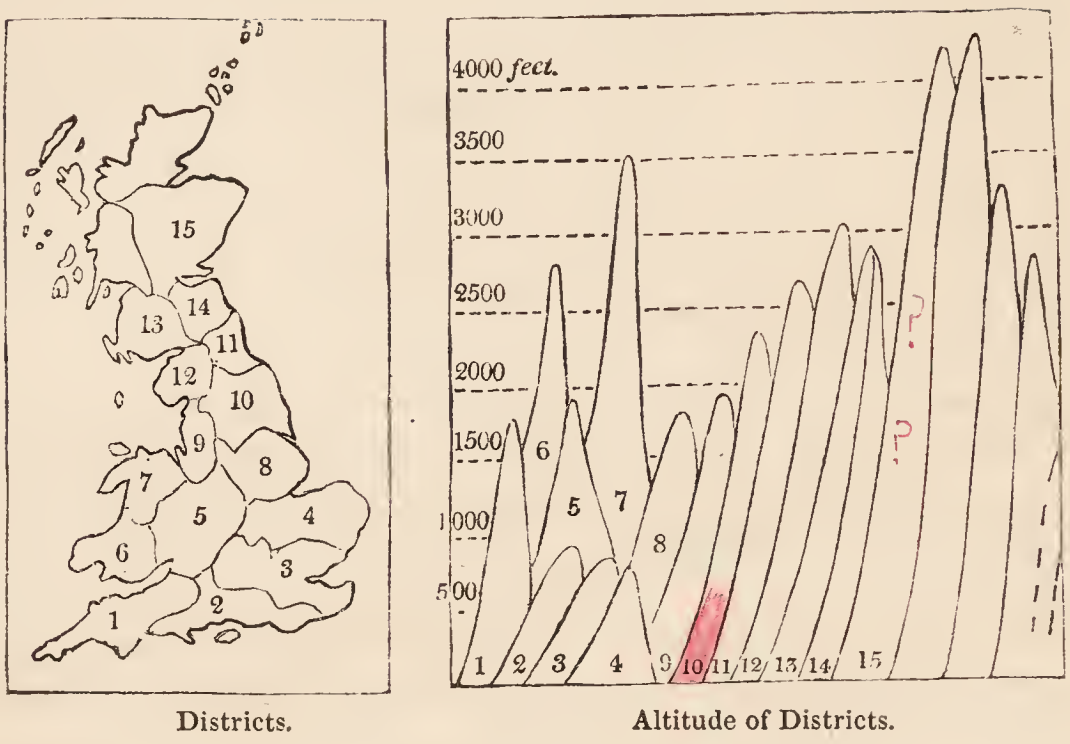
14. EAST LOWLANDS.—Common about Berwick. Seen on the Pentland Hills, and elsewhere about Edinburgh.

15. EAST HIGHLANDS.—Seen on the Ochill Hills. Loch Leven. Seen in many places in Perthshire; Callander; Lochearn-head; Killin; high on Ben Lawers; Dalnacardoch; Dalnaspidal; and elsewhere in that county. Seen in Glen Clova. Common about Aberdeen. Seen about Castleton; and on the neighbouring mountains. Parish of Alvah. Very common in Moray. Seen about Dalwhinnie; and on the neighbouring mountains.

16. WEST HIGHLANDS.—Dumbartonshire. Seen on Ben Buich. Seen in Locheil. Seen on Gnarrow, on the west side of Loch Erricht.

17. NORTH HIGHLANDS.—Ross. Seen about Golspie, Sutherland. Seen also along the north of Sutherland. Seen aboutReay, Caithness.

18. NORTH ISLES.—In many parts of North Uist, Harris, and Lewis, in the Hebrides. Orkney. Common in Shetland.



Districts. Altitude of Districts.

14. Ranunculus auricomus, *Linn.*

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. * * * North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Salop. Anglesea. Liverpool. Notts. York. Tyne. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues.—Somerset. Bristol. Poole. Wight. Sussex. Kent. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Warwick. Worcester. Swansea. Denbigh. Leicester. Derby. Settle. Richmond. Tees.

Specimens.—In a field, a mile from Shanklin, by the road to Ventnor, Isle of Wight — *H. W.* Telegraph

Wood, Claygate, Surrey — *H. W.* Near Barkway, Herts — *Rev. James Harris.* Bungay, Suffolk — *Bot. Soc. London.* Notts — *Mr. T. H. Cooper.* Near Woodside, Cheshire — *Bot. Soc. London.* Near Lancaster — *Bot. Soc. London.* Stackhouse, Yorkshire — *Bot. Soc. London.* The Great Wood, between Keswick and Borrodale, Cumberland — *H. W.* Lanarkshire — *Dr. Joseph Hooker.* Berwickshire ("one of the specimens that were mistaken for Anemone ranunculoides") — *Mr. R. Embleton.* Moist woods, on the banks of the Don, Aberdeenshire, but rarely — *Mr. Dickie.* Black Hills, Nairnshire — *Mr. W. Stables.*

Britain. — Latitude, 50—58. Rather partial. Agro-Arctic? Not an uncommon plant in England and the Lowland districts of Scotland, though becoming rare in the Highlands, where it is yet known to occur in one district only, that of the East Highlands; though it seems not unlikely that the species will hereafter be ascertained to grow in some part of the West Highlands: in that case, leaving only the two most northern districts, from which it may perhaps be wholly absent. But the occurrence of the same species in Faroe and Lapland would seem a sufficient proof that the climate of the most northern counties and isles of Scotland is suitable to this plant in respect of temperature and humidity. As yet, it is not ascertained to grow farther north in this island than the county of Nairn. It occurs down to the sea level, or nearly so, in the southern counties of England, as in Devon and the Isle of Wight, and rarely attains much elevation in any part of Britain. The writer of these pages has the name of the present species in a list of plants seen above Castleton, in Aberdeenshire, and at an altitude supposed to be about 1600 feet above the sea. He has also an imperfect recollection of seeing it consider-

ably higher on the mountains near Killin, in Perthshire. The usual situations of growth for R. auricomus are in coppices and hedge-banks. Dr. Bromfield remarks that, near Ryde, a majority of the flowers of this Ranunculus are imperfect. The same is the case in the parish of Thames Ditton, in Surrey, where the petals are usually small or absent, and the sepals more or less changed into small leaves. Perfect seeds are, however, produced in these metamorphosed flowers.

General Distribution.—Latitude, 35—70. Europe. Asia. America? Faroe. Ireland. Channel Isles. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Northern Italy. Turkey. Russia. Caucasus. Altai. Siberia. Kamtschatka. Japan. American States? Greenland? Abundantly distributed over the old continent, to the northward of the Mediterranean, and extending from Ireland eastward to Japan; but whether found westward of Ireland seems uncertain. Northward it attains to Nordland, in Norwegian Lapland, to the lower parts of Swedish Lapland, and to Finland; and it is stated by Gmelin to grow throughout Siberia, and was brought from Avatschka Bay in Kamtschatka, by the naturalists of Captain Beechey's voyage. Thunberg records R. auricomus among the indigenous plants of Japan, and his work is the only authority ascertained for the existence of this species southward of the Pyrenees and Mount Hæmus, in the old world. In America, it has been said to grow in Pennsylvania (Pursh) and on the north-east coast of Greenland, in latitude 72—76 (Captain Sabine's Plants), though probably R. affinis is the Greenland plant, and a species closely allied to this. R. auricomus occurs in the inferalpine region of Norwegian Lapland, and in the wooded region of Swedish

Lapland, — which are equally the regions of Pinus sylvestris, for the contrary sides of the Lapland alps. In the Carpathians, it occurs in the regions below the subalpine, that is, within the regions of the apple and beech. Its altitudinal or climatic range is not stated for Northern Switzerland, in the work of Wahlenberg.

1. Peninsula. — Chudleigh. Exeter. Ilsington. At Berry Castle. Near Torquay. Somerset. In all the woods about Bath. Neighbourhood of Bristol.

2. Channel. — Rare within eight miles of Poole. At Bare Cross, vicinity of Poole. Not common in the Isle of Wight. In several places near Ryde. Seen in a field between Shanklin and Ventnor. Sussex.

3. Thames. — In woods and hedges on the chalk in South Kent. Very common about Tonbridge Wells. Coulsdon, Surrey. Coppices on and near chalk, about Reigate. Wimbledon woods. Seen in the wood by the Telegraph at Claygate, but scarce in other parts of Thames Ditton and adjacent parishes. Magdalen College walks, Oxford. Stow Wood. Tar Wood. Not common about Banbury. Common about Hertford. Near Barkway. Common about Woodford. Rare near Dedham.

4. Ouse. — Rather local about Ipswich. Bungay. Lakenham Hall Wood, Norfolk. Cambridgeshire. Ditton Moor. Barns Thicket. Coton. Madingley. Whitwell.

5. Severn. — Common in the Midland Counties. Worcestershire. Warwickshire. Not unfrequent in Salop. Welbatch. Longnor and Coreley. Twyford, near Westfelton. Captain's Coppice, Coalbrookdale. Near Lubstree Park. Foot of Haughmond Hill. Radbrook, near Shrewsbury. Buckley Farm, near Oswestry.

6. South Wales. — Frequent in woods about Swansea.

7. North Wales. — Seen in the wooded valley, westward of Eglwyseg Crags, Llangollin. Near Wrexham. Rare in Anglesea. In the wood above Baron Hill, near Beaumaris.

8. Trent. — Common in Leicestershire. Rather frequent in Notts. Derbyshire.

9. Mersey. — Near Woodside, Cheshire. Plentiful

in a moist wooded part of Gilbrook, Western Cheshire. Seen in sandy ground between Congleton and Astbury. Near Lancaster.

10. HUMBER. — Not uncommon in the Vale of York. Knavesmire Wood, and Holdgate. Hovingham woods. Ganthorpe. Clink Bank Wood, near Richmond. Doncaster. Near Halifax. Common about Settle. Stackhouse.

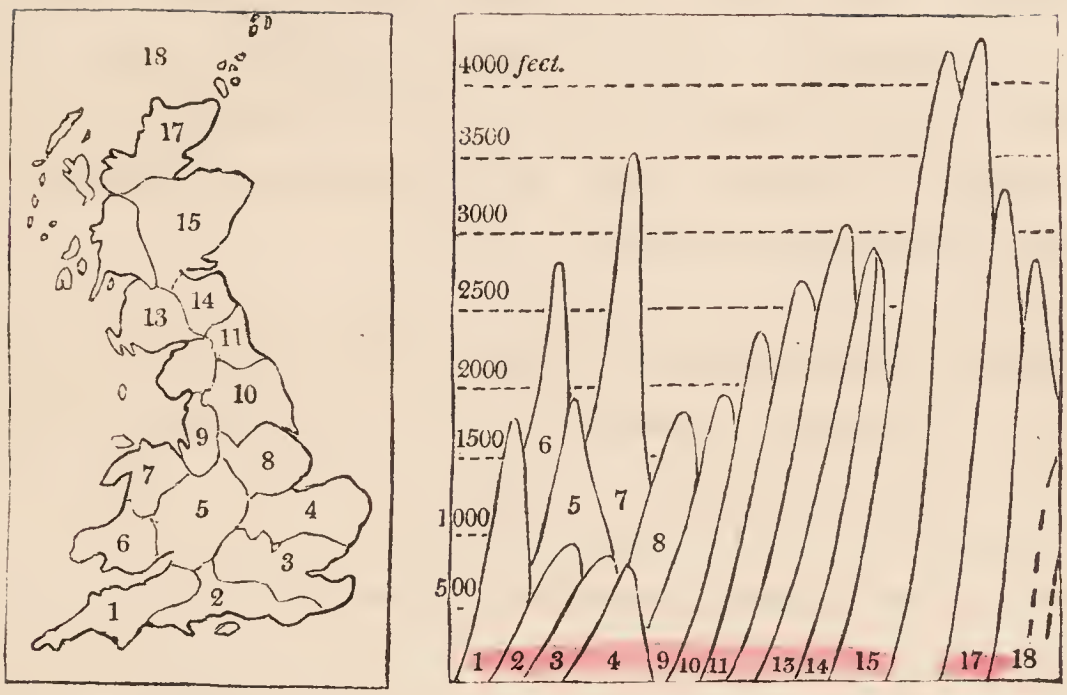
11. TYNE. — Lower Tees. Not rare in Durham and Northumberland.

12. LAKES. — Seen in the woods by the road from Keswick to Lowdore.

13. WEST LOWLANDS. — Abundant in woods at Jerviston, Lanarkshire. Occasionally about Glasgow. Castle Campbell and Kenmuir Banks, near Glasgow.

14. EAST LOWLANDS. — Berwickshire, found since the publication of Dr. Johnston's Flora. Seen in Rosslyn woods, Edinburgh. Auchindinny woods. Road side near Dalhousie Castle. Newbattle woods. River banks opposite Logton woods, near Dalkeith. Habbie's How, in the Pentland Hills.

15. EAST HIGHLANDS. — Banks of the Kelvine. Cauldron Linn. Lower parts of Forfarshire. Very rare near Aberdeen. Moist woods, on the banks of the Dee and Don. In the wood at the bridge of Don, close by the water's edge. Seen near Castleton, in Braemar. Black Hills, Nairnshire. Neighbourhood of Loch Ness.



Districts. Altitude of Districts.

15. Ranunculus sceleratus, *Linn.*

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. * * *. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17. North Isles, 18.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues.—Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Swansea. Denbigh. Leicester. Derby. Tees. Alvah. Hebrides.

Specimens. — Redbridge, Hants — *H. W.* Thames Ditton, Surrey — *H. W.* Middlesex — *Bot. Soc. London.* Lynn, Norfolk — *Mr. G. Cooper.* Notts — *Mr. T. H. Cooper.* Seacombe, Cheshire — *H. W.* Bootle, Lancashire — *H. W.* Durham — *Mr. R. B. Bowman.* Duddingston Loch, Edinburgh — *H. W.*

Britain. — Latitude, 50—59. Rather general. Agrarian. Frequent in England, yet not a very abundant species there, and rather scarce in Scotland. We find it enumerated in all the local floras, and in twenty-three of the local catalogues; those from which it is absent relating (with the exception of Mr. Lees' catalogue for Worcestershire) to tracts in the north of England or in Scotland. It does occur as far north, however, as Ross-shire and the northern extremity of Lewis; and is scattered over the whole country, probably in every county, between those points and the south coast of England, if we except the mountainous tracts, in which it is either scarce or absent. No locality has been ascertained for this species in the districts of the Lakes and West Highlands; but here, as in other such instances, the question arises, whether the circumstance should not be attributed to the incomplete state of our knowledge regarding the floral productions of those western districts, and not to the actual absence of the plant from them. All the localities found on record appear to be of very trifling elevation. The usual situations of growth for Ranunculus sceleratus are in pools and ditches, more especially if the water rests on a muddy bottom. Perhaps it is more abundant near the coast than in places inland, and has some adaptation to soils fertilised by animal matter.

General Distribution. — Latitude, 25—67. (also

35 S. L.). Europe. Asia. Africa. America. South America. Ireland. Channel Isles. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Italy. Greece. Turkey. Russia. Crimea and Caucasus. Altai. Siberia. Nepaul. India. China. Barbary. American States. Canada. Buenos Ayres. The wide geographic range of this species indicates an adaption to any climate in which the summer temperature is not very low; its subaquatic habits doubtless in some degree counteracting the influence of excessive heat and excessive cold. Absent from Greenland, Iceland, and Faro; it nevertheless rises to the latitude of 60 or upwards on the old continent; being found in Finland and about Upsal, and likewise in Siberia. Thence it extends southwards into Portugal, Sicily, Egypt, and India, and is mentioned in most of the local Floras for intermediate tracts. On the American continent it is stated to attain 67 of north latitude, and to be distributed southwards as far as South Carolina. It reappears about Buenos Ayres in South America; and since it is said by Professor Royle to be found in every part of India, its range of latitude may possibly be almost continuous from 67 north to 35 south. In Sicily Presl indicates R. sceleratus to occur in the region of the vine. The works of Wahlenberg give no intimation that it rises high on the Alps or Carpathians. Nor does De Candolle give its altitudinal range in France.

1. Peninsula. — Dawlish. Exmouth. Lympstone. Topsham. Chudleigh. Somerset. At Wyck. Near Bathampton Church. Neighbourhood of Bristol.

2. Channel. — Very common within eight miles of Poole. Pretty frequent in the Isle of Wight. Ditches in the meadows, southward of Brading Harbour. Seen

at Redbridge, Southampton Water. Sussex. Not common about East Grinstead.

3. THAMES. — South Kent. Common about Tonbridge Wells. Seen in Thames Ditton, and adjacent parishes, where it is not common. Reigate. Oxford. Not common about Banbury. Pool, near the Dye-house, at Banbury. Wroxton Pond. Denham road, Middlesex. Rare about Hertford. Common about Woodford. Frequent about Dedham.

4. OUSE. — Not uncommon about Ipswich. Bungay. Very common about Yarmouth. Common about Norwich. Very common in Western Norfolk. At Lynn. Cambridgeshire. Common in Bedfordshire.

5. SEVERN. — Common in the Midland Counties. Warwickshire. Not uncommon in Salop. Whiston marshes. Marbury Mere. Near Ellardine Moss. Near Oswestry. Whittington. Bomere pool. Shelton. Abbot's Betton. Uffington. Battlefield. Abundantly in ditches about Newport, Monmouthshire.

6. SOUTH WALES. — Abundantly about Swansea.

7. NORTH WALES. — Near Wrexham. Rather rare in Anglesea; but found at Corsddygai; also on the farm called Tan y twr, in the parish of Llangeinwen.

8. TRENT. — Common in Leicestershire. Common in Notts. Seen in North Derbyshire.

9. MERSEY. — Seen at New Ferry; at Seacombe; and also in other places in the West of Cheshire. Common about Liverpool. Seen at Bootle, near Liverpool.

10. HUMBER. — Near Leeds. Near Appleton. Stamford Bridge. Foston. Beverley. Common near York.

11. TYNE. — Lower Tees. Frequent in Durham and Northumberland.

12. * * *

13. WEST LOWLANDS. — Frankfield Loch, Lanarkshire. Occasionally about Glasgow.

14. EAST LOWLANDS. — Common about Berwick. Seen at Duddingston Loch, near Edinburgh. Lochend, Edinburgh.

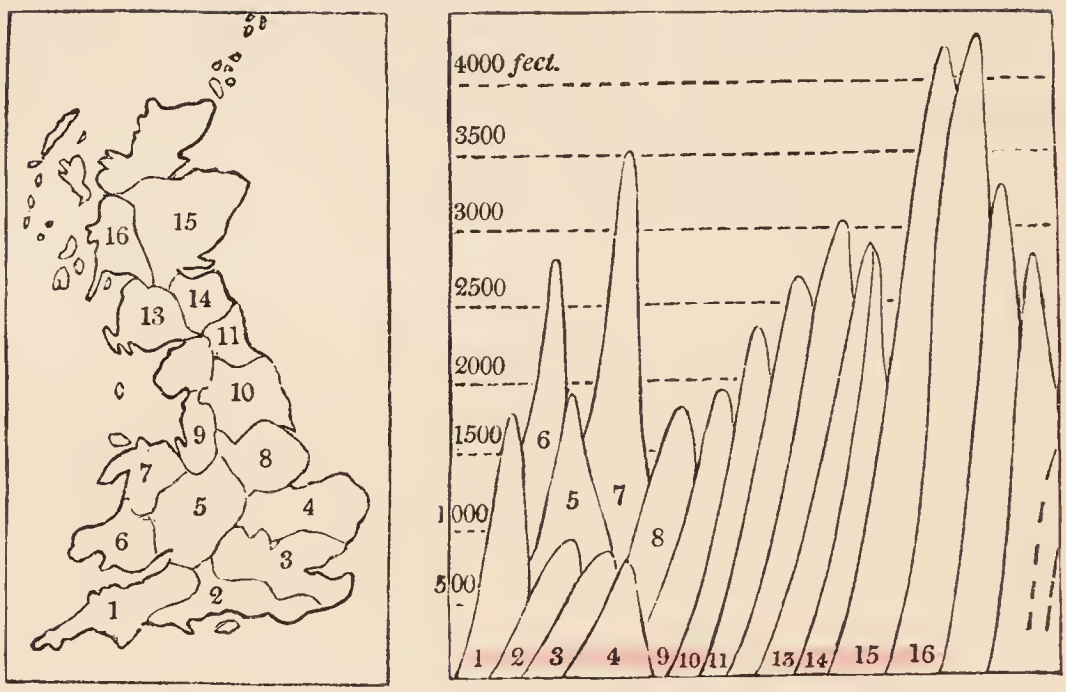
15. EAST HIGHLANDS. — Rather local about Aberdeen. Marshes opposite the brickwork, in the Old Town links, Aberdeen. Marsh at the north end of Wellington bridge,

Aberdeen. Marsh between the old and new bridges of Don. Alvah. Frequent in Moray.

16. * * *

17. North Highlands.—Seen at Dingwall.

18. North Isles.—On the sands of Sto Harbour, near to the Butt of Lewis.



Districts. Altitude of Districts.

16. RANUNCULUS HIRSUTUS, *Curt.*

RANUNCULUS BULBOSUS, var. — Hudson.

DISTRICTS. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. * * *. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16.

FLORAS. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Liverpool. Notts. York. Tyne. Edinburgh. Lanark. Glasgow. CATALOGUES. — Somerset. Poole. Wight. Sussex. Kent. Grinstead. Banbury. Dedham. Norwich. Lynn. Worcester. Swansea. Leicester. Derby. Settle.

SPECIMENS. — Near Ryde, Isle of Wight — *Bot. Soc.*

London. Millbrook, Hants—*H. W.* Reigate, Surrey—*Bot. Soc. London.* Burgh, Suffolk—*Mr. J. Paget.* Road side, South Runcton, Norfolk—*Miss Bell.* Longdon marsh, Worcestershire—*Bot. Soc. London.* Fields near Shrewsbury—*Bot. Soc. London.* Llandrinio, Montgomeryshire—*Mr. J. E. Bowman.* Near the foot of the Ochills—*Professor Balfour.*

Uncertain Localities.—St. David's Head, and Ramsey Island, Pembroke—*Mr. Lees.* These places seem likely enough as localities for the plant; but a badly dried specimen received from the Botanical Society, labelled from Mr. Lees, and with the habitat of St. David's, appears to be referable to R. acris. It is probable that the present species is frequently overlooked; and also that occasionally other species are mistaken for it. Its variations in size, habit, hairiness, &c. are very great.

Britain.—Latitude, 50—57. Rather partial. Agrarian. Sparingly scattered through England and the southern half of Scotland; ranging between the Lizard and Isle of Wight, on the south coast, and the vicinities of Perth and Appin, in the Highlands. As far as our knowledge yet extends, the Ranunculus hirsutus is wholly absent from the two most northern districts; and the same remark must apply, for the present, to the district of the Lakes also; although it may be expected to appear near the coast of that district, if sought there. It has not been detected in Scotland any where northward of the Grampians; yet, as Mr. Trevelyan includes it in his Catalogue of Plants indigenous in Faro, there would seem no improbability of its occurrence in some of the northern counties or isles of Scotland. Elsewhere than in Faro, however, it never reaches to the sixtieth parallel of north latitude.

R. hirsutus is omitted from four of the local floras; namely, those for Anglesea, Berwick, Aberdeen, and Moray; and it finds place in fifteen only of the thirty local catalogues. On the whole, R. hirsutus may be considered one of the scarcer plants, although described as occurring abundantly in some places, particularly in some of the southern districts of England. The recorded localities all appear to be at a trifling elevation above the sea level, but nothing very exact has been ascertained on this point. The most congenial situation of R. hirsutus appears to be in stiff soil which retains water on its surface for some time; but the plant also grows in tilled fields, and will maintain itself in ordinary garden ground, if left undisturbed and not smothered by stronger weeds.

General Distribution.—Latitude, 37—62. Europe. Faroe. Ireland. Channel Isles. Sweden. Netherlands. France. Switzerland. Germany. Baleares. Italy. Greece. Russia. Crimea. Apparently limited to Europe, and not frequent in the more northern and southern latitudes. It is said to be found in Zealand and Gottland, and also about Moscow. Southward it is recorded in the Balearic Isles, Sicily, and Greece. R. hirsutus was not observed by Wahlenburg either on the tract of the Carpathians or in Northern Switzerland. In Sicily it inhabits the lower part of the vine region. R. Philonotis of Pursh's Flora is referred to R. repens by Torrey and Gray.

1. Peninsula. — About the Lizard. Near Tregony. On the London road, by Heavitree bridge, Devon. Somerset. Corn fields near Charlcomb, near Bath. In a low meadow below Bristol Hotwells, plentifully.

2. Channel. — Common within eight miles of Poole. Not uncommon in the Isle of Wight. Ryde. Cowes. Seen by road sides, near Millbrook, on Southampton

Water. Plentifully by the sea side, on the gravelly banks, about Southampton. Sussex. Frequent about East Grinstead.

3. THAMES. — South Kent. On Tonbridge Wells common. Near Reculver, Isle of Thanet. Salt marshes near Gravesend. Reigate. Side of the road between Croydon and Mitcham. In wet cultivated fields, between Kingston and Wimbledon. Southleigh Common, Oxford. Moist meadows, near Banbury. Near Southend. South Shoebury. Frequent about Dedham.

4. OUSE. — Burgh, Suffolk. Very common about Yarmouth. Waste ground about Norwich. Very common in Western Norfolk. Road side, South Runcton. Cambridgeshire. Common in Bedfordshire.

5. SEVERN. — Longdon marsh, Worcestershire. Rare in Shropshire. Welbatch. Near Albrighton, near Shrewsbury. In a field going from Ashford village to Saltmoor, on the right-hand side of the lane. Marshes near Newport, abundantly.

6. SOUTH WALES. — Marshy field between Swansea and St. Helen's, — the dwarf variety, or R. parvulus.

7. NORTH WALES. — In wet clay, Llandrinio, Montgomeryshire. A dwarf variety in a wet meadow, south of the ferry, at Barmouth, and within reach of the sea spray. Near Llanros, Caernarvonshire.

8. TRENT. — Rare in Leicestershire. Near Groby. Near Sheepshed. Frequent in Notts. Ilkeston, Derbyshire.

9. MERSEY. — In fields by the side of the new Bidston road, opposite the patent slip; also opposite Laird's boiler yard [Seacombe ?]. Sparingly in one locality on Bidston Heath, Cheshire. Crosby, near Liverpool. Garston. Near Parkfield, Liverpool. Seen on the road side, in Broughton, near Manchester.

10. HUMBER. — Moist clayey places where water has remained during winter, in Yorkshire. Near Leeds. Scarce near Settle; but found about Higher Paley Green.

11. TYNE. — Sunderland ballast hills. St. Anthon's ballast hills. Near Alnwick, rare.

12. * * *

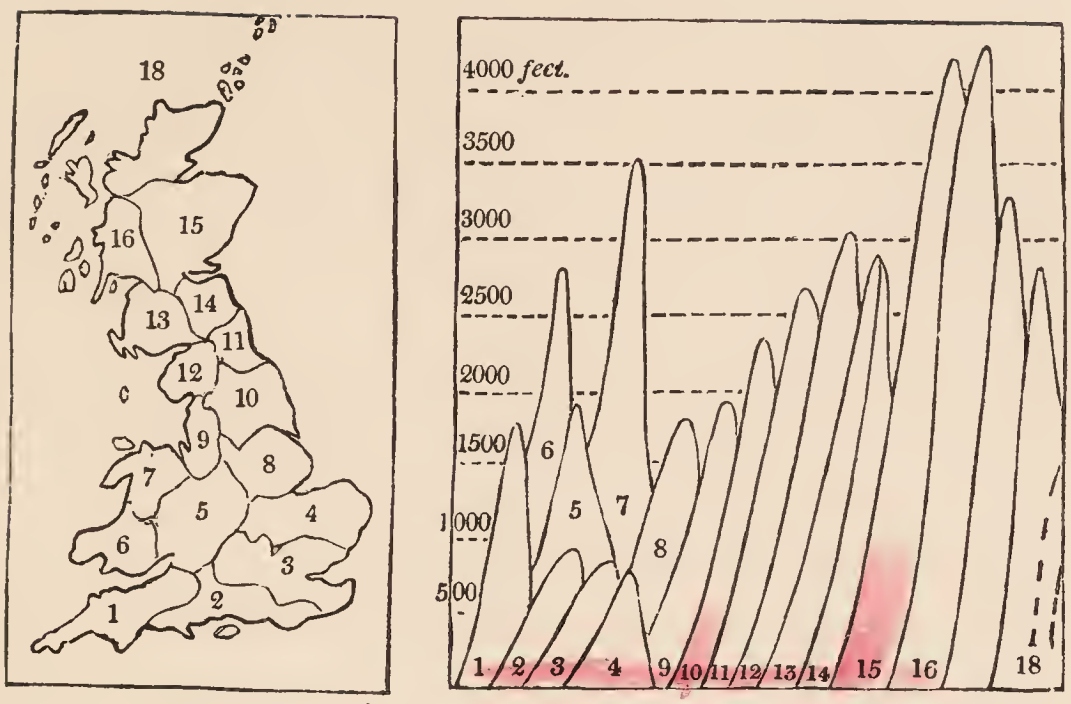
13. WEST LOWLANDS. — In an orchard at Covant Burn, Lanarkshire, very abundant. Side of a burn

between Tollcross and Dalbeth, near Glasgow. Ditch bank, northward of Glasgow.

14. East Lowlands. — Pentland Hills, Edinburgh. Road side between Linlithgow and Falkirk.

15. East Highlands. — Near the foot of the Ochills, probably near Tillicoultree. Corn fields, westward of Perth.

16. West Highlands. — Appin, Argyleshire.



Districts. Altitude of Districts.

17. Ranunculus bulbosus, *Linn.*

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. * * *. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray.
Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norfolk. Lynn. Warwick. Worcester. Swansea. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Man. Alvah. Orkney.

Specimens. — Near Mount Edgcumbe, Cornwall — *H. W.* Shanklin, Isle of Wight — *H. W.* Thames Ditton, Surrey — *H. W.* Hampstead, Middlesex — *Bot. Soc. London.* Notts — *Mr. T. H. Cooper.* Wirral, Cheshire — *H. W.* Lanarkshire — *Dr. Joseph Hooker.* Dalnacardoch, Perthshire — *H. W.* Road side between Dalwhinnie and Pitmain — *H. W.* Dumbartonshire — *Dr. Joseph Hooker.*

Britain. — Latitude, 50—60. General. Agrarian. Abundant in England and the Lowlands of Scotland, but much less common in the Highlands, and either scarce or wholly wanting in the two most northern districts. No locality for R. bulbosus has been ascertained in the North Highlands, and it is mentioned in one only of the three catalogues of plants observed in the North Isles, namely, that for the Orkneys. It is stated to be "frequent" in Moray, which approximates to the North Highlands, and "not unfrequent" about Aberdeen; and as it is known to attain several hundred feet of elevation in the former tract, the temperature on the east coast of the North Highland district would seem suitable enough for the present species. Every where it descends to the level of the sea, but in no district appears to rise to any great altitude. The highest spot in which it has been seen by the writer of these notices was at Dalnacardoch, in Perthshire, estimated to be about 1050 feet above the level of the sea. It was also seen near Pitmain, in Inverness-shire, at an estimated altitude of 750 feet. Fields, banks, and other rather dry situations, are congenial to Ranunculus bulbosus, which will grow both on stiff clayey farm lands, and on the loose sand hills of the coast.

General Distribution. — Latitude, 36—60. Europe.

Asia? Africa. Ireland. Channel Isles. Norway. Sweden. Netherlands. France. Switzerland. Germany. Spain. Italy. Turkey. Russia. Algiers. Caspian. Kunawar? This familiar flower of our meadows seems to have a more limited distribution than the other common "buttercups" of this country; yet it is abundantly frequent throughout the middle latitudes of Europe. Northwards, it attains to Upsal, Petersburg, and Moscow,—failing short of Lapland, where Wahlenberg found a variety of R. acris much resembling this species, and which he supposed to be the R. bulbosus of Linnæus in Flora Lapponica. Southward this plant occurs in Arragon, Sardinia, Sicily, Dalmatia, and about Constantinople and Algiers. The only localities in Asia, met with by the consultation of many works, are those of Kunawar, to which the seeds may have been introduced, and "ins. Sara m. casp." (Ledebour.) In the tract of the Carpathians, R. bulbosus occurs in the upland and inferior regions only, namely, within the limits of the beech. In Sicily, Presl assigns it to the regions of oaks and beeches, that is, between 2000—4000 and 4000—6000 feet above the sea.

1. Peninsula.—About Mount Edgcumbe, Cornwall. Common in Devon. Chudleigh. Somerset. Common about Bath. Common about Bristol.

2. Channel.—Very common within eight miles of Poole. Plentiful in the Isle of Wight. Seen about Shanklin; on St. Catherine's Down, &c. Sussex. Abundant about East Grinstead.

3. Thames.—South Kent. Very common about Tonbridge Wells. Reigate. Seen in Thames Ditton and neighbouring parishes, plentifully. Oxford. Common near Banbury. Seen about Hampton Wick, in Middlesex. Hampstead. Common about Hertford. Common about Woodford. Common about Dedham.

4. Ouse.—Very common about Yarmouth. Common

about Norwich. Very common in Western Norfolk. Cambridge. Chesterton. Common in Bedfordshire.

5. SEVERN.—Common in Midland Counties. Worcestershire. Warwickshire. Frequent in Shropshire. Common about Pontnewydd.

6. SOUTH WALES.—Near the Neath Canal, by Dany-graig, near Swansea. St. Catherine's Isle, Tenby. Constitution Hill, Aberystwith.

7. NORTH WALES.—Seen about Bangor. Near Wrexham. Anglesea.

8. TRENT.—Common in Leicestershire. Very common in Notts. Seen in North Derbyshire.

9. MERSEY.—Seen about New Brighton, and elsewhere in Cheshire, in abundance. Very common about Liverpool.

10. HUMBER.—Every where in Yorkshire. Leeds. Richmond. Common about Settle.

11. TYNE.—Lower Tees. Every where in Durham and Northumberland.

12. LAKES.—Seen about Keswick. Common in the Isle of Man.

13. WEST LOWLANDS.—Abundant in dry pastures in Lanarkshire. Common about Glasgow.

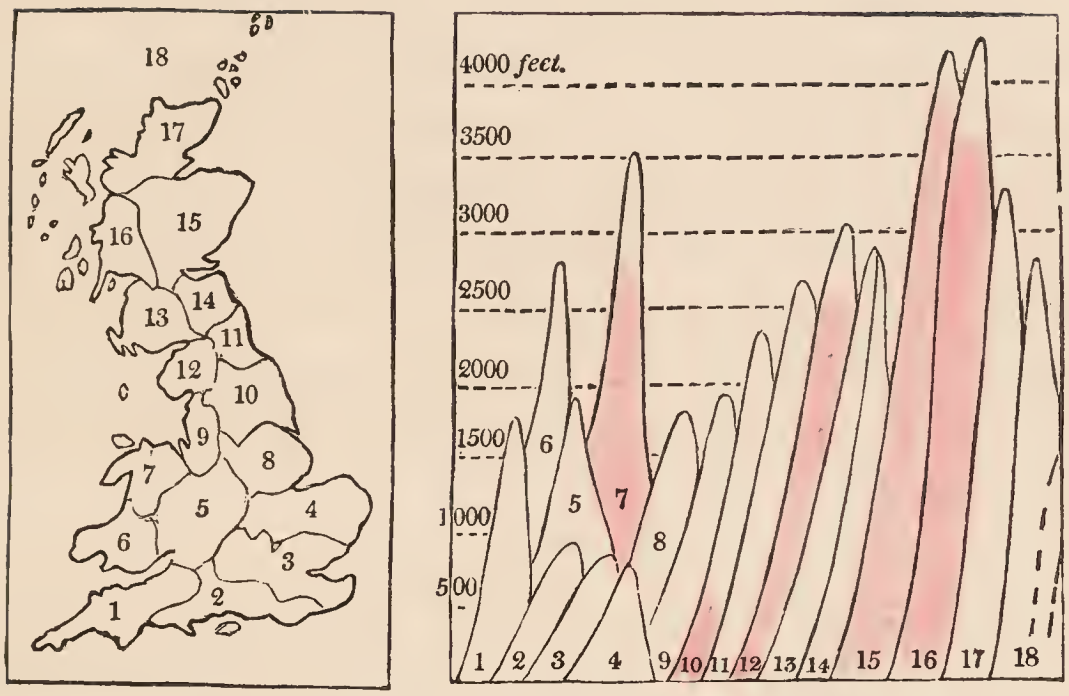
14. EAST LOWLANDS.—Common about Berwick. Seen plentifully about Edinburgh.

15. EAST HIGHLANDS.—Hills at North Queensferry. Seen at Dalnacardoch. Lower parts of Forfarshire. Banks of Dee at Nether Banchory. Old Town links, Aberdeen. Broad hill, Aberdeen. Not unfrequent near Aberdeen. Alvah. Frequent in Moray. Seen by the road side between Pitmain and Dalwhinnie.

16. WEST HIGHLANDS.—Dumbartonshire.

17. * * *.

18. NORTH ISLES.—Orkney.



Districts. Altitude of Districts.

18. Ranunculus acris, *Linn.*

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Worcester. Swansea. Denbigh. Leicester. Derby. Settle. Rich-

mond. Tees. Man. Renfrew. Alvah. Ross. Hebrides. Orkney.

SPECIMENS. — Shanklin, Isle of Wight — *H. W.* Nutshalling, Hants — *H. W.* Thames Ditton, Surrey — *H. W.* Norfolk — *Mr. George Cooper.* Lanarkshire — *Dr. Joseph Hooker.* Pentland Hills, Edinburgh — *H. W.* Ochill Hills, Fife — *H. W.* Kinnoul Hill, near Perth, and mountains near Killin, Perthshire — *H. W.* Clova mountains, Forfarshire — *H. W.* On Ben Buich, Argyleshire — *H. W.* In the alpine region of Ben Aulder, Inverness-shire — *H. W.*

BRITAIN. — Latitude, 50—61. Very general. Agro-Arctic. Certainly one of the most widely distributed and abundant of our indigenous plants. We find it growing in every district, and enumerated in every local flora and catalogue; and there is perhaps scarce a meadow or pasture, or a mountain sheep-walk, in which this common Ranunculus might not be gathered. It is found from Cornwall to Shetland, at or near the level of the sea, and ascends nearly to the summits of some of our highest mountains. It was seen very little below the summit of Ben Lawers; and that hill being about 4000 feet in absolute height, we may estimate the present species to rise to 3900 feet on the hill in question. On Ben Nevis, as on its near neighbour, the Red Cairn hill, Ranunculus acris was seen in spots estimated to be about 3650 feet above the sea; and it occurs frequently on those and other mountains, in places from 2000 to 3000 feet high. On Helvellyn, in Cumberland, it was seen at 2600 feet, and on Carnedd David, in Caernarvonshire, at 2700 feet. Probably it may grow at a higher elevation on the hills of the latter county, for the height to which it rises on

Ben Lawers would seem to imply that none of the hills in England or Wales are above its natural range of altitude and climate. R. acris grows almost everywhere in grass lands. High on the mountains the specimens are usually very little branched, sometimes bearing quite small flowers, but more generally one or two flowers, that are equally large as (not larger than) those borne by plants of the same species in the English meadows.

General Distribution. — Latitude, 37—71. Europe. Asia. America. Iceland. Faroe. Ireland. Channel Isles. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Spain. Northern Italy. Sicily? Dalmatia. Russia. Crimea and Caucasus. Altai. Siberia. American States. Canada. Greenland. California. From Finmark and Siberia northward, R. acris extends into Arragon, Dalmatia, and the intermediate countries forming the northern coasts of the Mediterranean. It is omitted from the Floras of Tuscany, Rome, and Greece; but it is enumerated by Presl among the plants of Sicily. In America, it is found from Pennsylvania to latitude 58 in Canada, and a Californian plant also is described as a variety of this species. In Lapland, R. acris is indigenous in the subalpine and lower regions, and was observed by Wahlenberg in the alpine region, about the habitations of the Laps; and on this account he supposed it introduced to that region. In the Flora Suecica, however, he alludes to it as being indigenous (in form of a dwarf variety) on the higher alps of Lapland. On the Carpathians, it attains the alpine regions; and the same is the case in Switzerland, where this plant grows on the higher Alps, up to the perennial patches of snow. Presl mentions the regions of the vine and oak for its habitats in Sicily.

1. Peninsula. — Seen about Penzance. Common in Devon. Seen about Barnstaple. Somerset. Frequent about Bath. Seen on the south side of Bristol. Common about Bristol.

2. Channel. — Very common within eight miles of Poole. Very common in the Isle of Wight. Seen about Shanklin. Seen about Millbrook. Sussex. Abundant about East Grinstead.

3. Thames. — South Kent. Very common about Tonbridge Wells. Reigate. Seen abundantly in Thames Ditton and neighbouring parishes; also at Whitemoor, Wimbledon, and intermediate places. Oxford. Common about Banbury. Middlesex. Common about Hertford. Very common about Woodford. Common about Dedham.

4. Ouse. — Not uncommon about Ipswich. About Bungay. Very common about Yarmouth. Common about Norwich. Very common in Western Norfolk. Cambridgeshire. Common in Bedfordshire.

5. Severn. — Common in the Midland Counties. Worcestershire. Warwickshire. Common in Shropshire. A remarkable variety was found between Shrewsbury and Preston Boats, and described in Mr. Leighton's valuable "Flora of Shropshire." Common about Pontnewydd.

6. South Wales. — Near Swansea. St. David's, Pembroke.

7. North Wales. — Seen about Bangor, and high on the neighbouring mountains. Seen about Llangollin. Near Wrexham. Anglesea.

8. Trent. — Common in Leicestershire. Common in Notts. Seen in North Derbyshire.

9. Mersey. — Seen abundantly about Congleton; about New Brighton, on the coast; also in many intermediate places in Cheshire. Common about Liverpool. Seen about Manchester.

10. Humber. — Common in Yorkshire. Leeds. Richmond. Common about Settle.

11. Tyne. — Lower Tees. Every where in Durham and Northumberland.

12. Lakes. — Seen about Keswick; also on the mountains around Derwentwater. Very common in the Isle of Man.

13. West Lowlands. — Abundant in Lanarkshire. Common about Glasgow. Renfrewshire.

14. East Lowlands. — Common about Berwick. Seen in plenty on the Pentland Hills, and elsewhere about Edinburgh.

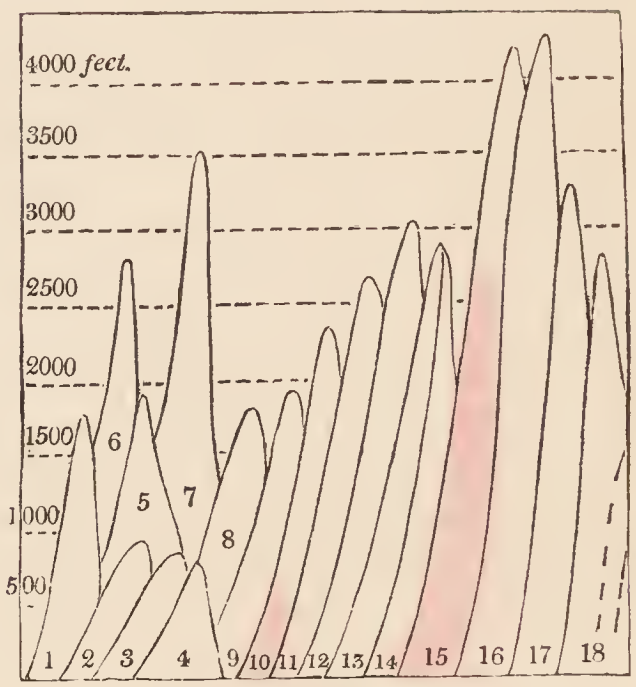
15. East Highlands. — Seen on the Ochill Hills. Seen on the Castle Rock, at Stirling. Seen in many places in Perthshire; Kinnoul; Callander; Lochearnhead; Killin; Dalnacardoch; Dalnaspidal; Drumochter Pass; Breadalbane mountains. Lower parts of Forfarshire. Seen on the Clova mountains. Common about Aberdeen. Seen about Castleton; and also on the surrounding mountains. Alvah. Very common in Moray. Seen about Inverness; about Pitmain; about Dalwhinnie; and also on the mountains of Drumochter Forest.

16. West Highlands. — Seen about Dumbarton. Seen on Ben Buich, at the head of Loch Fyne. Seen on the north side of Locheil. Seen on Ben Nevis, in the alpine region. Seen also in the alpine region of Ben Aulder. Seen on Gnarrow.

17. North Highlands. — Seen at Kessoch, Rossshire; also at Dingwall. Seen at Golspie; also along the north of Sutherland, from Loch Errboll to the borders of Caithness. Seen about Reay.

18. North Isles. — In many parts of North Uist, Harris, and Lewis. Orkney. Every where in Shetland.

Districts.



Altitude of Districts.

19. Ranunculus repens, *Linn.*

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues.—Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Worcester. Swansea. Denbigh. Leicester.

Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Hebrides. Orkney.

SPECIMENS.—Shanklin, Isle of Wight—*H. W.* Millbrook, Hants—*H. W.* Thames Ditton, Surrey—*H. W.* Millbank, Middlesex—*H. W.* Edgbaston, near Birmingham—*H. W.* Notts—*Mr. T. H. Cooper.* Lanarkshire—*Dr. Joseph Hooker.* Kinnoul Hill, and high on the Killin Mountains, Perthshire—*H. W.* Dalwhinnie, Moray—*H. W.* Dumbartonshire—*Dr. Joseph Hooker.*

BRITAIN.—Latitude, 50—61. General. Agro-Acrtic. A very common plant, though not quite so universal and abundant as R. acris. It is distributed from Cornwall to Shetland, and is found in every district between these extreme points. It is enumerated also in all the local floras and catalogues, and is probably common throughout the low grounds of Britain, flourishing down to the sea level in the most southern counties. In the contrary direction, we find it becoming much less frequent as we ascend the mountains, and ultimately ceasing far below the heights attained by R. acris. The highest spot at which R. repens was seen in Scotland was about 2750 feet, on the south-eastern declivity of Ben Lawers; and it grows on other parts of the same range, at 2400 or 2500 feet. Except in the county of Perth, the author's notes do not show any locality for this species certainly above 1200 feet, which is assumed for the height of Loch Erricht, near to which it was observed. At a somewhat lower elevation than that of Loch Erricht it becomes frequent enough. Damp and manured soil is most congenial to Ranunculus repens; but small plants of it may be seen at times in dry and sterile spots. The high localities on the

Lawers range were by the side of water, or in places to which sheep resort.

General Distribution. — Latitude, 32—69. Europe. Asia. America. Iceland. Faroe. Ireland. Channel Isles. Azores. Madeira. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Baleares. Italy. Greece. Russia. Crimea. Caucasus. Altai. Siberia. Kamtschatka. American States. Canada. Western America. Distributed over all Europe, from Lapland to Portugal, Sicily and Greece. In Asia, it is extended across Siberia to Kamtschatka; but no more southern locality has been ascertained than that of the Caucasus, where this species is uncommon. In America, it occurs in Canada and Georgia, and other intermediate places; extending also westward to the Pacific. It is reported to grow in Iceland, Madeira, and other isles of the Atlantic. In Lapland, R. repens is found in the wooded and inferalpine regions, or those of the Scotch fir. Wahlenberg omits any notice of its altitudinal range on the Carpathians and Alps, excepting what may be inferred from the intimation that the plant grows about houses. In Sicily, Presl refers its habitats to the region of the vine. Probably it may attain its highest limit relatively to latitude in Scotland, where it grows occasionally far above houses, and about the extreme limit of stunted trees. Torrey and Gray include several species of other writers under R. repens, R. Philonotis of Pursh among them.

1. Peninsula. — Seen about Penzance. Common in Devon. Chudleigh. Seen about Barnstaple. Somerset. Common about Bath. Bristol.

2. Channel. — Very common within eight miles of

Poole. Abundant in the Isle of Wight. Seen about Shanklin. Seen about Millbrook. Sussex. Common about East Grinstead.

3. THAMES.—South Kent. Common about Tonbridge Wells. Reigate. Seen in Thames Ditton, and the neighbouring parishes. Seen about Woking and Guildford. Oxford. Frequent about Banbury. Seen at Millbank. Twickenham. Common about Hertford. Not uncommon about Woodford. Common about Dedham.

4. OUSE.—Not uncommon about Ipswich. Bungay. Very common about Yarmouth. Common about Norwich. Very common in Western Norfolk. Cambridge. Common in Bedfordshire.

5. SEVERN.—Common in the Midland Counties. Worcestershire. Warwickshire. Seen at Edgbaston, near Birmingham. Frequent in Shropshire. Common about Pontnewydd.

6. SOUTH WALES.—Near Swansea.

7. NORTH WALES.—Seen about Bangor. Seen about Llangollin. Near Wrexham. Anglesea.

8. TRENT.—Common in Leicestershire. Very common in Notts. Derbyshire.

9. MERSEY.—Seen about Congleton; also on the west coast of Cheshire; and in many intermediate places. Abundant about Liverpool. Seen about Manchester.

10. HUMBER.—Common in Yorkshire. Near Leeds. Near Richmond. Common about Settle.

11. TYNE.—Lower Tees. Every where in Durham and Northumberland.

12. Lakes.—Seen about Keswick. Very common in the Isle of Man.

13. WEST LOWLANDS.—Common in Lanarkshire. Common about Glasgow. Renfrewshire.

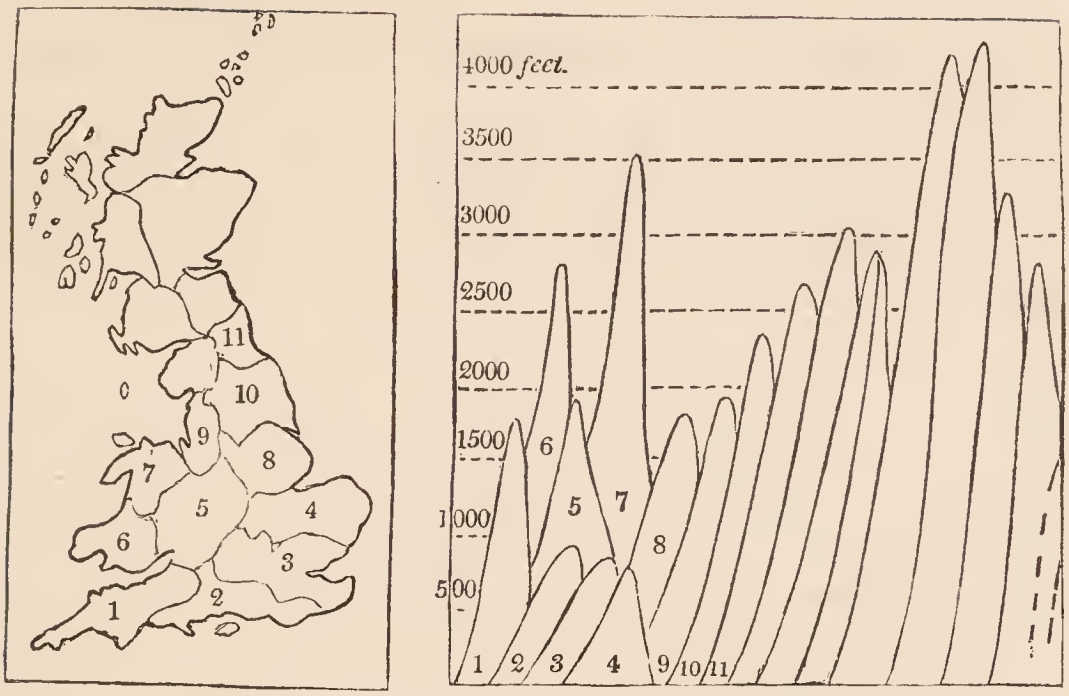
14. EAST LOWLANDS.—Common about Berwick. Seen about Edinburgh, plentifully.

15. EAST HIGHLANDS.—Seen on the Castle rock, at Stirling. Seen in many places in Perthshire; Kinnoul; Callander; Lochearnhead; Killin; Dalnacardoch; Drumochter Pass; Ben Lawers, and other mountains in Breadalbane. Seen in Glen Clova. Common about Aberdeen. Seen at Castleton. Alvah. Very common in Moray. Seen at Inverness; also at Dalwhinnie.

16. West Highlands. — Seen at Dumbarton. Seen at Kilmallie, on the north side of Loch Eil.

17. North Highlands. — Seen at Kessoch; also at Dingwall. Seen at Golspie; also at Tongue and Farr.

18. North Isles. — In many parts of North Uist, Lewis, and Harris. Orkney. Abundant in Shetland.



Districts. Altitude of Districts.

20. Ranunculus parviflorus, *Linn.*

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11.

Floras. — Devon. Bath. Tonbridge. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Notts. Tyne. Catalogues.—Somerset. Poole. Wight. Sussex. Kent. Hertford. Dedham. Lynn. Warwick. Worcester. Denbigh. Leicester. Tees.

Specimens. — Near Mount Edgcumbe, Cornwall — *H. W.* Hedge bank, Bishop Tawton, Devon — *H. W.* Nettlecombe, Somerset — *Mr. W. C. Trevelyan.* Shanklin, Isle of Wight — *H. W.* Southampton — *Dr. Bromfield.*

Kent — *Sir W. J. Hooker.* Lane leading from Page's Lane to Uxbridge Common, Middlesex — *Bot. Soc. London.* Near Hitchin, Herts — *Bot. Soc. London.* Dry banks near Chelmsford, Essex — *Bot. Soc. London.* Holme juxta mare; also, Burnham Westgate; also Great Bircham, Norfolk — *Miss Bell.* Near Oswestry, Salop — *Mr. Tudor.* Bickenhill, Warwickshire — *Rev. J. E. Leefe.* Near the ferry at Bangor, Caernarvonshire — *H. W.* Notts — *Mr. T. H. Cooper.*

Britain. — Latitude, 50—55. Partial. Agrarian. By no means a common plant, though found in numerous localities in the five more southern districts of England. In the five more northern of the English districts, and apparently also in the two districts of Wales, it is of rare occurrence or (in the case of the Lake district) wholly absent. It is also absent from the whole of Scotland. Of the English local floras, it is mentioned in eleven, being omitted from those of Reigate, Liverpool, and York. Of the English local catalogues, it is mentioned in thirteen, and omitted from eleven, namely, those for Bristol, East Grinstead, Esher, Banbury, Ipswich, Bungay, Norwich, Derbyshire, Settle, Richmond, and the Isle of Man. But from the county of York, and the neighbourhood of Norwich, it would seem not to be wholly absent; since Teesdale records it in his first list of Yorkshire plants, published in the Linnean Transactions, and assigns for it the locality of "Malton corn-fields;" and Mr. Woodward finds it about Armeringhall and elsewhere near Norwich. The most northern locality on record for this Ranunculus, is stated to be between Cockerton and Norton, in the county of Durham. Southwards it extends to Cornwall, and occurs in many places along the south coast of England. All the localities in England are of trifling elevation. The

plant is found principally in corn fields, on dry banks, by road sides, and in sandy ground.

General Distribution.—Latitude, 28—56. Europe. Africa. America. Channel Isles. Azores. Canaries. Zealand. Netherlands. France. Germany. Portugal. Spain. Sardinia. Italy. Greece. Crimea. Algiers. American States. California. Limited to Southern and Western Europe, the North coast of Africa, the Atlantic Isles, and the warmer latitudes of America. It occurs in the Floras of Holland and Copenhagen; but is omitted from those of Hanover, Frankfort on the Rhine, Switzerland, Carniola, Zara, and all others to the north-eastward of those tracts, except that of the Crimea. Ireland, England, and Zealand seem to be its most northern countries; while Teneriffe, Portugal, Algiers, and Greece may be taken for its most southern habitats in the old world. In America, it occurs in Virginia, North Carolina, and Georgia; also in California, if R. hebecarpus has been rightly referred to R. parviflorus, by Torrey and Gray. R. parviflorus is probably always a plant of the low grounds, at least it is not expressly recorded as anywhere found at much height. In the Azores, it was seen only within the region of the orange and vine.

1. Peninsula. — Between Helford ferry and Helston. On the promontory of Pendennis Castle, near Falmouth. Between Millbank and Crafthole. Near Mount Edgcumbe. Frequent in Devon. Chudleigh. Ashburton. Ilsington. North Bovey. Seen on the hedge bank, at the left side of the road, descending into Bishop Tawton, on the Barnstaple side. Seen on the wall, by the right-hand side of the Wiveliscombe road, just entering Bampton. Nettlecombe. About the quarry, at Wembdon. Not uncommon around Bridgewater. Generally in the district north-eastward of the Quantock Hills. On the top of Little Salisbury Hill, near Bath. Near Blue

Lodge, on King's Down. St. Vincent's rocks. Sparingly in the lane leading from Bristol to Baptist's Mills.

2. CHANNEL.—Lulworth Cove. Common in corn fields in Dorsetshire, some of which, near Blandford, are said to be overrun with it. Abundant in one or two localities within eight miles of Poole. Pretty frequent in most parts of the Isle of Wight, though seldom abundant. Seen near the entrance of Shanklin Chine. Sandown. Luccomb. God's Hill, Isle of Wight. Very abundant on hedge banks and in waste places about Southampton, as in Love Lane, Portswood; also on the shore between Southampton and Netley. Plentiful at Lymington. In several places about Alresford. In and about Selborne. Near Shoreham. Midhurst. Common in Selsea Island. Storrington. Pangdean in Piecombe, near Brighton.

3. THAMES.—In the lane leading from the High Rocks, to Rusthall Common, near Tonbridge Wells (possibly a locality within the Channel district). By the pathway in the road from the castle, towards Mr. Gill's house, at Sandgate. Near Green Street Green, not far from Dartford. Camberwell (a doubtful locality for the present age). Battersea. Mitcham. Ewell. In a fallow field at the foot of Box Hill, near Brookham. Bullington Green, Oxford. Shotover Hill. Southleigh. Elsfield. Abingdon road, near Oxford. Corn field near Salt Hill, Bucks. Formerly found about London. Harefield. In a lane leading from Page's Lane to Uxbridge Common. Frequent about Hertford. Near Hitchin, Herts. In the Lea-bridge road, and elsewhere about Walthamstow. In a lane leading from the house, once the habitation of Ray, at Black Notley. Corn field above Southend. Very common about Chelmsford. Abundant on a bank at Springfield, near Chelmsford. Road side, near the prison, at Colchester.

4. OUSE.—Banks about East Bernholt, Stutton New Mill, in the neighbourhood of Dedham. Little Ormesby church-yard. Lane at Hemsby. Armeringhall. Brundall, near Norwich. On hedge banks out of St. Stephen's and St. Giles's gates, at Norwich. Near Harleston. Hedge bank at Holme juxta mare. Burnham Westgate. Great Bircham. Madingley. Shelford. Trumpington.

Toft. Gamlingay. Other places in Cambridgeshire. Under the hedge of the nursery ground, near Grantchester. Common in Bedfordshire.

5. SEVERN.—Not rare in the Midland Counties. Very common on dry banks about Worcester and Malvern. Between Northfield and Worcester. Under hedges by the road side, near the Virgin's Tavern, at Worcester. Hallow. Cotheridge. Alfrick. Bickenhill, Warwickshire. Top of Oversley Hill. Near Alcester. Tutbury Castle hill, Staffordshire. Near Oswestry. On banks near Ludlow. Wenlock. Ellesmere. Welbatch. Near Diddlebury, in Corvedale. Albright Hussey, near Shrewsbury. Twyford, near Westfelton. Between Shrewsbury and the Weeping Cross turnpike. Ditch banks about Habberley. Alberbury. Plentifully in a pasture between Pitchford and Cound Stank. New Inn, near Ludlow. Uffington. Whittington. Norton, near Atcham. In a clover field near Cronkhill. Pulley. Near Sharpstones Hill. Queen Eleanor's Bower, Haughmond Hill. Near the castle on the summit of Haughmond Hill, near the Douglas Crag. Mountford village. Shrawardine. Tre Vawr Clawdd, near Oswestry. School house, near Lea Cross, near Hanwood. Generally on the hedge banks in the immediate vicinity of villages or houses, throughout the county of Salop. (N. B. All these habitats, from "Wenlock" to "Salop," are taken from the Flora of Shropshire.) Probably common in Herefordshire. A solitary specimen found on a ballast heap, by the side of the Usk, near Newport. Pontnewydd?

6. SOUTH WALES.—Common on the hills between St. Anne's Head and Dale, near Pembroke. In great plenty on the sea-cliffs opposite Ramsey Island.

7. NORTH WALES.—Near Welchpool. Seen on a stone fence, by the shore, between the Penrhyn Arms Hotel and the Ferry, at Bangor. Ormeshead. Between Conway and Griffin's mill. Not uncommon on sandy hedge banks about Wrexham. About Garn. Rather rare in Anglesea. Hedges bordering on Tywyn y Capel, near Holyhead. At Aberffraw.

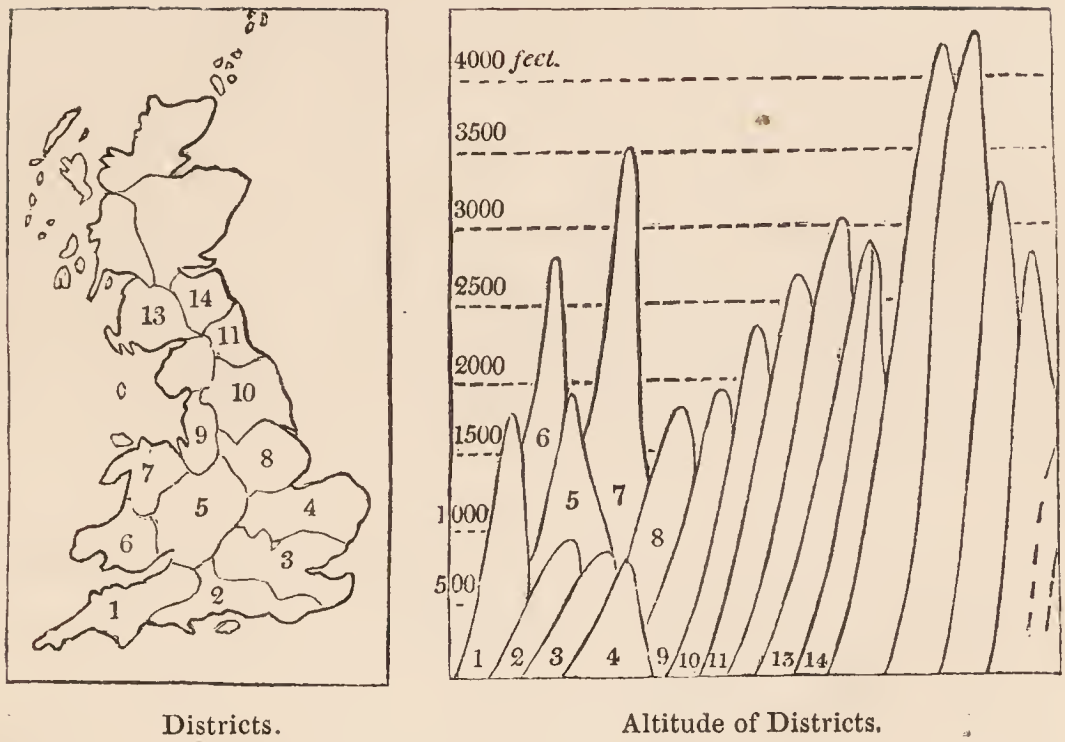
8. TRENT.—On a small bank in Newton village, Leicestershire. Glenfield, southward of Charnwood Forest.

At Kirby Muxloe. Muston, by the road side next the village. Braunston. Colwick Wood, Notts. Clifton Lane, by the road side, Notts.

9. Mersey. — Bootle, near Liverpool. Crosby.

10. Humber. — Malton fields.

11. Tyne. — Lower Tees. Near Darlington. By the road side between Cockerton and Norton; "its most northern locality."



Districts. Altitude of Districts.

21. Ranunculus arvensis, *Linn.*

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. * * *. West Lowlands, 13. East Lowlands, 14.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Catalogues.—Somerset. Bristol. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Bungay. Lynn. Warwick. Worcester. Swansea. Leicester. Derby. Richmond. Tees. Orkney.

Specimens.—Shanklin, Isle of Wight—*H. W.* Claygate, Surrey—*H. W.* Coggleshall, Essex—*Bot. Soc.*

London. Garden at Holme, near Hunstanton—*Mr. George Cooper.* Fields near Shrewsbury—*Bot. Soc. London.* Notts—*Mr. T. H. Cooper.* Tranmere, Cheshire, very sparingly—*H. W.* Skeeby, three miles from Richmond, Yorkshire—*Mr. James Ward.* Greta Bridge, Yorkshire—*Bot. Soc. London.* Near Sunderland, Durham—*Mr. R. B. Bowman.* Corn fields, on the coast, near Hartley, Northumberland—*Mr. R. B. Bowman.* Wheat fields, at Granton, north from Edinburgh—*Mr. James Macnab.*

Uncertain Localities.—Orkney—*Barry's History, as quoted in Dr. Gillies's Catalogue.*

Britain.—Latitude, 50—56. Partial. Agrarian. Abundant in many parts of England, though not very general even there, and comparatively of very rare occurrence in Scotland. Its most northern localities on record (Orkney excepted, where it is not likely to grow) are in the vicinities of Glasgow and Edinburgh, and probably enough it has been carried to those places with seed corn. It occurs also in Berwickshire, and is said to be "not uncommon" in Northumberland and Durham. As we proceed southwards it is found to become more frequent, and is an abundant weed in the corn fields of some counties, for example, in Surrey and the Isle of Wight. No locality has been ascertained for this Ranunculus in the district of the Lakes, and very few in North Wales. Whether it is really absent or scarce in those districts, or its localities merely remain unrecorded, must be left for the determination of future observers. With us, R. arvensis is always a plant of the low grounds. It is found in cultivated places, chiefly in corn fields; and probably it affects stiff or clayey soils more than others.

General Distribution.—Latitude, 30—60. Europe. Asia. Africa. Ireland. Channel Isles. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Italy. Greece. Russia. Crimea. Caucasus. Siberia. Northern India. Barbary. Chiefly in Middle and South Europe; being found northwards to Southern Sweden, Gottland, (Petersburg?), Moscow, and Western Siberia; and extending southward to Portugal, Barbary, Sicily, Greece, and the north of India. Its ascertained eastern limit is in Northern India and about the river Yenesei in Siberia; its western limit occurring in Portugal and Ireland. It is introduced in Holl's list of Madeira plants; Mr. Lowe, however, suggesting that R. muricatus was the species intended. How far the plant is truly native within the assigned limits cannot be at all determined. R. arvensis can scarcely be expected above the cultivated regions in the mountainous countries. In Sicily, according to Presl, it hardly ascends above the region of the vine.

1. Peninsula.—Neighbourhood of Exeter. Withecombe Wood (?), near Exmouth. Yeovil. Frequent about Bath. Neighbourhood of Bristol.

2. Channel.—Rare within sixteen miles of Poole. Much too abundant in corn fields, in the Isle of Wight, and called by the peasantry "Devil's Claws." Seen at Shanklin. Sussex. Too common about East Grinstead.

3. Thames.—Abundant in inland corn fields, in South Kent. Very common about Tonbridge Wells. Common about Reigate. Seen abundantly in fields near West Moulsey. Seen in fields about the Telegraph, Claygate. Oxford. Near Neithorp. Near Banbury. Common about Hertford. Field near Temple Mills, Stratford, Essex. Woodford. Coggleshall. Rare about Dedham.

4. Ouse.—Bungay. Caistor, near Yarmouth. Stoke Holy-cross, Armeringhall. Near Lynn. Thorpland. Hardwick. Barton Bendish. Beechamwell. In a garden

at Holme, near Hunstanton. Cambridge. Near Coton. Common in Bedfordshire.

5. Severn.—Common in the Midland Counties. Worcestershire. Warwickshire. Many Shropshire localities in Leighton's Flora. Windmill Hill, near Wenlock. Near Little Wenlock. Welbatch. Astley. Walford. Oakley Park, near Ludlow. Cupid's Ramble, and Lady Hills, Westfelton. Uffington. Bomere. Berrington. Westfelton moor. Buckley Farm, near Oswestry. Between Battlefield and Albright Hussey. Shrewsbury.

6. South Wales.—In corn fields about Newton, and also near Caswell Bay, Glamorganshire.

7. North Wales.—Corn fields in Montgomeryshire. Road side between Llanymyneck and Oswestry.

8. Trent.—Common in Leicestershire. In Notts, most abundantly in the sand district; frequent also on magnesian limestone and red clay. Derbyshire.

9. Mersey.—Seen sparingly in a field near the Windmill, at Higher Tranmere, on the Mersey. Plentiful in corn fields near Gilbrook. Rabbit warren, at Crosby, near Liverpool.

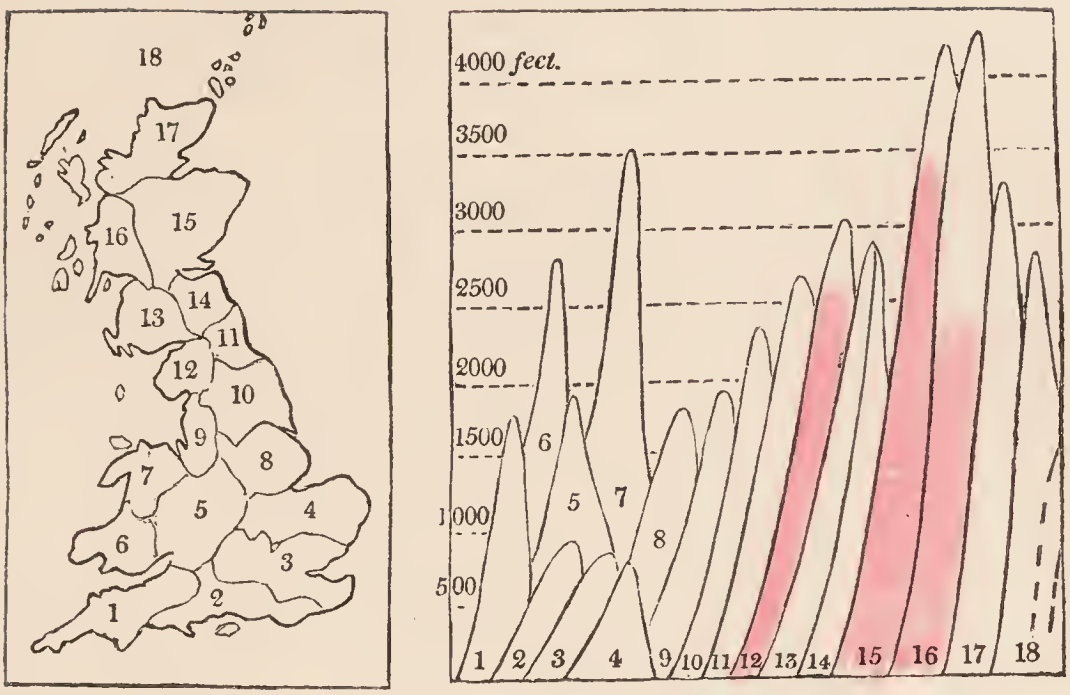
10. Humber.—Leeds. Skeeby, three miles from Richmond. Greta Bridge. In Heslington field, and several other places near York. Malton. Huggate. Knaresborough. Field at Hipperholme and Lightcliffe, near Halifax.

11. Tyne.—Lower Tees. Near Sunderland. Not uncommon in Durham and Northumberland. Near Hartley.

12. * * *.

13. West Lowlands.—Rare near Glasgow. Bogle's Hole, near Glasgow.

14. East Lowlands.—Rare about Berwick; but common about Paxton, Swinton, Bamborough, &c. In wheat fields at Granton, northward of Edinburgh. Stockbridge, near Edinburgh.



Districts. Altitude of Districts.

22. Caltha palustris, *Linn.*

Caltha palustris, C. minor, and C. radicans—Gray.

Caltha palustris, and C. radicans—Smith.

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues.—Somerset. Bristol. Poole. Wight. Sussex. Kent.

Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Worcester. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Hebrides. Orkney.

Specimens.—Luccombe, Isle of Wight—*H. W.* Millbrook, westward of Southampton—*H. W.* Between Frimley and Farnborough Station, in the north of Hants—*H. W.* Esher, Surrey—*H. W.* Hammersmith, Middlesex—*Bot. Soc. London.* Tottenham marshes, Middlesex—*Bot. Soc. London.* Pakenham Fen, Suffolk—*Bot. Soc. Edinburgh.* Dumbleton, Gloucestershire—*Bot. Soc. London.* Near Norton, Gower, Glamorganshire—*Bot. Soc. London.* Tranmere, Cheshire—*H. W.* Prestwich, Lancashire—*H. W.* High on Helvellyn, Cumberland—*H. W.* Pentland Hills, Edinburgh—*H. W.* Ochill Hills, Fife—*H. W.* Dalnacardoch, Perthshire—*H. W.* High on the Clova Mountains, Forfarshire—*H. W.* North end of Loch Erricht, head of Moray—*H. W.*

Britain.—Latitude, 50—61. Very general. Agro-Arctic. Distributed throughout the whole of Britain, from the district of the Peninsula to the Shetland Isles, and found in all the intermediate districts. It is enumerated likewise in every local flora, and in all the local catalogues, excepting those for Swansea and part of Warwickshire (Allesley and Coleshill), from which it was omitted probably through some inadvertence. It descends to the sea level on the south coast of England, and ascends to a great elevation on the mountains of Scotland. It was seen in a small spring of water, very little distance below the summit of Ben-na-buird, in Aberdeenshire, which is calculated to rise 3600 feet above the sea; and it was likewise seen on the neighbouring mountain of Ben-na-

muic-dhu, at an estimated altitude of 3400 feet. On the mountains of Drumochter Forest, on the east side of Loch Erricht, it was seen at 3000 feet, and on various hills in Perthshire and Forfarshire, in spots between 2500 and 3000 feet above the sea. It grows abundantly in marshy ground, and also by the side of waters or in damp meadows. On the mountains, it is found usually by springs and streams, where it is commonly dwarf in stature, with somewhat triangular leaves, and prostrate stems rooting at the joints; thus passing by easy degrees into the Caltha radicans of English botanists, the only clear difference between them appearing to rest in the more sharply crenate leaves of the C. radicans.

General Distribution.—Latitude, 33—71. Europe. Asia. America. Iceland. Faroe. Ireland. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Italy. Greece. Russia. Caucasus. Altai. Siberia. Kamtschatka. Columbia River. American States. Canada. Labrador. A very widely distributed plant. Its northern limits are traced from Lapland, across Siberia, Kamtschatka, west coast of America, Canada, Labrador, and Iceland. Its southern limits in Europe are in Portugal, Sicily, and Greece; and in America it occurs down to South Carolina. In Lapland, Caltha palustris ascends to the region of the lower alps. On the Carpathians, it ascends from the region of the plains to that of the higher alps, above the limit of Pinus Mughus; this pine being found in dense masses up to 5600 feet, and scattered and dwarfed even to 6000 feet. In Northern Switzerland, the Caltha rises from the region of the plains to that of the alps, at 6000 feet of elevation. In France, according to De Candolle, it occurs every where at the sea level, and rises also to 1800 metres,

or about 5900 feet. On Caucasus, Meyer found the plant at 1000—1100 fathoms. It would hence seem to have an average limit of 6000 feet, or thereabouts, in lat. 42—47, ascending rather higher to the eastward. Looking to the altitude attained in Scotland, it might have been expected still higher than 6000 feet on the Alps of Switzerland and France. In Sicily it is apparently very scarce, not having been seen by Gussone; but Presl says that it occurs there in the region of the vine, and also near the upper limit of that of the beech.

1. Peninsula. — Common in Devon. Seen near Barnstaple. Somerset. Frequent about Bath. Neighbourhood of Bristol.

2. Channel. — Very common within eight miles of Poole. Abundant in several places in the Isle of Wight, though rather local in the island. Seen at Luccomb. Seen in the marshes at the head of Southampton Water; also near Farnborough Station. Sussex. Common about East Grinstead. Near Bayham Abbey, near Tonbridge Wells.

3. Thames. — South Kent. About Tonbridge Wells. Very abundant about Reigate. Seen along the courses of the Thames and Mole, for several miles, above and below Hampton Court Bridge; also about Whitemoor Pond, and elsewhere, in Surrey. Oxford. Very common about Banbury. Hampton, Middlesex. Hammersmith. Common about Hertford. Tottenham meadows. Not uncommon about Woodford. Common about Dedham.

4. Ouse. — Very common in marshes about Ipswich. Pakenham. Bungay. Abundant about Yarmouth. Common around Norwich. Very common in Western Norfolk. Coldham Common, Cambridge. Granchester meadows. Ditton. Common in Bedfordshire.

5. Severn. — Common in the Midland Counties. Dumbleton, Gloucestershire. Worcestershire. Warwickshire. Common in Shropshire. Common about Pontnewydd.

6. South Wales. — Near Norton, Gower. Tenby.

Haverfordwest. Abundantly around St. David's. Llynsavaddon, Brecon.

7. North Wales. — Seen about Bangor. Seen about Llangollin. Near Wrexham. Anglesea.

8. Trent. — Common in Leicestershire. Frequent in Notts. Seen in various places in North Derbyshire.

9. Mersey. — Seen in many parts of Cheshire; Congleton; Alderley; Tranmere, &c. Seen about Liverpool. Seen about Manchester; as at Prestwich; Greenhays, &c.

10. Humber. — Common in Yorkshire. Leeds. Richmond. Settle. The variety "minor," near Todmorden.

11. Tyne. — Lower Tees. Common about Stockton. The variety "radicans" or "minor," in Teesdale. Durham and Northumberland. Tweedmouth fields, Berwick.

12. Lakes. — Seen about Keswick, in abundance; also on Helvellyn, and on other hills. The variety "radicans" (not of Forster) on the shores of every lake, according to Winch. Very common in the Isle of Man.

13. West Lowlands. — Common in Lanarkshire. Very common about Glasgow. Renfrewshire.

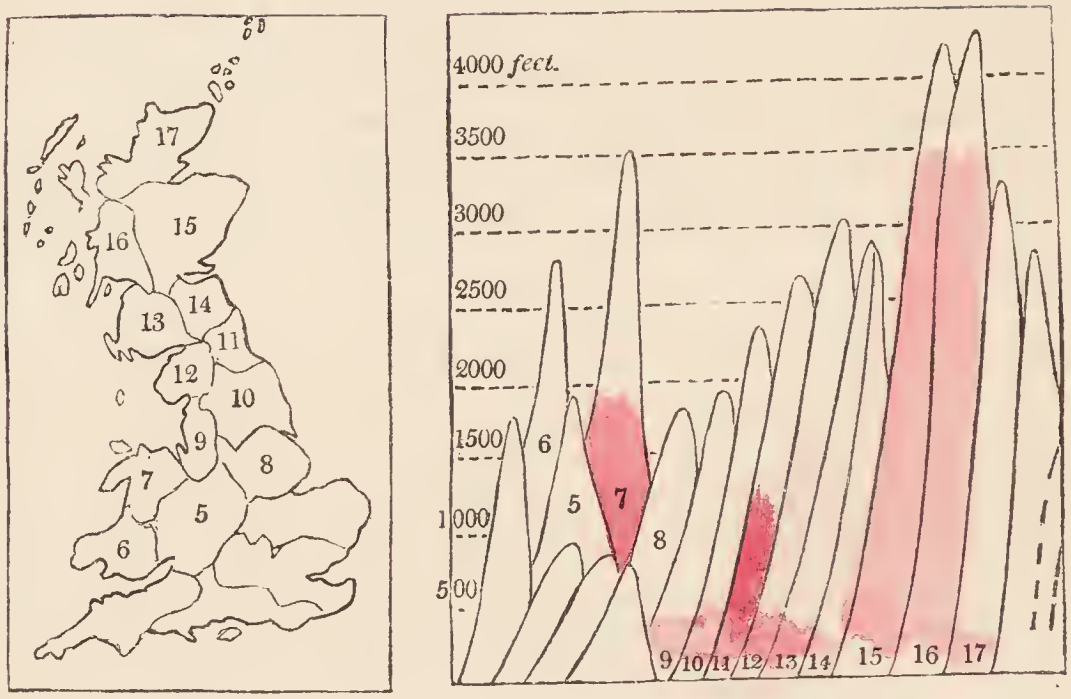
14. East Lowlands. — Common about Berwick. Seen on the Pentland Hills; as also in many other places about Edinburgh.

15. East Highlands. — Seen on the Ochill Hills. Seen in many parts of Perthshire, in abundance; Callander; Lochearnhead; Killin; Dalnacardoch; Ben Lawers and others of the Breadalbane mountains. Near Forfar. Seen in Glen Clova; also on the neighbouring mountains. Common about Aberdeen. Seen on Ben-na-Buird; also on Ben-na-muic-dhu. Alvah. Very common in Moray. Seen in many parts of Eastern Inverness-shire; near the town of Inverness; Culloden; Pitmain; Dalwhinnie; Drumochter Pass; mountains of Drumochter Forest.

16. West Highlands. — Seen on Ben Aulder; also on Gnarrow, on the west side of Loch Erricht.

17. North Highlands. — Ross. Seen at Golspie, on the east coast of Sutherland; also at Farr, on the north coast. Seen at Reay, in Caithness.

18. North Isles. — In many parts of North Uist, Harris, and Lewis. Orkney. Common in Shetland.



Districts. Altitude of Districts.

23. Trollius europæus, *Linn.*

Districts. — Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17.

Floras. — Salop. Liverpool. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Worcester. Swansea. Settle. Richmond. Tees. Renfrew. Alvah. Ross.

Specimens. — Trecastle, Brecon — *Bot. Soc. London.* Turner Clough, near Ripponden, Yorkshire — *Mr. Roberts Leyland.* Banks of the Ribble, near Settle; also from Ingleton — *Bot. Soc. London.* Bogs near Alnwick, North-

umberland—*Mr. R. Embleton.* Eastern shore of Derwentwater, Cumberland—*H. W.* Falls of the Clyde, Lanarkshire—*Mr. George Cooper.* Near Currie, Edinburghshire—*H. W.* Both sides of Loch Tay; also by the Garry, at Dalnacardoch, Perthshire—*H. W.* Drumochter Forest, south-eastward of Dalwhinnie Inn, head of Moray—*H. W.* Dumbartonshire—*Dr. Joseph Hooker.* Banks of Loch Eck, Argyleshire—*Bot. Soc. London.*

Britain.—Latitude, 51—59. Partial. Agro-Arctic. A boreal and mountain plant, wholly absent from the districts of the Peninsula, Channel, Thames, and Ouse, comprehending the counties in the south and south-east of England. It occurs in several places in the districts of South Wales, Severn, and Trent, and becomes comparatively frequent in those more northward. Apparently, it again decreases in frequency in the north of Scotland; only two localities being on record for the North Highlands, and none for the North Isles. Although found in thirteen of the districts, it is included only in ten of the local floras, and in eight of the local catalogues: a circumstance attributable to so large a portion of these local lists relating to places within the districts from which the Trollius is wholly absent. The most southern localities ascertained for this plant, are in the counties of Glamorgan, Monmouth, Worcester (one locality—at the foot of Bredon Hill), Derby, and York. In that considerable portion of England which is situate south and east from those counties, the Trollius is quite unknown in a wild state. The most northern locality on record is at Farr, in Sutherland. In England and Wales, as well as in Scotland, several of its localities must be of trifling elevation, certainly below 300 feet. It ascends the mountains to a considerable height; having been seen at an altitude of

3000 feet on Ben Lawers, and equally high on the Red Cairn, near Ben Nevis; at 2750 feet on Gnarrow, a hill of 3000 feet on the west side of Loch Erricht, and on various other hills between 2000 and 2500 feet. The Trollius thrives in damp meadows, about streams and waterfalls, and on dripping rocks; and it is occasionally seen, in a dwarf state of growth, in swampy spots on the declivities of the hills, where winds or sheep probably interfere to prevent its better growth. Judging of the climate suitable for this plant, by its distribution in Britain, it would seem to grow where there is a mean annual temperature varying from 47 to 35 degrees of Fahrenheit. It flourishes well on rocks at the height of 2500 feet on Ben Lawers, where the mean annual temperature may be estimated at 38 degrees.

General Distribution.—Latitude, 42—71. Europe. Asia? Ireland. Lapland. Norway. Sweden. Belgium. France. Switzerland. Germany. Italy. Russia. Caucasus. Almost peculiar to Middle and North Europe, with the British Isles; being more frequent in northern latitudes and in mountainous tracts. It occurs abundantly in Lapland; and thence spreads southward to the Pyrenees, Tuscany, Lombardy, and Carniola. It is mentioned in the published Floras of Petersburgh and Moscow, as also in the Enumeration of plants observed by Besser in Volhynia and other south-western provinces of Russia; and probably the plant of those places is truly T. europæus. The Asiatic localities are more dubious. In the Flora Taurico-Caucasica, Bieberstein says that T. europæus grows in the higher parts of Caucasus; but refers to No. 23. of the Flora Sibirica (T. asiaticus), for the same plant. In Lapland, Trollius europæus occurs from the wooded to the lower alpine

region. On the maritime plains of Westbothnia, it is stated to be more sparingly scattered than in Lapland; but its occurrence about Petersburgh and Copenhagen shows it to be still a plant of the low and maritime tracts in latitude 56—60. On the Carpathians, Wahlenberg observed it in the subalpine and lower alpine regions. In Northern Switzerland, the same author states that it is distributed from the limit of the walnut to that of the Pinus Abies, or rather above the line of the latter: this is a range from the upland to the lower part of the alpine region.

5. SEVERN.—Moist meadows at the foot of Bredon Hill, Worcestershire, but very rare. Plentifully in meadows at Hays, near Oswestry. In the upper part of the parish of Oswestry. Meadow near Walford. Aston. Maesbury. Meadows between Halston and Whittington. In a small meadow on the left-hand side of the road adjoining Maestermin bridge, between Halston and Hardwick. Fairy-land, Westfelton. Meadows adjoining the turnpike road opposite the lodge of Aston Park, near Oswestry. On the sides of mountain brooks near Pontnewydd.

6. SOUTH WALES.—On the Banwell mountain, north side of Glyn Neath. On the banks of the Dylais, above the waterfall at Aberdylais. In meadows between Pont Nedd Vechan and Usgoed Eynon Garn. Valleys about Ystrad Gunlais, Glamorganshire. Trecastle. Valleys of the Black Mountains.

7. NORTH WALES.—At Can Coed bog, between Llanidloes and Plynlymmon. Cader Idris. Near the waterfall, called the Black Cataract, near Maentwrog. About Dolgelle. Plentifully to the left of the road from Dolgelle to Trawsfynaid. Meadow below Penrhyn. Seen near Bangor, by the sides of the Ogwen river, and on the neighbouring mountains. Cwm Idwell. Twll du. Banks of a mountain stream near Capel Curig. Meadows near Llyn Cowlid, a lake in the mountains north of Capel Curig. Near Dolbadern Castle, by Llanberris lakes. In the hollow below the Cataract of Caunant Mawr. Clogwyn du'r

Arddu, on Snowdon. Crib y Ddeseil. Under Pont Cysultau aqueduct, over the Dee, below Llangollin.

8. TRENT.—Seen in Middleton Dale; also in the Via Gellia, near Matlock Bath. Between Matlock and Newhaven. Near Buxton. Litton Dale, near Tideswell.

9. MERSEY.—In great plenty, in a wood between Stayley Hall and Scout Mill, in a place called Wems, in Cheshire. Earl of Sefton's Park, near Liverpool.

10. HUMBER.—Neighbourhood of Leeds. Richmond. Abundant in various localities about Settle, always on limestone. Turner Clough, near Ripponden, and in other rocky woods, near Halifax. Moist meadows near Ripon. Wensleydale. About Grassington in Wharfdale. Ingleton. Common near Copgrove. On Rumbald's moor, about a mile above Helwick, in a flat boggy place on the left of the road to Otley. On the slope of a hill in an enclosure upon Thornton Moor, adjoining to the Halifax and Keighley Turnpike road. Bottom of Beckdale, near Helmsley. Very abundant in Teesdale. Meadows at Cleves, near Thirsk. Hovingham woods, near Holly Hill. Wiganthorp wood, near Castle Howard. Esk Bank, near Whitby.

11. TYNE.—Along the course of the Tees, from Teesdale to the low country. Winch bridge, Teesdale. Shipley woods. Near Eggleston. Frequent in several bogs, in the vale between Norton and Billingham. Ravensworth woods. In most of the moist woods, and on the banks of numerous rivulets, in Durham and Northumberland. Allondale. Heaton Wood. Whitehall Dean, near Ovingham. Near Belford. Bogs near Alnwick. Morpeth. Henhole, Cheviot.

12. LAKES.—At the road side, near Dale Park, in Furness Fells. Borough Hall Park. Side of Coniston Water. Not rare in Westmoreland. About Shap. Near Troutbeck. Seen on the eastern shore of Derwentwater, between Keswick and Barrow; also at Watendlath; and by the river Greta, above Keswick. Kirkland. Aspatria Mill. Gilsland.

13. WEST LOWLANDS.—At Drumlanrig, in Nithsdale. Banks of the Clyde, at Kenmuir, Daldowie, Bothwell, and the Falls. Between the Lead and Avon, at Avon Mill. Glenhove. New Monckland. Near Airdrie,

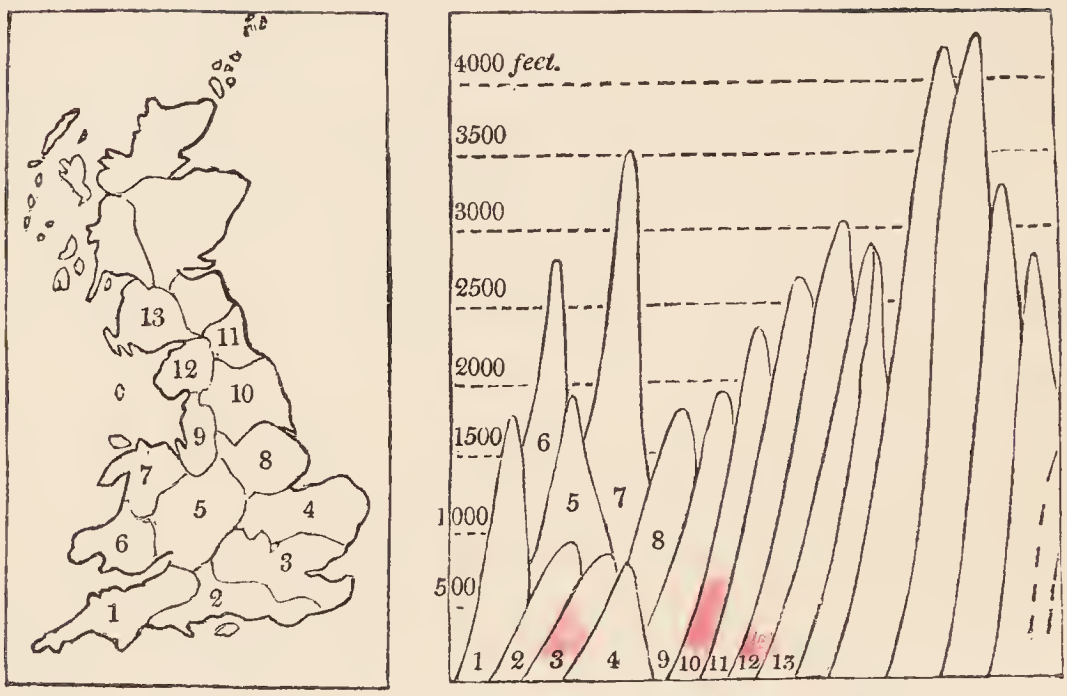
abundantly. Cartland Craigs, near Lanark. Cloak, Renfrewshire.

14. East Lowlands. — Not uncommon near Berwick. Haiden Dean, abundantly. Felkington bog, sparingly. Buncle Wood. Banks of the Leet, at Swinton. In the marshy field near Edington Moor. Lamberton Moor. In a marshy place, near Huntlaw, Roxburghshire. Seen by the Water of Leith, near the Mill, above Currie. Meadow ground southward of Ravelrig Toll. Auchinndinny woods. Near Borthwick Castle. Lugton woods. Woods at Midcalder. In Carubber Den, two miles from Linlithgow.

15. East Highlands. — Seen in various places in Perthshire; south and north sides of Loch Tay; on Ben Lawers, and other mountains in Breadalbane; and by the Garry, at Dalnacardoch. Woods near Forfar. Seen in Glen Clova, and on the neighbouring mountains. Rare near Aberdeen. Banks of the Dee at Maryculter. Corbie Den, at Kingcausie. Seen near Castleton. Alvah. Avon, Banffshire. Dovie, Elginshire. Badenoch. Seen near Inverness; also on the mountains in Drumochter Forest.

16. West Highlands. — Dumbartonshire. Seen on the hills between Tarbet and Loch Long. Banks of Loch Eck, Argyleshire. Near Glen Coiruisg, by the Cuillin hills, in Skye. Seen on Red Cairn, near Ben Nevis. Seen on Gnarrow and Ben Aulder, mountains on the west side of Loch Erricht.

17. North Highlands. — Auchterclow, in the Black Isle. Seen at Farr.



Districts. Altitude of Districts.

24. Aquilegia vulgaris, *Linn.*

Aquilegia vulgaris and A. alpina — Hudson.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. (East Lowlands. East Highlands.)

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Salop. Anglesea. Notts. York. Tyne. Edinburgh. Lanark. Glasgow. Aberdeen? Moray? Catalogues. — Somerset. Bristol. Poole? Wight. Sussex. Kent. Grinstead. Banbury. Hertford. Bungay. Norwich. Lynn. Warwick. Worcester. Swansea. Denbigh. Derby. Settle. Richmond. Tees. Man?

Specimens. — Road side, near Barnstaple, Devon — *Mrs. Wakefield.* Darenth Wood, at the end near Stone Castle, Kent — *H. W.* Gatton woods; and also near Reigate, Surrey — *Bot. Soc. London.* Moist woods, Ickleford, Herts — *Bot. Soc. London.* St. Vincent's Rocks, near Bristol, Gloucestershire — *Bot. Soc. London.* Bewdley Forest, Worcestershire — *Bot. Soc. London.* Menai coast, between the bridge and the ferry, near Bangor, Caernarvonshire — *H. W.* Notts — *Mr. T. H. Cooper.* Whitecliffe, near Richmond, Yorkshire — *Mr. R. B. Bowman.* Applegarth, near Richmond, Yorkshire — *Mr. James Ward.* By the east side of Derwentwater, Cumberland — *H. W.* Falls of the Clyde, Lanarkshire — *Mr. George Cooper.* Auchindinny woods, Edinburgh — *H. W.*

Britain. — Latitude, 50—56 (or 58). Partial. Agrarian. Not a common plant, yet distributed rather widely, and found in numerous localities. It is reported to grow in all the districts, except those of the West Highlands, North Highlands, and North Isles; but it is scarcely entitled to be called indigenous in the East Highlands or in the East Lowlands. Equal doubt attaches to a large portion of the localities placed on record for this plant in other districts, so many of them being in the immediate vicinity of old houses and gardens, where it had probably been cultivated. Dr. Bromfield believes this plant to be truly wild in the Isle of Wight, and Mr. Gutch deems it to be also indigenous in its locality on the banks of the Garple, a stream in Dumfries-shire. All the alleged localities northward of the latter county may be looked upon as suspicious, but of those between the Isle of Wight and Dumfries-shire, many may be regarded as natural. The columbine has, however, been so much cultivated in gardens, and is a plant that so readily propagates itself by

seed, that any localities about inhabited places, or on the sides of streams flowing from them, cannot fail to be regarded with doubt by those botanists who are more desirous to ascertain truth than to make plausible a new locality. The Aquilegia descends to the sea level in England and Wales, and most of its localities appear to have only a moderate altitude; some few of those in Yorkshire may be at the height of several hundred feet. Mr. Tatham indicates the plant as growing in the mountain woods about Settle; and the town of Settle being about 500 feet above the sea, it is probable that the Aquilegia is found still higher.

General Distribution. — Latitude, 35—60. Europe. Asia. Ireland. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Italy. Greece. Russia. Caucasus. Siberia. Altai. Japan. Frequent in Middle and South Europe; but rare in Asia. It is found about Upsal, Petersburgh, and Moscow; and southwards is stated to grow in Portugal, Sicily, and Greece. Between these limits the plant is mentioned as occurring in most of the tracts whose local Floras have been consulted. It is rare on Caucasus, and probably rare also on Altai. Thunberg enumerates it among the plants seen in Japan. On the Carpathians, Wahlenberg found Aquilegia vulgaris in the upland and lower alpine regions. He observed it also abundantly in the lower regions of Northern Switzerland; and locally in warm and sheltered situations near the upper limit of Pinus Abies, or that of the subalpine region. De Candolle indicated its altitudinal range in France to be from 100 to 1400 metres — say 300 to 4600 English feet. In Sicily, it was found by Presl, within the regions of the vine and oak. It will be observed that De Candolle states the upper limit of the

Aquilegia at only 400 metres (1300 feet) below that of Caltha palustris. In Scotland, however, where Aquilegia is scarcely indigenous to latitude 56, and is found only at moderate elevations, we see the Caltha up to 3500 feet, in latitude 57.

1. Peninsula. — St. Ives. Lelant. Between Falmouth and Helston. Near Bodmin. Woods at Chudleigh. Ilsington. Lympstone. Holne Chace and Spitchwick woods, abundantly. Park Hill, near Torquay. Rare in North Devon. Road side near Barnstaple, perhaps originating from a garden. Somerset. In the wood by the side of the field behind the farm-house, on Claverton Down, near Bath. In the lane leading to Combe Hay. In the wood on the right-hand side of the Kingsdown road, beyond Bathford, from Bath. On the down near Cooke's Folly; also in Leigh woods, near Bristol. St. Vincent's Rocks.

2. Channel. — Rare, and certainly introduced, in the neighbourhood of Poole. In Collet's Bottom, and near Ford, in the neighbourhood of Bath. In the Isle of Wight, truly wild, and not unfrequent on moist bushy commons, and in deep shady woods, near Ryde, Gatcombe, Colwell, &c. West of Sussex. Near Grinstead, in the first field from Newland's Farm, on the footpath to Combe's Farm; but only a single plant.

3. Thames. — Woods about Stowting, South Kent. Seen in Darenth Wood, in the end nearest to Stone Castle. Gatton woods, Surrey. Reigate Hill. Box Hill. Shotover Hill, Oxford. Headington. Wick Copse. Stow Wood. Wychwood Forest. Chipping Norton. East Burnham, Bucks. In moist woods near Ickleford. Said to grow about Hertford, but not seen by the Rev. W. H. Coleman. Danbury, Essex.

4. Ouse. — Apparently wild near Bungay, growing by the side of a wood quite away from any habitations. Road side, Porringland, Norfolk. Bedingham. Rare in Western Norfolk. In a thicket behind the Red Mount, at Lynn. Hinton, Cambridgeshire. Teversham. Triplow. Anglesey Abbey. Hatley St. George. Rare in Bedfordshire. Barton Leat Wood.

5. SEVERN. — St. Vincent's Rocks, near Bristol, in "Gloucestershire." Abundant in Strawley Wood, Worcestershire, and truly wild there. In Bewdley Forest. About Leigh Sinton. On Broomsgrove Lickey. Near Lickhill. Malvern Hills. Woods near Allesley, Warwickshire. Corley woods. Near Botley, Staffordshire. Mr. Leighton records many localities in Shropshire. Side of the canal, near Queen's Head, between Westfelton and Oswestry. Hedge opposite the Cold Bath, near the Lodge, Ludlow. Oakley Park meadows. Near Dowles Brook, and Park Brook, in Wyre Forest. Clee Hill, near Bitterley. Chirk banks. Standhill Coppice, Wenlock. In a small coppice near the Lawley Hill. Footpath between Old Factory and Cross Hill, near Shrewsbury. Common in Monmouthshire. Abundant at Leyncaut, on the Wye, opposite Percefield, near Chepstow. Abundant about Pontnewydd, varying with white or lilac flowers.

6. SOUTH WALES. — In hedges near Mincian Hole, near Swansea, varying with white and pink flowers. On wooded banks, by the road side, between Caermarthen and Tenby; also between Caermarthen and Coldblow. Abundant in fields and woody spots between Narbeth and Tenby.

7. NORTH WALES. — Seen on cliffs by the Menai Strait, between the Bridge and the Ferry at Bangor. In the grounds of Penrhyn Castle, near Bangor. Seen about Llangollin. Common in moist woods near Wrexham, and sometimes with white flowers. In the woods at Plas Newydd, Anglesea. Penmon Deer Park. Between Pont y Vrenin and Llangoed Mill. In the old park, near Beaumaris, plentifully. The white-flowered variety grows by the side of the river Braint, near Pont Dic, and just above the beach below Trefarthen, Anglesea.

8. TRENT. — Bullwell. Newstead. Pleasley. In the park at Calke Abbey. Via Gellia.

9. MERSEY. — Baguley Moor, Cheshire?

10. HUMBER. — Near Rotherham. Near Leeds. Applegarth and Whitecliffe, both near Richmond, and on limestone. Plentiful at Aysgarth Force; also in various other parts of Wensleydale. Common in mountain woods about Settle. Mackershaw Wood. Westwood, near Beverley. Langwith lane, near York. Head-

ley, near Tadcaster. Jackdaw Crag, near Tadcaster. Road side near Whitwell. Fountains Abbey. Thorpe Arch. Addle Bridge. Helmsley. Craven. Hildenley wood, near Malton. Cawklees Wood, two miles from Hovingham. Calais Wood, a mile from Castle Howard. Oxclose Wood, near Kirkham.

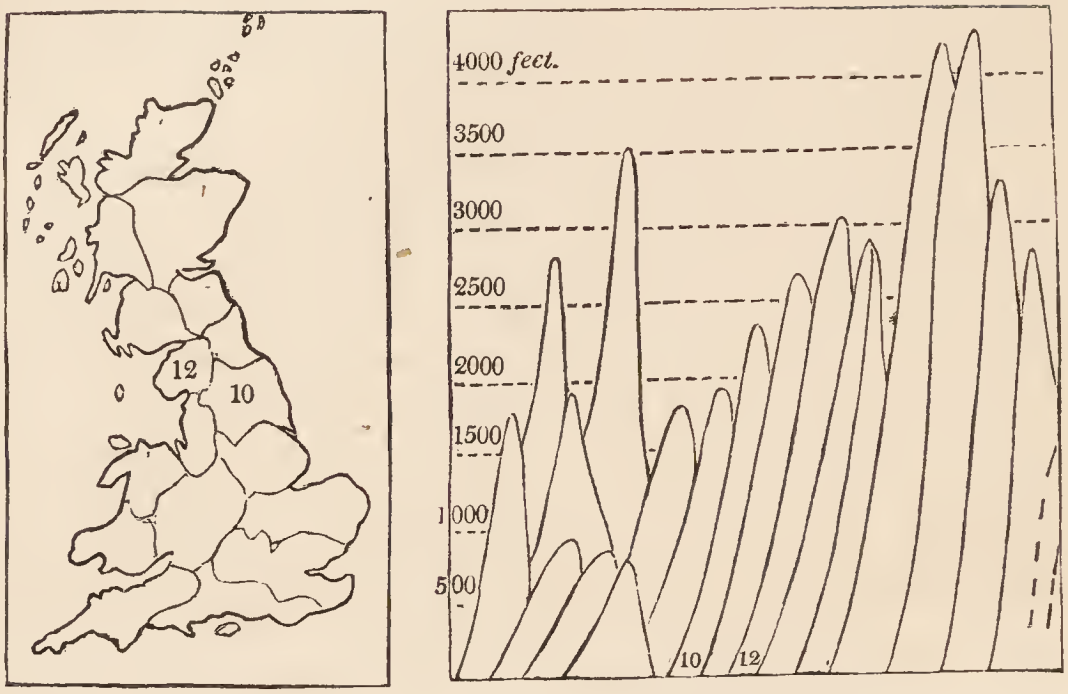
11. Tyne. — Along the course of the Tees. In the dene below Dalton le Dale. Near Middleton, in Teesdale. At Baydales, near Darlington. In Castle Eden dene. By Pontburn, near Medomsley. At Barley Haugh, near Ebchester. In Heseldon dene. In a hedge by the Portrack lane, about half way from Stockton to Norton; but only two plants observed there. By the Ouse burn, in Heaton dene, probably the outcast from a garden. On the banks of the river Derwent, near Allansford. In Willington dene, by the path from Wallsend. In Dilston Park, near Hexham. Hulne woods.

12. Lakes. — Mountainous woods in Westmoreland. Seen by Derwentwater, between Keswick and Barrow. In woods at the foot of Derwentwater. Ramps Holm, in Derwentwater. Head of Wastdale. Rare in the Isle of Man, and perhaps not indigenous there.

13. West Lowlands. — On the rugged banks of the Garple, a small mountain stream, a tributary of the Evan Water, in Annandale. Daldowie, near Glasgow. Banks of the Clyde at Blantyre Priory; and at the falls. At the bottom of Cartlane Craigs. In the wood above Castlemilk. Ruins at Borthwell Castle. Shady walk at Jervieston. Rocks at Corehouse.

14. East Lowlands. — Seen in Auchindinny woods, Edinburghshire, but probably not indigenous there. Granton, near Edinburgh. Dalhousie. Collinton woods. Newbattle woods.

15. East Highlands. — On the bank below Stirling Castle. Low parts of Forfarshire. Rare, and not wild, near Aberdeen. On a wall near the old house of Rubislaw. In a wood at the old bridge of Don. A doubtful native of Moray; but found in a ravine close by a garden and old castle at Dunphail; also at the fall of Foyers; and at Kinrara.



Districts. Altitude of Districts.

25. Actæa spicata, *Linn.*

Districts.—Humber, 10. Lakes, 12. (East Highlands.)

Flora.—York. Catalogues.—Settle. Richmond.

Specimens.—Woods at Thorpe Arch—*Mr. Leyland.* Ribscrew Wood, near Hovingham—*Mr. John Storey.* Heseltine Gill; also Ingleborough Hill—*Mr. John Tatham.* Whitfell Gill, near Askrigg—*Mr. R. B. Bowman.* Malham Cove—*Bot. Soc. London.* (All in Yorkshire.)

Uncertain Locality.—In a thick wood, two miles from Thorndon, Essex—*Blackstone.*

Britain.—Latitude, 53—55 (or 57). Local. Agrarian. The Actæa is reported to grow in four of the dis-

tricts, namely, those of the Thames, Humber, Lakes, and East Highlands. The first of the four is believed to be erroneous. In the second, or that of the Humber, the plant is undoubtedly wild, and occurs in many distinct localities. In the district of the Lakes it is very rare, as will appear by the few localities that can be given for it; but it may be really indigenous in that district also. In the East Highlands there is a single and suspicious locality. The heights of the Yorkshire localities have not been stated. Some of them are probably quite low, while others may possibly have an elevation of 600 or 700 feet. From the descriptions of the localities, it would appear that the Actæa grows in woods, more especially on limestone soils.

General Distribution. — Latitude, 37—70. Europe. Asia? Lapland. Norway. Sweden. Belgium. France. Switzerland. Germany. Tuscany. Greece. Russia. Caucasus? Siberia? In many parts of Middle and North Europe, but scarce in the Mediterranean countries. Northwards it attains to Lapland, Petersburgh, and Moscow. Southwards, as far as shown by the works consulted, it reaches to the Pyrenees, Tuscany, and Laconia, in Greece. According to Gmelin, Actæa spicata occurs throughout Siberia; and Bieberstein and Meyer both include it among the plants of Caucasus; but whether the Asiatic plant is A. spicata, or whether it is A. brachypetala, is unknown to the writer of these pages. The floral regions in which the Actæa spicata grows in Lapland are not clearly stated by Wahlenberg; though probably it is not seen above (if found so high as) the subalpine region. In Northern Switzerland, it is stated to grow in the upland region, but not so high as the upper limit of the beech. In France, it rises nearly to 4000 feet

on the Jura, and possibly descends to the sea level near Nice. It was not recorded on the Carpathians, by Wahlenberg.

10. HUMBER.—In Dark Gill, between Rievaulx Abbey and Helmsley. Woods at Hackness, near Scarborough. Forge Valley, near Scarborough. Thorpe Arch. Liley Wood, near Whitley Hall, thirteen miles from Halifax, on the road to Barnsley. Six habitats for this plant, in the neighbourhood of Settle, but none of them within five miles of the town. Formerly in abundance at Malham Cave, but reported by Mr. Tatham to have been eradicated there. Clapham. Whitfell Gill, or Arthur's Fosse, near Askrigg. In fissures of the curious natural pavement of limestone, at the foot of Ingleborough. Rocks between Chapel-in-the-dale and Mergill. Between Darnbrook and Arncliffe. "Hildersley." Ribscrew Wood, and Cawklees Wood, near Hovingham. Huddlestone quarry, near Sherburn. Rocks above Gordale. "Hildenley Wood," two miles from Malton. Near Nunnington.

12. LAKES.—Mountainous pastures above Troutbeck, near Ambleside. Sandwick, Ullswater.

13. EAST HIGHLANDS.—Cleish woods, Kinross-shire.

(*Introduced Ranunculaceæ.*)

1. ANEMONE APENNINA, *Linn.*—Added by Dillenius, in the Third Edition of Ray's Synopsis Methodica Stirpium Britannicarum, 1724, with the localities of Wimbledon, Harrow, and Luton, which are repeated by Hudson and later writers. Some few other localities are now reported, as will be seen in the following enumeration. In Lord Spencer's park and woods at Wimbledon, Surrey—*Mr. W. Christy, spec.* Mr. Pamplin finds a variety with white flowers, in the same place. Coulsdon, Surrey. Near Harrow on the Hill, Middlesex. Near Berkhampstead, Herts. In a wood near Luton Hooe, Beds. Shortwood, near Ludlow, Salop. Now wild at Cullen, Banffshire, an old family residence of the Earls of Finlatter.

2. ANEMONE RANUNCULOIDES, *Linn.* — Not noticed by Ray. Described by Hudson, who specifies the two localities of King's Langley, Herts, and Wrotham, Kent. Afterwards, the locality of Abbot's Langley was given on the authority of Mr. Anderson. Recently the Rev. Mr. Hincks visited King's Langley, and failed to find this plant; but he did see it on a lawn, in front of a house, not far from the church at Abbot's Langley. There he was told by a gardener that the plant was reputed to be wild, and was not known by the gardener to be found elsewhere in that neighbourhood. Dr. Bromfield states that a few plants of this species formerly grew by a brook near Hawstead, in Suffolk, but that they were dug out by a gardener, for sale. In Leighton's Flora of Shropshire, another locality is added to this doubtful list, namely, Badger Dingle, where the plant was found by Mr. Bidwell. It was lately said to have been discovered in Berwickshire; but the plants turned out to belong to Ranunculus auricomus.

3. ADONIS AUTUMNALIS, *Linn.* — Ray included this among his British plants on the authority of some third party. He writes, — "In Anglia sponte provenire dicitur, sed rarius, inter segetes." Dillenius adds Sherard's locality of "Closes betwixt Stone Church and Queenhithe;" and the plant is still found in corn fields in the neighbourhood of Stone Church, near Greenhithe. The following is a list of its alleged localities. Near Blandford, Dorset. Near Poole. Corn fields in Wiltshire. Not very rare in the Isle of Wight, in corn fields near Bonchurch, St. Lawrence, &c. Corn fields, Whiteparish — *Miss Bell, spec.* Alresford, Hants. — *Bot. Soc. London, spec.* Matterley Farm, Hants. In Sussex: — at Rottingdean; Portslade; and Eartham. Once found in a corn field, on the south side of the High Rocks, near Tonbridge Wells. Many localities are mentioned in Kent. Field between Stone Castle and Darenth Wood — *H. W. spec.* A few miles west from Cobham — *Mr. George Cooper, spec.* Corn fields between Cobham and Cuxton, near where Salvia pratensis, Althæa hirsuta, and Anagallis cærulea grow — *Dr. Bromfield, spec.* Frequent in fields about Cobham — *Bot. Soc. Edinburgh, spec.* Longfield

Hill, near Cobham — *Bot. Soc. London, spec.* Near the Thames, below Stone Church, near Greenhithe. In the corn fields above Dartford, but more abundantly in the marshes by the side of the Thames between Dartford and Greenhithe. Northfleet. In some chalky corn fields, called the Hollow Denes, between Wilmington and Sutton Church. Very rare near Oxford. Near the Observatory, Oxford. Lane between Broughton and Bloxham, near Banbury. Corn fields between Kirtlington and Bletchington. Among corn, at Acton, Middlesex. Corn fields about Bury, Suffolk. Hedges near Norwich, scarcely wild. Waste ground, Lakenham. Formerly found at Denver Sluice, but not to be seen there in 1837. Corn fields near Gloucester. Banks of the Severn, between Bridgnorth and Coulport, Shropshire. Near Ludlow. In corn fields, Derbyshire, not common. Near Gillbrook, in the west of Cheshire. A specimen in a corn field near Crosby, Lancashire coast. Once found in a potato field, near Norton, Durham. Occasionally among corn about Glasgow. Near Edinburgh.

4. HELLEBORUS VIRIDIS, *Linn.* — This is mentioned by Ray, with the locality of Bigwyn Closes, near Cambridge; and he adds, "It is said also to grow plentifully about Arundel Castle in Sussex. An sponte oriatur locis prædictis, an olim ibi satum fuerit vel casu, vel de industria, dubito." Numerous localities have been since recorded for this plant in England; but it may reasonably be doubted still, as in Ray's time, whether these habitats have not originated "vel casu, vel de industria." In Cornwall: — Between Rosemorran and Kenegie. Hedge in Bradoc church-yard. In Devon: — Orchards at Rora, near Ilsington. Orchards at Marychurch. Orchard at Weston Mills, near Plymouth. At Totness. In Somerset, or near Bristol: — Sidcott. On the Mendip Hills, near Compton Martin. Wood opposite St. Vincent's Rocks, near Bristol. Sparingly in the Roman Encampment, in Leigh Woods, near Bristol. In an old stone quarry, at Monckton Farley. In Stoke Wood, near Bath. In Dorset: — Near Fifehead Neville — *Mr. W. C. Trevelyan, spec.* Neighbourhood of Wimborne. Wood above Tolland Royal, to the eastward, in considerable plenty; and in other parts of

the Chace. Rare within eight miles of Poole. In Wilts: —Ashwick, and North Wraxhall. In Hants:—A single specimen found in a wood close to Ryde. Found by Mr. White, but since sought unsuccessfully by Mr. Pamplin, "in a deep stony lane on the left hand, just before the turning to Norton Farm, Selborne, and at the top of Middle Dorton, under the hedge." In Sussex:—About Arundel Castle. West End, Henfield. Woodmancote, in that part of the wood called Ten-acre-shaw. By the footpath from Henfield to Blackstone, near Bilsborough. In Kent:—In the lane leading from the Lyminge road towards Postling Wood. In Westfield Wood, South Kent. On the right-hand side of the walk by the Parsonage-house at Knowlton, seven miles north of Dover. In Surrey:—Coulsdon. Reigate—*Bot. Soc. London, spec.* A considerable quantity on Reigate Hill, near the east end of the hedge-row on the north side of the field opposite the Galton Inn. Also in Fridley copse, near Mickleham. In Oxfordshire:—In woods near Stoken Church. Woodferry Farm. Nuffield. In a wood at Mungewell. Woodstock. Radway Wood, near Banbury. Hanwell plantations, near Banbury, where it is said not to be wild. In Bucks:—Woods near Denham. Woods about Great Marlow and High Wycombe. In Middlesex:—Near Harefield. In a small wood, near Finchley. Down Barn Hill, near Harrow. In Herts:—Cadwell, near Hitchin—*Bot. Soc. London, spec.* In Essex:—Claywood, near Roxwell—*Bot. Soc. London, spec.* In Suffolk:—Near Beighton, abundantly—*Dr. Bromfield, spec.* Common about Bury. Near Stradbrook. In Norfolk:—Plentiful in one spot, in a little plantation at Ingoldisthorpe. Berwick plantations—*Miss Bell, spec.* In Cambridgeshire:—In the last close of Great Shelford, by the road to Redcross turnpike. Bigwyn closes, near Cambridge. Coton. Whitwell. Ditton. In Bedfordshire:—Goldington. Rare in the county. In Northamptonshire:—In fields near Whittleborough (or Whittlewood) Forest. In Gloucestershire:—By the Gloucestershire side of the brook, near the upper end of St. Catherine's Valley, near Bath, "the place incorrectly described in Flora Bathonensis." Cranham Wood, near Gloucester. In Worcestershire:—In a retired lane, near Cotheridge. Glasshampton. Said to have been found

formerly, but not existing now, in an orchard, Robinson's End, Malvern Chace. In Warwickshire: — In a field near Studley. Dodsley's Wood, Allesley. Banks of Bourne brook, Shustoke. In Shropshire: — Clee Hill, near Bitterley. Stottisden. Near the wall, in a field adjoining Lilleshall Abbey. In Pembrokeshire: — Lodge Park, near Stackpole Court. In Notts: — On the magnesian limestone. Grives wood. In Derbyshire: — Matlock. Codnor Castle. Limestone soil, in Lathkill Dale. In Lancashire: — About Leighton Hall, in Yealand. In Yorkshire: — Near Rotherham. Near Mawthorpedale — *Mr. John Storey, spec.* In a stiff soil, Marske, near Richmond — *Mr. James Ward, spec.* Also by the edge of a wood, near Brompton — *Mr. James Ward, spec.* In a thicket opposite "Brampton," near Marsk Hall. (Do these three descriptions refer to the same spot?) On both sides of the Don, in the limestone tract westward of Doncaster. Also on clay ground, near Doncaster. Sparingly in two localities, and formerly found in four localities, near Settle. In a meadow at Wharfe, six miles north-west of Settle. Near Fountain's Abbey. Stony pastures by Tanfield. Kiddow lane, between Leeds and Tadcaster. About Aberford. Banks of the river, opposite the mill, Knaresborough. In the hedges near Stonegrave, but scarce. In a field called the Hall Pasture, near Kirby Fleetham. In Dark Gill, between Rievaulx Abbey and Helmsdale. Beckdale, near Helmsley. In a pasture behind the church, Tadcaster, abundant. Woods near Roche Abbey. At Londesborough. Ayton Forges. On a ditch bank at Coneysthorp, one mile from Castle Howard. Woods between Warmsworth and Conisborough. In Durham: — On the banks of the Tees, near Whorlton. By the Tees, between Blackwell and Barnardcastle. Near Piercebridge. In Northumberland: — In the Abbey grounds, at Alnwick. In Westmoreland: — About Clathrop Hall. In Cumberland: — Threepland Gill. In Ayrshire: — In woods, near Ayr — *Dr. D. Maclaggan, spec.* By the Doune. In Berwickshire? — In Dunglass Glen. In Edinburgh: — Wall top, near Lasswade.

5. HELLEBORUS FŒTIDUS, *Linn.*—Ray has this species in his Synopsis; though evidently entertaining doubt re-

specting its right to be there, as in the case of the other species. He writes, "In the hedges of some closes about Cherry Hinton, near Cambridge. Casu quodam ibi aliquando satum fuisse suspicor." Dillenius adds other localities in the third edition, namely, parish of Brundish, and the downs in Sussex. Many more habitats are now on record. But there can be no doubt that the two species are frequently mistaken, one for the other. In Devon:— Back of Manadon, and about Hardwick, both near Plymouth. In Somerset:—Woods between Gounsberry and Blackwell. Woods between Braston and Blackwell. Woods near Stoke. Near Bath, in fields on the way to Farley Castle. Woodman's quarry, Pickwick; and in a wood near Weevern's Mill. In Wilts:—Slaughterford, about Cloud quarry, near Bath. Woods at Clarendon, near Salisbury. In the Isle of Wight:—Ventnor—*Bot. Soc. London, spec.* Rare in the Isle. Apparently indigenous in rough bushy ground at St. Lawrence, if not about Ventnor also. In Hants:—All over the High Wood, and Coneycroft Hanger, near Selborne. Near the thirty-ninth milestone in the road [from London?] to Basingstoke. In Sussex:—Upon the downs, by the road side, towards Chichester. Formerly found near Poynings; and between Piecombe and Newtimber; but destroyed by alterations in the roads. In Arundel Park, where Mr. Borrer did not observe the other species. In Kent:— Between Northfleet and Gravesend. In Surrey:—Mickleham—*Bot. Soc. London, spec.* Coulsdon. In Oxfordshire:—At Cornbury stone quarry. In Bucks:—Chalk hill, near Hedsor Wharf. In Essex:—In the hedge opposite High Laver. Opposite a farm house at Muncombe; and near Mr. Warner's gravel pit pond, near Woodford. In Suffolk:—Common about Bury. Chedburgh—*Miss Bell, spec.* Not common about Bungay. Laxfield. Newton. Cranford. In Norfolk:—Bath Hills, by Bungay. Near Norwich—*Mr. George Cooper, spec.* In a hedge at Stiffkey, near Wells. Abundantly on the Castle Hill at Castle Acre. In Cambridgeshire:—Near Cherry Hinton. Fulbourn. Triplow. In Beds:—Bromham. Stevington. Stagsden. In Northamptonshire:—Rockingham forest. In Gloucestershire:—Woods in Totworth Park. Wade's farm, Rodborough Common. In Worcestershire:

— Marked in Mr. Lee's Catalogue for Worcestershire. In Warwickshire: — Dunnington. Arrow. Studley Castle. In Shropshire: — Clee Hill, near Bitterley. Eyton. In a coppice, on the left side of the road from Wenlock to Buildwas, just below Mr. Aston's of Fayerley. One of the outer ditches of Whittington Castle. In Herefordshire: — Hereford — *Bot. Soc. Edinburgh, spec.* In Glamorgan: —Pennard — *Bot. Soc. London, spec.* (but under name of H. viridis). In the woods at Park Hill, towards Pennard Castle, near Swansea, in great abundance; probably the locality whence the specimen came. In Denbighshire: — Near Issacoed chapel, eastward of Wrexham. In Anglesea: — In woods, near Tyfry. In Derbyshire: — Seen on the rocks, by the road side, between Cromford and Matlock Bath, apparently planted, as are other garden plants, to adorn the rocks about Matlock. Cromford Moor. Codnor Castle. Dethick. In Yorkshire: — Near the village of Feizor, three miles northward of Settle — *Mr. John Tatham, spec.* On both sides of the Don, in the limestone tract westward of Doncaster. In lanes at Campsall, near Doncaster. Woods between Warmsworth and Conisbro', on limestone, with a habit very different from the cultivated plant. Langwith, near York. Londesbro'. In Durham: — On the banks of the Tees, a little below Winston bridge. By the Tees, between Blackwell and Barnardcastle. Woods in Weardale. In the hedge of an old orchard, at Howden, near Norton turnpike gate. In Northumberland: — Woods in Allondale. In a wood on the north side of the Tyne, a little above the chain bridge, near Hexham. In Cumberland: — Keswick, according to Hutton, but not to be seen in his herbarium. In Ayrshire: — By the Doune. In Lanarkshire: — On the summit of a mass of stone, by the upper wall of Bothwell Castle. Banks of the Clyde, at Blantyre Priory, abundantly. Old walls, at Barncluith. In Edinburghshire: — Near Edinburgh — *Mr. G. N. Lloyd, spec.* In Fifeshire: — Between Anstruther and Kepply. In Aberdeenshire: — Den of Rubislaw, near Aberdeen, introduced.

6. DELPHINIUM CONSOLIDA, *Linn.* — This plant was added by Dillenius to the Third Edition of Ray's Synopsis.

He says, "Found in great plenty by Mr. Sherard in Swaffham field, in Cambridgeshire." There it is still found; yet, when we observe how freely it sheds seeds and becomes a weed in gardens, there is little difficulty to understand why it should still continue in the same ground in which it was discovered above a century ago. Various localities are on record. In Cornwall:—Near Goldsithney. About Falmouth. By the side of a common, near to which the Ligusticum cornubiense grows, a mile and a half from Bodmin. In Dorsetshire:—Sparingly in several fields near Blandford, and elsewhere. Rare, and certainly introduced, in the neighbourhood of Poole. In Sussex?—Near the High Rocks, near Tonbridge Wells. In Kent:—Between Blackheath and Eltham. In Surrey:—Stray specimens are sometimes seen in and near the parish of Thames Ditton. Corn fields about Farnham.—*Mr. John Ellis, spec.* In waste places about Reigate, believed to originate from gardens. Coulsdon. In Oxfordshire:—Near the Parks, Oxford. Near Deddington paper mill, at Banbury, but asserted to be an outcast from gardens. In Essex:—In an enclosure between Woodford Hall and the road, near Woodford. In Suffolk:—Corn field, near Brandon—*Miss Bell, spec.* Near Bury St. Edmund's. Fields about Aldborough, at the Hall Farm. In Norfolk:—About Feltwell, near Brandon. Oxburgh. Docking. Barton Bendish. In Cambridgeshire:—Swaffham—*Nat. Hist. Soc. Swaffham, spec.* By the lower road from Cambridge to Gogmagog Hills. Hinton. Trumpington. Teversham. Bottisham. In Beds:—St. Leonard's Farm, near Bedford. In Worcestershire:—In a field by Pershore. Souston's Rock, near Shelsey. Near Grimley. In Warwickshire:—Studley, in the Castle Field. In Shropshire:—Davenport woods. Preston Boats hamlet, near Shrewsbury, probably an outcast. In Glamorganshire:—Mr. Lees says, that it is "truly wild on the shore of Swansea bay;" but Mr. Flower did not find it there, when sought. In Leicestershire:—Observed for two or three years successively among the corn in the fields at Loughborough. In Notts:—Nottingham Park. Trent side, near Wilford. In Yorkshire:—In sandy corn fields, rarely, and probably imported with the seed corn. Corn field near Ripon. In Dur-

ham:—Occasionally in corn fields about Durham. On the ballast hills of Wear. In a limestone quarry near Bishopwearmouth. In Northumberland:—On the ballast hills of Tyne. In a clover field, near the Lough, on Holy Island, probably introduced from the Continent. In Edinburghshire:—On the shore, near Edinburgh.

7. Aconitum Napellus, *Linn.*—The older authors on British botany do not mention this plant; but a goodly number of alleged localities are now published. The plant seeds very freely, and soon becomes a weed in damp ground and shrubberies. In Cornwall:—About Mylor bridge. In Devon:—Below Staverton bridge. Seen in a shady lane about three miles from Barnstaple in crossing the country to Exmoor. In Somerset:—"Very abundantly on the banks of a stream at Ford, near Wiveliscombe, where it continues along the stream at intervals to Milverton, a distance of three miles * * * avoiding wet places; therefore the term 'watery ground,' in English Flora, is hardly correct. The statement that it had been found in other similar situations in that neighbourhood, arose from a misunderstanding: it is confined to the Ford stream." In the Isle of Wight:—Naturalised by stream sides, but sparingly, at Newport and near Calbourne. In Surrey:—Seen by the Mole, between Esher and Moulsey. In Oxfordshire:—Near Deddington paper mill, an outcast from a garden. In Norfolk:—Whitlingham Wood, naturalised. In Worcestershire:—In a marshy and truly wild spot, at the foot of an alder, on Eastham hill, at five or six hundred feet of elevation—*Mr. Edwin Lees, spec.* In Shropshire:—(The following three descriptions of localities probably all apply to one spot, within or near to the borders of this county and Worcestershire.) Banks of the Letwyche, near Ludlow—*Bot. Soc. London, spec.* From the brook, near Ludlow, that flows into the Teme at Tenbury—*Mr. Edwin Lees, spec.* Abundantly scattered, and with every appearance of being truly wild, but doubtful if originally so, for above a mile along the banks of the Ludwych river, between Ludlow and Caynham Camp. Wood bordering Colemere Mere, where it may have been planted. In Herefordshire:—Abundantly in various localities in the immediate neighbourhood of Leominster.

In Monmouthshire:—Pontnewydd—*Bot. Soc. London, spec.* Skirting the margin of a small brook, close by Pontnewydd works, in tolerable abundance, and "most unquestionably truly wild." In Denbighshire:—Mr. Bowman believed it to be "undoubtedly wild" in several places in Denbighshire. In Yorkshire:—On the Willow Island, and on the banks of the Ribble, near Settle. North side of the Wharfe, a little above Thorp Arch. On the Hagg, in the road to Colburn. On a ditch bank at Elvington, naturalised. In Lanarkshire:—Not uncommon in wild places about Hamilton; and often far from houses or gardens. In the plantation below Hamilton bridge. Burn side, near Gour's Linn quarry. Banks of the Avon, near Barncluith, abundantly.

8. PÆONIA CORALLINA, *Retz.*—Introduced into the Floras of Britain, on account of the habitat on an island called Steep Holms, in the Severn, where it has existed half a century. In the Supplement to the Flora of Bath, a single plant of it is stated to have been found in the centre of a large wood near "The Rocks" at Bath. Gerrard recorded it as found on a rabbit warren, two miles from Gravesend; but no other botanist appears to have seen it in that locality.

(*Rejected Ranunculaceæ.*)

1. RANUNCULUS GRAMINEUS, *Linn.*—Said to have been found in the neighbourhood of Llanroost, in North Wales.

2. ERANTHIS HYEMALIS, *Salisb.*—Introduced into the Second Edition of the Catalogue of British Plants, published by the Botanical Society of Edinburgh.

3. PÆONIA OFFICINALIS, *Linn.*—In the Proceedings of the Botanical Society of London, page 28., Mr. Thomas Hancock writes, "This was found by Mr. Rootsey, growing *wild* in a thicket of bushes, near Blaize Castle, which would go to disprove the statement that it was introduced into this country. There were two or three specimens, but not in flower."

ORDER II. NYMPHÆACEÆ.

The beautiful plants which are included by systematic botanists under the order of Nymphæaceous plants, and are sufficiently familiar to other persons under their common name of Water-lilies, are distributed less generally over the world than the former order, that of Ranunculaceous plants, or than the succeeding one, consisting of the Poppies, and allied genera. Yet, looking to the small number of distinct species comprehended in it, the present order may still be said to have a wide distribution. Being mostly large aquatic plants, adapted to grow in lakes and the less rapid rivers, the species of Nymphæaceæ are the ornaments of continental countries and low places; and are usually banished from islands and elevated mountains, as well as from very cold latitudes whose waters remain frozen during a large part of the year. Hilly or undulated countries, however, whose streams are converted into lakes or lake-like rivers on their low plains and in their valleys, may be considered favourable for the support of Water-lilies; and we consequently find that our own insular position does not prevent Nymphæaceæ constituting quite as large a proportion of the indigenous flora of Britain, as is ordinarily the case with the floras of continental countries.

In the Prodromus of De Candolle, 32 species are enumerated, including a few dubious species with the others that are better understood, or more certainly distinct. In the Nomenclator Botanicus of Steudel, the number is raised to 57; in part, by the addition of more recently discovered species, in part by the subdivision of species

which were described by De Candolle under single names. To make up the number of 57 species, we have the genera of Nymphæa (including 34 species), Nuphar (9), Nelumbium (10), Euryale (3), and Barclaya (1); the genus Victoria being united with Euryale, by Steudel and several other botanists, who believe the Victoria Regina of Schomburgh to be identical with Euryale Amazonica of Poeppig. The addition of Nectris or Cabomba (4) and Hydropeltis (1) would raise the number of species to 62. The latter number gives the proportion of Nymphæaceæ among phænogamous plants in general as 1 in 1258; or, as is here preferred, by omitting the two last-named genera, we have the proportion of 1 in 1368 species. Probably the true proportion is somewhat higher, as it seems nót unreasonable to infer that Water-lilies are often left behind by botanical travellers, on account of the greater difficulty of collecting and preserving them. Thus, we find only one species of this order mentioned among upwards of four thousand species belonging to other orders, that were collected by Humboldt and Bonpland in Intertropical America. No species of the order is included in Hooker and Arnott's list of plants collected by Cuming and other botanists in Extra-tropical South America; nor is there any species in their lists of plants collected during the voyage of Captain Beechey. The indefatigable Drummond, however, sent home 3 species of Nymphæaceæ among his plants collected in Louisiana, without counting two species belonging to the genera of Nectris and Hydropeltis.

When an order constitutes so small a proportion of the general flora, as 1 in 1368, and several of its individual species are widely distributed, the proportions of the order compared with phænogamous plants in general will vary much according to the size of the tracts whose floras are

taken to form the comparisons. Thus, according to the works of Wahlenberg, Lapland has 3 species of Nymphæaceæ in a flora comprehending less than 500 phænogamous species in the whole. But if we take the entire peninsula of Norway and Sweden (all Lapland inclusive) we still find only the same three species of the order under consideration, although the addition of numerous other flowering plants, growing in other parts of the Scandinavian peninsula, raises its phænogamous flora to nearly 1200 species. In the one case, the present order has the proportion of 1 in 165 species; in the latter case, it is 1 in 400 species. In each case the absolute number of species is the same; the difference of proportion depending on the wider distribution of those 3 species of Nymphæaceæ, comparatively with the distribution of many other Scandinavian plants, which are less capable of enduring the climate of high northern latitudes. And since several other orders thus decrease more rapidly as we advance from the temperate to the frigid zone, there is a rise in the proportion borne towards the rest by the order of Nymphæaceous plants, although the absolute number of species of this order really decreases in high latitudes.

Taking the principal divisions of the globe, long recognised by geographers, and adopting the species of Steudel's work before alluded to, Nymphæaceæ are found to be most numerous in Asia, to which that author assigns 20 species. Next comes North America, in which 14 species are said to occur. South America follows, 9 species being localised there. To Europe he assigns 8 species; to Africa 7; to the West Indies 2; to Madagascar 1; to Java 1 or 2. Some of the species are common to two of these divisions; and our indigenous Nuphar lutea is found in three of them, Europe, Asia, and North America. In Ledebour's Flora Rossica, which includes the whole of the Russian empire,

7 species are described. In their Flora of North America, which does not include Mexico and other tracts to the south-westward of it, Torrey and Gray make out only 5 distinct species; a number just equal to the number described in Hooker's Flora of British America only. On the whole, probably, India in its most comprehensive sense, that is, including also China and Japan, may be accounted the head quarters of Nymphæaceæ; about 12 species from those countries being now known in Europe. And the species are perhaps most numerous in the warmer parts of the Northern Temperate Zone; decreasing in numbers towards the Equator and the Arctic Circle, but decreasing northwards so much more slowly than the species of several other orders of Phænogamous plants, as to acquire a higher relative proportion to the latter within or near the Arctic Circle.

In Britain we count only three species of Nymphæaceæ, and there are some of our botanists who would reduce these into two, regarding the Nuphar pumila of Scotland in the light of a small boreal form of Nuphar lutea. The two undisputed species, the well-known white and yellow Water-lilies, are spread almost throughout Britain; but while the yellow species, Nuphar lutea, becomes very rare towards the northern extremity of the island, the white-flowered species, Nymphæa alba, is still plentiful, if not more plentiful in the Highland districts than it is in the southern districts of England. The Nuphar pumila, on the contrary, is limited exclusively to Scotland and the most northern county of England, taking the place of Nuphar lutea in the boreal and mountain lakes; and being the only one of the three species that is so rare as to be denominated a local plant. All the three species are probably limited to the agrarian region in this country.

Beyond the limits of Britain, these three species have a wide range both of latitude and of longitude; two of them being pretty general throughout Europe and Northern Asia, and the Nuphar pumila having an almost equal range of longitude, though it is unknown in the south of Europe. Nuphar lutea, as before remarked, occurs also in America; and Sir W. J. Hooker seems much disposed to unite our Nuphar pumila with the American Nuphar Kalmiana.

List 1.

Numerical Relations of Nymphæaceæ.

	Nymphæaceæ.	Phænogamæ.	Proportions of same.
Lapland. (Wahlenberg.) - -	3	495	1 in 165
Sweden. (Wahlenberg.) - -	3	1165	288
Central Europe. (Koch's Synopsis.)	6	3210	535
France. (De Candolle and Duby.)	3	3695	1232
Portugal. (Brotero.) - -	2	1613	806
Tuscany. (Savi.) - -	2	1125	562
Rome. (Sebastiani and Mori.) -	0	1200	—
Sicily. (Presl.) - - -	2	1814	907
Greece. (Sibthorpe.) - -	2	2334	1167
Barbary. (Desfontaines.) -	0	1490	—
Siberia. (Gmelin.) - -	2	1117	558
Altai. (Ledebour.) - -	4	1604	401
Crimea and Caucasus. (Bieberstein.)	1	2360	2360
Nepal. (Don's Prodromus.) -	0	750	—
Japan. (Thunberg.) - -	2	732	366
Timor. (Spanoghe.) - -	0	573	—

	Nymphæaceæ.	Phænogamæ.	Proportions.
Polar and Arctic America -	0	386	—
Boreal America. (Hooker.) -	5	2410	1 in 482
North and Middle States. (Beck.)	5	1960	392
Inter-tropical America. (Humboldt, &c.) - - -	1	4170	4170
Extra-tropical S. America. (Hooker and Arnott.) - -	0	?	?

Iceland. (Hooker.) - -	0	357	—
Faroe. (Trevelyan.) - -	0	271	—
Ireland. (Mackay.) - -	2	1000	500
Channel Isles. (Babington.) -	0	828	—
Azores. (Watson.) - -	0	320	—
Madeira. (Holl.) - -	0	271	—

List 2.

Comparative frequency of British Nymphæaceæ.

	Districts.	Floras.	Catalogues.
Nymphæa alba - - -	17	19	20
Nuphar lutea - - -	15	19	23
Nuphar pumila - -	4	2	0

List 3.

Number of Nymphæaceæ in the Districts of Britain.

1. Peninsula	2	10. Humber	2
2. Channel	2	11. Tyne	3
3. Thames	2	12. Lakes	2
4. Ouse	2	13. West Lowlands	3
5. Severn	2	14. East Lowlands	2
6. South Wales	2	15. East Highlands	3
7. North Wales	2	16. West Highlands	2
8. Trent	2	17. North Highlands	1
9. Mersey	2	18. North Isles	1

List 4.

Number of Nymphæaceæ in the Regions of Britain.

Peculiar to the Agrarian Region	3
Common to the Agrarian and Arctic Regions	0
Peculiar to the Arctic Regions	0

List 5.

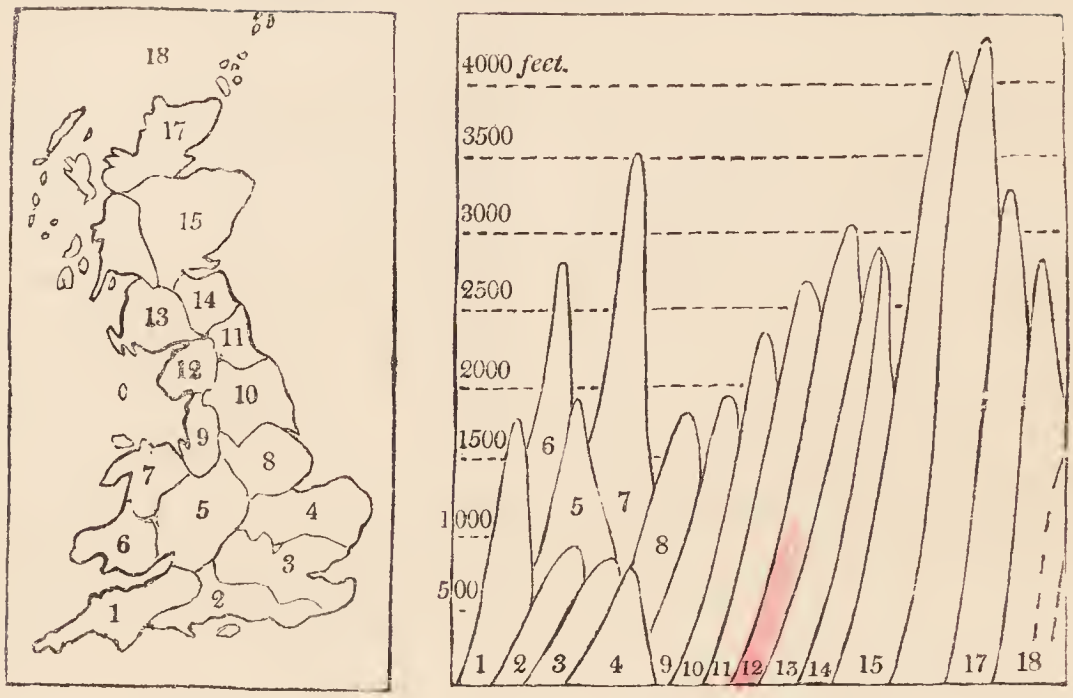
Number of Nymphæaceæ as varied by Altitude, in Britain.

	Scottish Highlands.	England & Wales.
Above 2000 feet	0	0
1000 feet	?	1
sea-level	3	3

List 6.

Number of British Nymphæaceæ in other Countries.

Lapland	3	Polar America	0
Sweden and Norway	3	Arctic America	0
France and Netherlands	3	Boreal America	1
Germany & Switzerland	3	North America	1
Italy	2	Mexico and California	0
Greece and Levant	2	South America	0
Spain and Portugal	2		
Sardinia, Sicily, Baleares	2	Arctic Isles	0
North Africa	0	Spitzbergen	0
		Iceland	0
Arctic Russia	3	Faroe	0
Northern Russia	3	British Isles	3
Middle Russia	3	Scotland	3
Southern Russia	3	Ireland	2
Caucasus and Crimea	2	England	3
Siberia and Altai	3	Channel Isles	0
Aleoutian Isles	1	Atlantic Isles	0
China and Japan	1	Azores	0
India and Himalaya	0	Madeira	0
Australian Islands	0	Canaries	0
Polynesian Islands	0	West Indies	0



Districts. Altitude of Districts.

26. Nymphæa alba, *Linn.*

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17. North Isles, 18.

Floras.—Devon. Bath. Tonbridge. Reigate (Sussex). Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Bristol. Poole. Wight (?). Sussex. Kent. Grinstead. Esher. Banbury. Ipswich. Bungay. Norwich. Lynn. Worcester. Swansea. Leicester. Derby, Renfrew. Ross. Hebrides.

Specimens. — In the river Mole, near Esher bridge Surrey—*H. W.* Horning, Norfolk — *Mr. James Paget.* Britton Ferry Canal, Glamorganshire — *Bot. Soc. London.* Nottinghamshire — *Mr. T. H. Cooper.* Pits at Woodside, Cheshire—*H. W.* Lanarkshire—*Dr. Joseph Hooker.* Loch at Nairn, and in a pool near Fort George, Moray — *Mr. William Brand.*

Britain. — Latitude, 50—59. Rather general. Agrarian. Nymphæa alba is the most widely distributed, and the most frequent with respect to the whole of Britain, among our native plants of its order. It is known to occur in every district, except that of the West Highlands, in which also it is likely enough to be found. It is seen on the south coast of England, as about Penzance, in Cornwall; and it is also found in lakes on the north coast of Scotland, as about Tongue and elsewhere. It is reported to grow in several places in the Western Isles, but is not included in the lists of plants indigenous in Orkney or Shetland. The Flora of Berwick is the only one among the local floras in which this plant is not included; and it may be questioned whether the able author of that Flora had actually examined a twentieth part of the tract of country, to which his work professedly related. But the Nymphæa is absent also from one third (or 10 in 30) of the local catalogues, chiefly those which relate to small spaces, as islets or the vicinities of towns; namely, those of Hertford, Dedham, Warwickshire (or Allesley and Coleshill), Denbigh, Settle, Richmond, Tees, Isle of Man, Alvah, and Orkney. It is rather remarkable that a plant which occurs in so many places within the county of Salop, should be altogether absent from that of Denbigh, which appears to be the case by its omission from the late Mr. Bowman's list of Denbighshire plants. Notwithstanding

its frequent absence from the tracts to which the catalogues relate, the Nymphæa is too widely distributed, and too frequent, to be designated a "partial plant." I do not recollect ever meeting with this species in the elevated lochs of Scotland; but in Cumberland it occurs in Watendlath tarn (about 850 feet) and in a small tarn above, whose waters pass into Watendlath tarn in their downward course, and which is supposed to be about 1200 feet above the sea. Mr. Lees informs me that he has never seen this species in any of the elevated lakes in Wales. The Nymphæa grows in lakes, ponds, canals, and rivers where their streams are not very rapid. It will live some time, growing with erect leaves on short stalks, after the water in which it floated has all evaporated.

Geography. — Latitude, 37—69. Europe. Asia. Ireland. Lapland. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Baleares. Sardinia. Sicily. Italy. Greece. Russia. Caucasus. Siberia. Nymphæa alba is limited to the old continent, where it is distributed from the most southern part of Nordland and Swedish Lapland, the district of Kola in Arctic Russia, and Siberia, southwards to Portugal, Sicily, Greece, and Caucasus. As far as appears from the works consulted, it is never found at any great elevation in the mountainous tracts of Europe. In Sicily, where it is rare, it occurs in the lower part of the region of the Vine.

1. Peninsula. — Seen in Marazion marsh, near Penzance. In pools at Powderham, scarcely wild. Somerset. In the basins of the canal, near Bath.

2. Channel. — Common within eight miles of Poole. Neighbourhood of Wimborne. Rare in ponds, in the Isle of Wight, where it is perhaps not indigenous. Miller's

pond, near Southampton. Fenland ponds, near East Grinstead. Ifield; and in a secluded pool, on Furnace farm, Worth, Sussex. In the water at Penshurst.

3. THAMES. — In narrow dykes at Ham ponds, near the village, South Kent. Weir Mill pond, near East Grinstead. Seen in the Thames, at Walton bridge. Thames at Hampton. Seen in the river Mole, above and below Esher bridge. About Oxford. In the Cherwell, near King's Sutton, in the vicinity of Banbury. In the Rhodon, near Luxborough House, near Woodford.

4. OUSE. — Ponds at Holbrook, near Ipswich. Bungay. In most of the broads about Yarmouth. Horning. Surlingham. Lynn. East Walton, Norfolk. Shouldham. Common in Norfolk. In the water-course, on the side of the road between Barnwell and Hinton. Feversham moor. Triplow heath. Anglesey Abbey. Common in Bedfordshire.

5. SEVERN. — Neighbourhood of Bristol. Very rare in Worcestershire. In the Avon, under Littleton Bank, Worcestershire, according to Mrs. George Perrott. In a pond at Ragley. Sutton, near Birmingham. River Sow, near Stafford. In the large pond at Patshull. Frequent in Shropshire. Snowden pool, near Bridgnorth. Pool on Hughley Common farm. Ellesmere. Walford and Fenny mere. Hopton. Hayes, near Oswestry. Llynklys pool, in the parish of Llanyblodwell. Marton pool, near Baschurch. Bomere. Almond Park, Hancott, and Berrington pools. In a large pond, adjoining the canal at Newport, Monmouthshire; but said to have been planted there.

6. SOUTH WALES. — In profusion in the pools of open water within Cromlyn morass, two miles east of Swansea, and in marshy spots between the latter and the sea. Near Swansea, abundantly in the canal going to Neath. Britton Ferry Canal. Plentiful in Lake Llynsavaddon, in the depression between the Brecon Beacons and the Black Mountain.

7. NORTH WALES. — Opposite the turnpike, on the left side of the road, in proceeding from Barmouth to Harlech. Frequent in Anglesea.

8. TRENT. — The Soar, near Kegworth. Groby Pool. Braunston. Between Ilkeston and Eastwood, on the

banks of the Erewash, abundantly. Beeston Canal, half a mile beyond Lenton. Said to have been found at Langford Fleet, and near Collingham, Notts. Hardwick Park, Derbyshire.

9. Mersey. — Seen in pits about Seacombe and Woodside, by the river Mersey. Seen also in Martin Mere, between Congleton and Knutsford. Common about Liverpool.

10. Humber. — Vicinity of Leeds. Potteric Carr, near Doncaster. Near Thirsk. Mere, near Scarborough. Near Sherriff Hulton; and in the river Foss, near York. In the Derwent. In a pool at Middleton Lodge. In ponds at Hildenley, and several other places near Malton.

11. Tyne. — In Greenley and Bromley lakes, near Shewing Shields. In Grinden Lake. Naturalised in the ponds at Wallington.

12. Lakes. — In all the lakes of Cumberland. Seen in Derwent Lake, near Keswick; also in Watendlath tarn; also in the small tarn above Watendlath.

13. West Lowlands. — Frequent in Lanarkshire. Loch in the parish of Shotts. In the lochs to the north of Old Monkland parish. Wans Loch, in Lockwhinnoch parish. Loch of Lewes, in Beith parish.

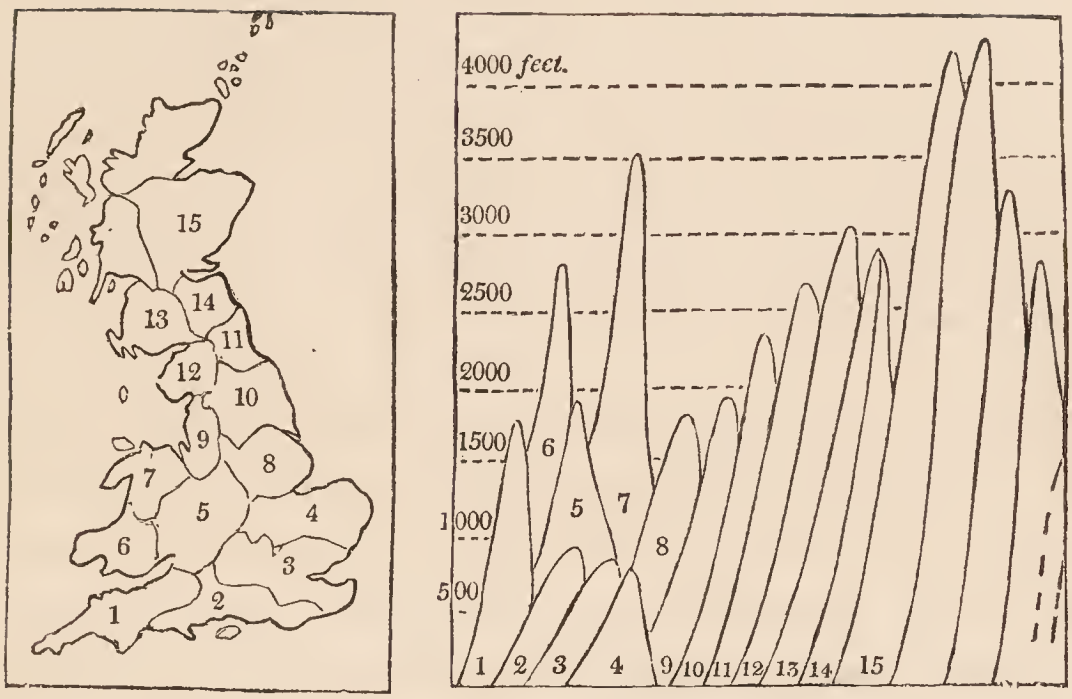
14. East Lowlands. — Lochend, near Edinburgh.

15. East Highlands. — Lochs of Rescobie and Balgavies. In a marsh at the north side of the avenue at the house of Maryculter. Loch of Drum, Aberdeen. Corbie Loch, near Scotstown. Loch at Nairn. Pool near Fort George. Loch near Rinniner. Lochs in Badenoch. Moss of Litie.

16. * * *

17. North Highlands. — Ross-shire. Seen in lochs in the north of Sutherland; Armidale; Tongue; Loch Errboll.

18. North Isles. — In many parts of North Uist, Harris, and Lewis.



Districts. Altitude of Districts.

27. Nuphar lutea, *Smith.*

Nymphæa lutea — Withering, Hudson.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Catalogues. — Somerset. Bristol. Poole. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Worcester. Denbigh. Leicester. Derby. Settle. Tees. Renfrew. Ross.

Specimens. — In a small pool, on Pirbright Common, Surrey — *H. W.* In the Thames, at East Moulsey, and Hampton Court — *H. W.* Horning, Norfolk — *Mr. James Paget.* Nottinghamshire — *Dr. Howitt* (through *Mr. T. H. Cooper*). Prestwick Carr, Northumberland — *Mr. R. Bowman.* Derwent Lake, Cumberland — *H. W.* Lanarkshire — *Dr. Joseph Hooker.* Loch near Aberdour, Fifeshire — *Mr. William Brand.*

Britain. — Latitude, 50—58. Rather partial. Agrarian. In England the Nuphar lutea may be deemed more frequent than Nymphæa alba; but in Scotland the reverse holds good. The present species extends from the south of England, as Devon and Kent, northward to the vicinity of Aberdeen, and possibly is indigenous in Moray. No locality has been ascertained in the West Highlands, where also it may be expected to grow; nor is any recorded for either of the two most northerly districts, from both of which this plant may be entirely absent. It is included in all the local floras, excepting that for Moray, in which it appears only as a non-indigenous plant. It is wanting in seven of the local catalogues, namely, those for the Isle of Wight, Swansea, Richmond, Isle of Man, Alvah, Hebrides, and Orkney. With respect to Swansea, there seems to be some oversight; since Mr. Lees has favoured me with two localities for this plant in the neighbourhood of Swansea (see the localities in the paragraph for South Wales); although the species is omitted from Mr. Gutch's list of Swansea plants, and likewise from the list of additional species communicated to the Phytologist by Messrs. Lees and Flower. I have no note of ever observing this species at much altitude. Being included in the list of plants found at Settle, it may be 400 or 500 feet above the sea, in that neighbourhood. Mr. Lees writes of this

species, in contrast with Nymphæa alba, "As far as my observation goes, it gets higher up into the heart of the mountains: Begalyn pool, Plynlimmon, for instance." But what is the altitude of Begalyn pool, I am not able to state. Its places of growth are very similar to those of Nymphæa alba, though the present species is more frequently found in ditches and other smaller or stagnant waters. Perhaps, also, more frequent in streams, since Mr. Lees remarks, that it is "less careful of avoiding running water than Nymphæa alba is." Slowly flowing rivers, however, often contain both species.

Geography. — Latitude, 37—69. Europe. Asia. America. Ireland. Lapland. Norway. Sweden. Netherlands. France. Germany. Switzerland. Portugal. Spain. Sardinia. Sicily. Italy. Greece. Turkey. Russia. Caucasus. Siberia. Altai. Island of Sitcha. Boreal America. Nuphar lutea is widely distributed over the northern latitudes of the old continent, from Lapland, Arctic Russia, and Siberia, southwards to Portugal, Sicily (where it is more rare than Nymphæa alba), Thessaly (Dioscorides — Sibthorpe), and Caucasus. Thunberg has N. lutea in the flora of Japan; but the plant described by that author, under name of Nymphæa lutea, is now known as Nuphar Japonica. Dr. Richardson reports it as seen in the wooded country of Boreal America, between latitudes 54 and 64. Beck gives the locality of the North States; but Torrey and Gray mention only the "subarctic regions" and island of Sitcha, assigning the localities of North States and Canada to Nuphar Kalmiana, which those authors, as intimated below, reduce to a variety of Nuphar lutea. In Lapland, Wahlenberg indicates the wooded regions for the habitat of this plant. With respect to the height attained by it

in other mountainous countries of Europe, little or no information appears to be on record.

1. Peninsula. — In the Clyst river, near Bishop's Clyst bridge, abundant. Somerset. In the Avon, and the canal, near Bath.

2. Channel. — Common within eight miles of Poole. In Sussex. In the moat at Brambletye, possibly introduced. At Bayham Abbey, near Tonbridge.

3. Thames. — Tonbridge town. In dykes near Deal. Ditch near the village of Sarre, between Canterbury and Margate. Seen in the Thames at Moulsey, Walton, &c. Seen in the Mole, above and below Esher bridge. In various parts of the Mole, near Reigate, as at Sidla bridge and Brockham. Seen in a pool, by the Basingstoke canal, near Brookwood Stumps, on Pirbright Common, Surrey. About Oxford. Common in the Cherwell, near Banbury. Common about Hertford. In many parts of the Rhodon, particularly between Woodford bridge and Luxborough House, Essex. Local about Dedham.

4. Ouse. — Common in Suffolk. Very common in the river Gipping, near Ipswich. Bungay. Common in Norfolk. Common in most of the Broads, about Yarmouth. Horning. Near Norwich. Lynn. East Walton. Shouldham. In the river Cam, and elsewhere in Cambridgeshire. Common in Bedfordshire.

5. Severn. — Neighbourhood of Bristol. Common in the Midland Counties. North Warwickshire. Common in almost all the ponds and rivers of Worcestershire, except the "Severn swift." In the Avon, at Pershore. Abundant in the tributaries of the Avon. Many localities recorded in the Flora of Shropshire. Tong pool. Marbury mere, near Whitchurch. Snowden pool, near Beckbury. Marton pool, near Baschurch. Bomere, Almond Park. Hancott and Berrington pools. Ellesmere canal. West Felton.

6. South Wales. — Vale of Neath. Waters of Crumlyn Morass, east of Swansea. In a pool, at Oystermouth, five miles west of Swansea. Near St. David's, Pembrokeshire. In the stream flowing out of the Lake of Llynsavaddon. Begalyn pool, Plynlimmon.

7. North Wales. — Near Wrexham. Anglesea.

8. Trent. — In the river Soar. Groby Pool. Rothley, and elsewhere about Charnwood. Frequent in Nottinghamshire. Derbyshire.

9. Mersey. — Seen in a pit between New Ferry and Bebbington. Pits near Hoylake. In the river Alt, by Formby, near Liverpool. Seen in the canal, between Bootle and Liverpool.

10. Humber. — Frequent in Yorkshire. Neighbourhood of Leeds. Near Rotherham. Potteric Carr, near Doncaster. In the Ribble, below Settle. Mere, near Scarborough.

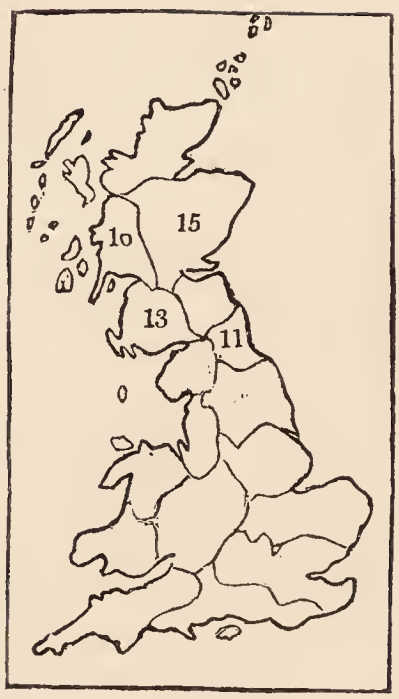
11. Tyne. — Frequent about Stockton. Near Norton. In the ponds at Park House, and in the Skerne, near Darlington. Prestwick Carr. In the Pont, Ouse Burn, and in ponds at Widehaugh, near Dilston. Also in the loughs near Shewing Shields.

12. Lakes. — In all the lakes of Cumberland. Seen in Derwent Lake, near Keswick.

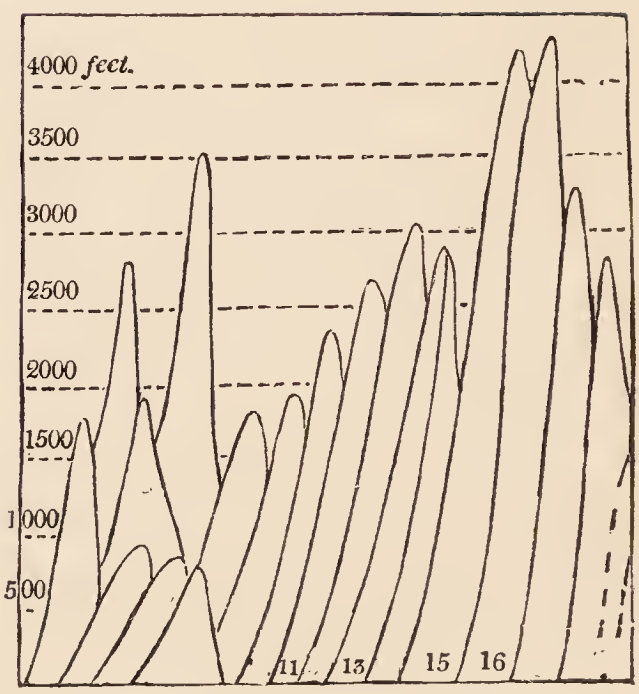
13. West Lowlands. — In Lanarkshire. In the Clyde, one mile below the Botanic Garden, at Glasgow. In a loch at Kilpatrick. In Frankfield, Huggenfield, and Mugdoch lochs, near Glasgow. Lochwhinnoch, Renfrewshire.

14. East Lowlands. — Coldingham lough. Pond at Kames, near Berwick. Lochend, Edinburgh.

15. East Highlands. — In a loch, near Aberdour, Fife. Lochs of Rescobie and Balgavies, Forfar. Corbie loch and Loch of Drum, Aberdeen. In the ponds at Brodie, Moray, but perhaps introduced.



Districts.



Altitude of Districts.

28. Nuphar pumila, *De Cand.*

Nuphar minima — Gray.

Districts. — Tyne, 11. West Lowlands, 13. East Highlands, 15. West Highlands, 16.

Floras. — Tyne. Moray. Catalogues. — None.

Specimens. — Northumberland — *Mr. W. C. Trevelyan.* Lanarkshire — *Dr. Joseph Hooker.* Loch Ballatern, near Aviemore Inn — *Rev. George Gordon.*

Uncertain Localities. — In a pond at Purbeck — *Salter's Botany of Poole.* There may be some error here; but having mislaid a copy of the pamphlet referred to, at the time of sending this sheet to press, I am unable to ascertain whether the mistake (if any) is in my own

manuscript or elsewhere. The county of Dorset appears an unlikely habitat for a plant of the Highlands.

Britain.—Latitude, 55 (or 50)—58. Local. Agrarian. Found in a few lakes of the East and West Highland districts, in one locality in the district of the Tyne, and in one (unless an error) in that of the West Lowlands. None of the localities indicated for this plant appear to have much altitude above the sea; perhaps, only a few hundred feet. It is, however, uncertain whether the Nuphar pumila is permanently distinct from Nuphar lutea. The late Mr. Winch said that "the Least Yellow Water-lily was transplanted from the subalpine moors into the ponds at Wallington, where it now scarcely differs from the common Water-lily."

Geography. — Latitude, 46—69. Europe. Asia. America. Lapland. France. Switzerland. Germany. Russia. Siberia. Altai. North States of America? Canada? Nuphar pumila is a local plant, which is limited to the colder latitudes of Europe and Asia. North America must be added to these, if we look upon the present species as identical with Nuphar Kalmiana, a view to which Sir W. J. Hooker seems much inclined. The correctness of this union receives additional support from the circumstance of Torrey and Gray uniting Nuphar Kalmiana to Nuphar lutea, as a variety of the latter, while some other botanists adduce arguments for the union of the present species with Nuphar lutea; in relation to which the remark of the late Mr. Winch has been already quoted. Few localities are on record for Nuphar pumila, which is either scarce or often overlooked. Wahlenberg terms it a scarce plant in Swedish Lapland. It is enumerated in the published floras of Hamburg,

France, Switzerland and Germany (Koch); the last indicating the localities of Mecklenburg, Silesia, and the mountains near Salzburg. In Russia, according to Ledebour, it occurs in the territory of Kola, in Finland, Petersburg, Livonia, and Lithuania; and in Siberia, on the Ural and Altai, near Irkutz, and elsewhere.

11. Tyne.—In Chartner's Lough, on the Wallington moors.

13. West Lowlands.—Lanarkshire. (Is this correct?)

15. East Highlands.—In the loch of Monteith, between the islands and shore. Mugdoch loch, near Glasgow. Loch Ballatern (or "Baladren"), near Aviemore. In a loch on the south side of the road from Aviemore to Inverness, and at two miles and a half from the former. Lochs at Kilhuntley, in Badenoch. Loch below Milton of Badenoch. At Farletter, Badenoch. (These Aviemore and Badenoch localities are made more numerous by the different modes of describing them.)

16. West Highlands.—Loch Duble, near Inverary. In a pool, near the farm of Covrie Chastel, at the foot of Ben Cruachan.

III. PAPAVERACEÆ.

Papaveraceæ are distributed generally over the extra-tropical countries of the Northern Hemisphere. They are found also, though sparingly, within the tropics, and likewise in the extra-tropical latitudes of the Southern Hemisphere. One representative of the order, Papaver nudicaule, attains the highest northern latitudes visited by navigators, namely, Melville Island and Spitzbergen; and others appear beyond the arctic circle in Europe and America, namely, Fumaria officinalis, in Nordland, and Corydalis pauciflora, about Kotzebue Sound, in North-west America. A few representatives of the order have been collected near the contrary extremity of the Old Continent, in South Africa; and a very few others have been brought from South America and Australia. The species are most numerous in the warmer latitudes of the north temperate zone. For the most part, Papaveraceæ evince a predilection for the low grounds, though to this rule there are some striking exceptions, as in Papaver alpinum and Papaver pyrenaicum, which rise to a high elevation on the mountains of Europe.

About 170 species of this order are enumerated in the Nomenclator Botanicus of Steudel; and since that work embraces 78,000 species of phænogamic plants in the whole, the present order stands to flowering plants in general in the proportion of 1 in 455. We shall usually find this proportion much exceeded in the floras of countries in the north temperate zone, and, on the contrary, to be in excess over the proportions given by collections of plants

made within the tropics, or beyond the tropic in the Southern Hemisphere.

With a few exceptions, chiefly seen in the limited floras of small islands, the proportion of Papaveraceæ among flowering plants, in the temperate latitudes of the Northern Hemisphere, varies between one and one-half per cent. This will be sufficiently apparent in "List 1." appended to these remarks on the distribution of the order. At the northern extremity of Spitzbergen, the order bears a much higher proportion, being at the rate of more than two per cent. But since only 46 species of phænogamic plants were collected there during the voyage of Captain Parry, it was impossible that the order could bear a lower proportion than 1 in 46, if represented at all in the flora. Taking the whole polar coasts, beyond 72 N. L., we find a flora which includes 113 phænogamic plants, but still having only the single polar species of this order, Papaver nudicaule. Here, consequently, the proportion is less than one per cent. In Iceland and Faroe, which have floras more numerous in species, we see the present order bearing a much lower proportion among phænogamic plants. But the most striking exception to the usual proportions of extra-tropical latitudes, occurs in the flora of Lapland, where there is only one species, Fumaria officinalis, among nearly 500 phænogamic plants, described in the Flora Lapponica of Wahlenberg, and since augmented by the addition of many species found by Sommerfelt in Norwegian Lapland. Looking to the numbers in the Flora Atlantica, it is in the North of Africa that Papaveraceæ attain their highest proportion relatively to flowering plants; the order there exceeding one per cent. Nearer the Equator, there would appear to be a rapid decrease of Papaveraceous plants. Only two are described by Kunth among upwards of 4000 other phænogamic plants collected

by Humboldt and Bonpland in Inter-tropical America. Loureiro describes only one species among upwards of 1200 phænogamic plants collected in Cochin-China. Spanoghe has no species of this order among 573 phænogamic plants collected in Timor and the neighbouring islands.

The very brief manner in which the habitats of species are stated in the valuable work of Steudel, before mentioned, prevents any very exact estimate of the numerical distribution of this or other orders being made from it; but following his slight indications of the countries in which the several species are found, Papaveraceæ may be distributed as follows: — Asia has 80 species in the aggregate; Europe has 44; North America has 28; Africa has 18, eight of these being assigned to South Africa; South America has 4; and to New Holland only one species is assigned. Northern Asia (Siberia, Altai, Kamschatka) has about 25 species; Western Asia (Asia Minor, Caucasus, Persia, Arabia) has about 30 species; South-eastern Asia (India, China, Japan) about 20 species. But several of the species which Steudel localises in Europe do also grow in Asia or North Africa, so that the numbers found in those quarters of the world require to be stated somewhat higher, independently of additions by a few recently described species.

The Flora of North America, by Torrey and Gray, and the Flora of the Russian Empire, by Ledebour, embrace the largest tracts of country whose plants are described in single floras. As before mentioned (page 23.), Mirbel calculated the number of species of the different orders in a still larger tract, embracing all Europe, North Africa, North and West Asia, and the polar coasts of America. The numbers of Papaveraceæ in these three lists are shown below; and for the sake of comparison with a large tract,

which scarcely takes in any part of the warmer latitudes of extra-tropical countries, the number described in the Flora Boreali-Americana, by Hooker, is added to the other three lists: —

	Papaveraceæ.	Fumariaceæ.	Together.
Flora Boreali-Americana -	3	11	14
Flora of North America -	19	20	39
Flora Rossica - -	20	32	52
Mirbel's Tract - -	40	37	77

The 77 species of Papaveraceæ and Fumariaceæ are included by Mirbel among 10,292 species of phænogamic plants. This indicates a proportion for the order, relatively to flowering plants in general, of 1 in nearly 134, which corresponds very well with the proportions given by the Floras of more limited tracts in Europe and Asia. In the colder latitudes of Boreal or British America, the proportion is lower, being 1 in 172. The Flora of Torrey and Gray, and that of Ledebour, are in progress of publication, and the phænogamic orders not completed; in consequence of which their proportions cannot be stated.

The authors of those large floras have described Papaveraceæ and Fumariaceæ as distinct orders. Here they are united together; it being more convenient for the purposes of this work to treat them as one single order. They are not only allied closely by structure, but are also much alike in their geographical distribution; and they are likewise nearly on a par in respect of the number of their species in the floras of kingdoms or other limited tracts, as they are in the general flora of the earth, the species enumerated by Steudel being Papaveraceæ 92, and Fumariaceæ 79. The chief exceptions to this equality of the two divisions, are, the predominance of Fumariaceæ in the more northern latitudes, as in Boreal America and

the Russian Empire, while Papaveraceæ become more numerous than Fumariaceæ in the South-east of Europe, West of Asia, and West of America.

Though Fumariaceæ my be thus said to predominate in the higher northern latitudes, that division of the order fails to attain the extreme northern latitudes in which Papaver nudicaule has been found; so that, keeping the two divisions distinct, we should describe Fumariaceæ as ceasing entirely a little above the arctic circle, in Lapland, and about Kotzebue Sound; while Papaveraceæ attain to Melville Island, North-east Greenland, in latitude 72—76, and the northern extremity of Spitzbergen. Papaveraceæ also are represented on the European mountains at greater altitudes than Fumariaceæ are found.

The 92 species of Papaveraceæ are included under 14 genera in the Nomenclator Botanicus; the typical genus Papaver comprehending 38 species, and those of Eschscholtzia, Meconopsis, Argemone, and Glaucium, embracing 6 to 8 species each. The genera of Fumariaceæ are fixed very differently by different writers. Steudel inclines to decrease the number of genera, by rejecting the minute subdivisions of the dealers in small ideas. Corydalis, including 46 species, Fumaria, including 15 species, and Diclytra, including 8 species, are his largest genera; the other 5 genera embracing very few species. In the combined order, there are about 8 species to a genus, as an average.

In the British Flora of Sir W. J. Hooker 17 species of Papaveraceæ are described; but to 5 of these the asterisk is attached, to indicate that they are not truly indigenous in this country. Four of these do now certainly occur half wild in several places, though there can be little doubt that they have been thus far naturalised through gardens or farm-

cultivation; namely, Papaver somniferum, Glaucium violaceum, Corydalis lutea, and Corydalis solida. The fifth, Glaucium phœniceum, is said to have been formerly found wild; and if so, it has proved incapable of keeping its ground in this country, since no botanist of the present day finds it in the places where it is thus said to have formerly grown. Chelidonium majus may be another introduced species, being rarely met with except in the immediate vicinity of houses or old gardens. And the Poppies and Fumarias also are rather suspicious weeds of cultivated ground, though now too completely naturalised to be excluded from our indigenous flora. Among other circumstances which tend to show their exotic origin, the young plants are killed in severe winters.

Mr. Babington's acute discrimination of plants, and (perhaps, consequent) tendency to multiply species, have been exercised on the Fumarias; and he now counts 5 British species. (Trans. Bot. Soc. Edinb. vol. i. page 31.) Here, however, I have felt compelled to treat them as 3 only; finding it impossible to make out the distribution of F. parviflora and F. Vaillantii, apart from each other, and not knowing the F. calycina, Bab. Besides, it appears the safer course not to multiply species where the distinctions are so minute, and so uncertain, that neither figures nor descriptions can convey the characters of the alleged species from one botanist to another. Indeed, it seems to myself by no means improbable that all our alleged indigenous species are varieties from one original stock. Fumaria media runs between F. officinalis and F. capreolata; and the late Mr. J. E. Bowman, an accurate observer, said that he found specimens which appeared to unite the two latter. Again, Mr. Babington appears to admit that he has seen a specimen intermediate (in the character of its fruit) between F. parviflora and F. Vail-

lantii. And Hooker and Arnott mention South American specimens, in which the large sepals of F. capreolata are united with the apiculated fruit of F. parviflora.

Under these circumstances, namely, the difficulty of correctly distinguishing the localities for each, and the difficulty (if not impossibility) of distinguishing the alleged species by any clear and certain characters, the small-flowered Fumarias must here be united under the one name of F. parviflora, and the native species be consequently reckoned as 3, instead of 4 or 5. Thus, the 17 or 18 nominally native and distinct British species of Papaveraceæ become reduced to 11; and still assuming the number of 1200 to represent the whole of our indigenous phænogamic plants, the order now under consideration will constitute a proportion of rather less than one per cent., namely, that of 1 in 109 species.

In this country, Papaveraceæ may in general be looked upon as southern more than northern species, several of them failing to reach the extreme northern districts, and all growing in one or other of the southern districts. They are also plants of the low grounds, which mostly become less frequent as we approximate to the mountain tracts. Meconopsis cambrica is the only decided exception, being a plant that affects the hilly districts of England and Wales, and which exceeds the altitude of 2000 feet on the mountains of Caernarvonshire: though it is not so far an arctic or alpine plant as to grow on the Highland mountains. Corydalis claviculata is also in some degree an exception, as it flourishes in the mountainous districts, though seldom seen above 1000 feet of elevation.

The Fumariaceæ are more widely distributed than the other Papaveraceæ. Fumaria officinalis occurs in all the districts, is included in all the floras, and is likewise enumerated in all the catalogues, save one — that of the

Hebrides. F. capreolata equally extends into all the districts, though by no means so constantly met with; and, as shown in the appended "List 2.," it is absent from three of the floras and thirteen of the catalogues. F. parviflora would seem by the List to be much less frequent, and less widely distributed; but allowance must here be made for the uncertainty of the species, or, at least, its being little familiar to the botanists of Britain. Next to the two commoner Fumarias, the most widely distributed species would seem to be Corydalis claviculata, which is stated to grow in all the districts, excepting that of the North Isles. It is, however, by no means so frequent as some species of Papaver, whose ascertained distribution in the districts leaves them below it; and we find that it is included in only 29 of the 50 floras and catalogues. Papaver dubium should probably rank second (not fourth) in comparative frequency among the plants of its order; its apparent absence from the entire districts of the Lakes and West Highlands very probably arising from our want of any full lists of species for counties or other tracts within those districts. Chelidonium majus, Papaver Rhœas, and Papaver Argemone, being each of them found in at least 16 of the districts, though in rather a less number of floras and catalogues than Papaver dubium, come below this last-named species in the List. Papaver Argemone is rare or wanting in the western districts of Scotland, and the other two are similarly circumstanced in the two most northern districts; and thus have a more circumscribed range than Corydalis claviculata and Fumaria capreolata, although in most of the English districts the two Poppies and the Chelidonium are much more frequently met with.

The remaining three species of the order are more partially distributed. Glaucium luteum is a sea-side plant,

and consequently absent from inland counties. Papaver hybridum is a partial species, rare in some, wanting in others of the western and northern districts of England, and quite absent from Scotland. Meconopsis cambrica, as before remarked, is a plant affecting the hilly districts of England Wales, and occurs really indigenous in so few localities that it should rather be denominated a "local" than a "partial" plant.

It will be seen in the annexed "List 3." that only one of the 18 districts includes all the 11 species of Papaveraceæ; namely, that of the Humber. The Peninsula and North Wales have all except Fumaria parviflora, whose true distribution has yet to be ascertained, and likely enough it will hereafter be found in those districts. The absence of Meconopsis cambrica from the districts of the Channel, Thames, and Ouse, reduces their representatives of this order to 10; all the other species being found in these three districts. For the remaining districts respectively, 9 species, or less, have been found recorded; partly because some of the species are really absent from them, partly because we have not sufficient knowledge of their plants: for instance, Papaver dubium is very likely to be found in the Lake district, though no expressly recorded locality for it has been ascertained in that district.

The Papaveraceæ being mostly annual weeds of cultivated ground, they cannot be expected above the agrarian region. Of the four species which are not weeds in this way, one, Glaucium luteum, is a sea-side plant; another, Chelidonium majus, is scarcely found elsewhere than about houses and gardens, and thus also limited to the agrarian region. Corydalis claviculata keeps within the limits of the agrarian region, but attains an altitude between 1000 and 2000 feet in some English counties. Meconopsis cambrica is the only species which certainly

attains the arctic region; but even this species passes so little above the agrarian region, as probably not to attain the subalpine or middle zone of the arctic region.

Beyond the limits of Britain, our native species of this order are not so widely distributed as some of those comprehended in the two former orders. None of them occur in North America, except two or three that have been carried thither from Europe by the instrumentality of man. Neither are any of them known to grow in the Arctic Isles, northward of Britain. All occur on the Continent of Europe, but only in France (and possibly Spain) do all the eleven species grow. Ten are found in Germany, in Italy, and in Greece or the Levant; the one species that is wanting in those countries being Meconopsis cambrica. In European Russia, as in the Caucasus, eight of the species are found; Meconopsis cambrica, Corydalis claviculata, and Fumaria capreolata being there absent. Few extend into Asia eastward of the Causasus.

Ireland has all the British species. The Channel Isles want three of them. Neither Ireland nor the Channel Isles add any other species of this order to the general flora of the British Isles. The more northern Isles of Faroe give one additional species, Papaver nudicaule, the only representative of the order that is indigenous in those islands.

List 1.

Numerical Distribution of Papaveraceæ.

	Papaveraceæ.	Phænogamæ	Proportions of same.
Lapland. (Wahlenberg.) -	1	495	1 in 495
Norway. (Gunner.) - -	6	749	125
Sweden. (Wahlenberg.) - -	8	1165	146
Scandinavia. (Retz.) - -	11	1261	115

	Papaveraceæ.	Phænogamæ.	Proportions of same.
Germany. (Koch.) - -	19	3210	1 in 169
Belgium. (Lejeune.) - -	17	1796	106
France. (Duby.) - - -	29	3695	127
Greece. (Sibthorpe.) - -	19	2334	123
Portugal. (Brotero.) - -	11	1613	147
Sicily. (Presl.) - - -	14	1814	130
Barbary. (Desfontaines.) -	16	1490	93
Siberia. (Gmelin.) - -	10	1117	112
Altai. (Ledebour.) - -	12	1604	134
Caucasus, &c. (Bieberstein.) -	18	2360	131
Nepaul. (Don.) - -	5	750	150
Japan. (Thunberg.) - -	6	732	122
Cochin China. (Loureiro.) -	1	1203	1203
Polar America, beyond lat. 72° -	1	113	113
Arctic America - -	2	386	193
Boreal America. (Hooker.) -	14	2410	172
North and Middle States. (Beck.)	11	1960	178
Tropical America. (Humboldt, &c.)	2	4170	2085
Spitzbergen. (Parry's Voyage.) -	1	46	46
Iceland. (Hooker's Tour.) -	1	357	357
Faroe. (Trevelyan.) - -	1	271	271
Ireland. (Mackay.) - -	8	1000	125
Britain. (1200 species assumed.) -	11	1200	109
Channel Isles. (Babington.) -	6	828	138
Western Azores. (Watson.) -	2	320	160
Madeira. (Holl.) - -	2	260	130
Cuba. (Humboldt.) - -	1	152	152

List 2.

Comparative Frequency of British Papaveraceæ.

	Districts.	Floras.	Catalogues.
1. Fumaria officinalis	18	20	29
2. Fumaria capreolata	18	17	17
3. Corydalis claviculata	17	14	15
4. Papaver dubium	16	20	25
5. Chelidonium majus	16	19	25
6. Papaver Rhœas	16	19	24
7. Papaver Argemone	16	17	24
8. Glaucium luteum	15	9	10
9. Papaver hybridum	9	8	7
10. Fumaria parviflora	6	4	3
11. Meconopsis cambrica	5	5	3

List 3.

Number of Papaveraceæ in the Districts of Britain.

1. Peninsula	10	10. Humber	11
2. Channel	10	11. Tyne	9
3. Thames	10	12. Lakes	8
4. Ouse	10	13. West Lowlands	7
5. Severn	9	14. East Lowlands	9
6. South Wales	9	15. East Highlands	9
7. North Wales	10	16. West Highlands	5
8. Trent	8	17. North Highlands	5
9. Mersey	8	18. North Isles	5

List 4.

Number of Papaveraceæ in the Regions of Britain.

Peculiar to the Agrarian Region	10
Common to the Arctic and Agrarian Regions	1
Peculiar to the Arctic Regions	0

List 5.

Number of Papaveraceæ as varied by Altitude in Britain.

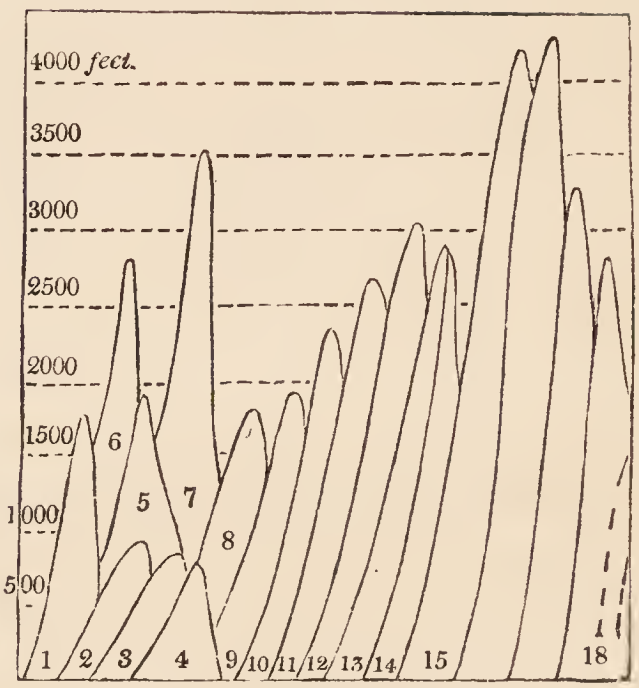
	Scottish Highlands.	England and Wales.
Above 2000 feet	0	1
1000 feet	?	2
sea level	9	11

List 6.

Number of British Papaveraceæ in other Countries.

Lapland	1	Polar America	0
Norway and Sweden	6	Arctic America	0
France and Netherlands	11	Boreal America	0
Germany & Switzerland	10	North America	0
Italy	10	Mexico and California	0
Greece and Levant	10	South America	1
Spain and Portugal	10		
Sardinia, Sicily, Baleares	9	Arctic Isles	0
North Africa	7	Spitzbergen	0
		Iceland	0
Arctic Russia	0	Faroe	0
Northern Russia	3	British Isles	11
Middle Russia	6	Scotland	9
Southern Russia	7	Ireland	11
Caucasus and Crimea	8	England	11
Siberia and Altai	4	Channel Isles	8
Aleoutian Isles	0	Atlantic Isles	8
China and Japan	1	Azores	2
India and Himalaya	2	Madeira	2
Australian Islands	0	Canaries	7
Polynesian Islands	0	West Indies	0

Districts.



Altitude of Districts.

29. Papaver Rhœas, *Linn.*

Papaver erraticum — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Isles, 18 (?).

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Catalogues. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick.

Worcester. Swansea. Denbigh. Leicester. Derby. Richmond. Tees. Orkney.

Specimens. — Near Penzance, Cornwall — *H. W.* Millbrook, near Southampton — *H. W.* Between Frimley and Farnborough Station, Hants. — *H. W.* Near Stone Castle, Kent. — *H. W.* Thames Ditton, Surrey — *H. W.* Near Hampton Court, Middlesex — *H. W.* Nottinghamshire — *Mr. T. H. Cooper.* Edinburgh — *H. W.*

Britain. — Latitude, 50 — 58 (or 61). Rather partial. Agrarian. Papaver Rhœas is abundantly common throughout most of the English counties, and is frequent also in the South and East of Scotland. In the northern counties of Scotland, it is much less frequent, and probably not indigenous, though occasionally imported with seed corn. The Rev. G. Gordon writes of this species, "It has little or no claim to be considered a north-country plant. I never saw but one specimen [in Moray], and it was a weed in a garden. Though most abundant about Edinburgh, yet rare about Glasgow." On the other hand, it is marked as a plant of the Orkney Isles, in the lists by Dr. Gillies and the Rev. C. Clouston; and by Mr. Edmonston (publishing at a very youthful age) it is said to be "not common in Shetland," which at least implies that it is occasionally seen there. Under these conflicting observations, it is not easy to determine whether the vicinity of Aberdeen, or the isles of Shetland, should be regarded as the proper north limit of Papaver Rhœas. It is omitted from one flora, that of Moray, and from six of the local catalogues, namely, those of Settle, Man, Renfrew, Alvah, Ross, and Hebrides: the five latter of which, it should be observed, are probably quite incomplete lists for their respective districts. No localities have been ascertained for

the present species in the district of the West Highlands, in the more southern parts of which it seems likely enough to be found. Its range of altitude is probably limited to a very few hundred feet above the sea. It is always a plant of cultivated or waste lands, being found both on clayey and on light sandy ground.

Geography.—Latitude, 28—60. Europe. Asia. Africa. Ireland. Channel Isles. Canaries. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Sardinia. Sicily. Italy. Greece. Russia. Crimea. Caucasus. Barbary. Papaver Rhœas is more widely distributed than the other species of its genus indigenous in Britain; extending from Norway and Sweden (to which, however, Wahlenberg appears to regard it as an introduced plant), and the provinces of Middle Russia, as Lithuania and Moscow, southwards to the Canaries, Portugal, Sicily, Barbary, Greece, Crimea, and Caucasus. It is found in the gardens of Northern India and Japan, apparently having been also introduced to those countries. Its range of longitude extends from Ireland to the Caucasus and Ural. On the tract of the Carpathians, it occurs in the region of the apple and pear. In Sicily, Presl localises the plant in the region of the vine.

1. Peninsula.—Seen near Penzance. Common in Devon. Chudleigh. Seen near Barnstaple. Somerset. Common about Bath.

2. Channel.—Very common within eight miles of Poole. Abundant in the Isle of Wight. Seen about Southampton; also about Farnborough Station. In Sussex. Scarce about East Grinstead.

3. Thames.—South Kent. Very common about Tonbridge. Seen near Stone Castle, North Kent. Abundant about Reigate. Seen abundantly in Thames Ditton and

neighbouring parishes. Seen about Frimley. About Oxford. Common about Banbury. Seen near Hampton Court. Common about Hertford. Common about Woodford. Common about Dedham.

4. Ouse.—Common about Ipswich. Bungay. Abundant about Yarmouth. Common about Norwich. Common about Lynn. Cambridgeshire. Common in Bedfordshire.

5. Severn.—Neighbourhood of Bristol. Common about Alcester. Common about Allesley and Coleshill. In Worcestershire. Generally about Shrewsbury. Not unfrequent in Shropshire. Near Ludlow. Eyton. Walford. Belswardine. Abundant about Abergavenny. Frequent on the Silurian rocks, between Usk and Pont Newydd; but not common near Pont Newydd.

6. South Wales.—Kilvey Hill, near Swansea.

7. North Wales.—In the parish of Bodedern, Anglesea; and near Beaumaris, but rare. Not common in Denbighshire. Near Wrexham.

8. Trent.—Common in Leicestershire. Gracedieu and Rothley. Every where in Nottinghamshire. Seen in North Derbyshire.

9. Mersey.—Seen about Congleton; Alderley; Hundred of Wirral, and elsewhere in Cheshire. Liverpool. Very rare about Manchester.

10. Humber.—A troublesome weed in the Yorkshire corn fields. About Leeds. About Richmond. Not found about Settle.

11. Tyne.—Common in Durham. Stockton on Tees. Common in Northumberland. Abundant on Holy Island.

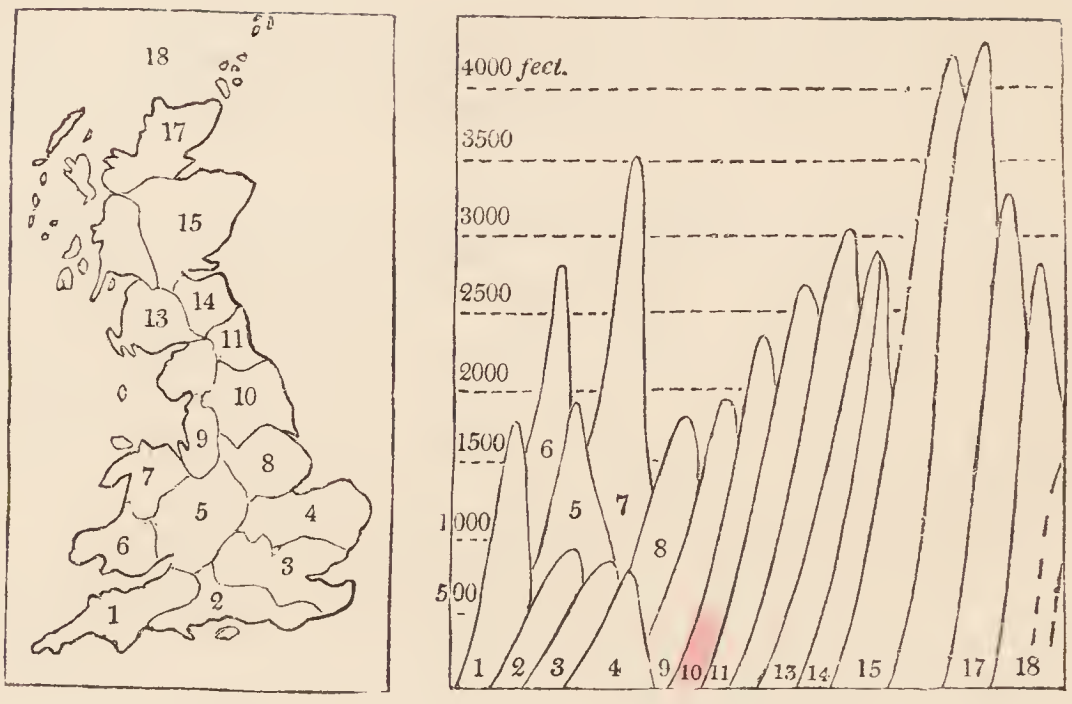
12. Lakes.—Seen near Whitehaven.

13. West Lowlands.—Frequent in Lanarkshire. At Smiddy Croft. Frequent about Glasgow.

14. East Lowlands.—Common about Berwick. Seen on Salisbury Craigs, and elsewhere about Edinburgh.

15. East Highlands.—Frequent about Aberdeen.

18. North Isles.—Orkney. Not common in Shetland.



Districts. Altitude of Districts.

30. Papaver dubium, *Linn.*

Cerastites dubia and C. laciniata—Gray.

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. * * *. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17. North Isles, 18.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues.—Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Lynn. Warwick. Worcester.

Swansea. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Alvah. Ross. Hebrides. Orkney.

Specimens.—Thames Ditton, Surrey—*H. W.* Odsey, Cambridgeshire—*Bot. Soc. London.* Settle, Yorkshire—*Bot. Soc. London.* Near Edinburgh—*H. W.* Kinnoul Hill, near Perth—*H. W.*

Britain.—Latitude, 50—61. General? Agrarian. Papaver dubium is a very common plant, probably found throughout Britain, from the south coast of England northward to Shetland. As yet, indeed, no localities have been found on record for it in the districts of the Lakes or West Highlands, and the species consequently appears to be absent from two districts, according to the figures set opposite its name in the table to indicate relative frequency. There is much probability, however, that it will be found in both those districts, if sought there; since, like many other common plants, botanical observers may have passed it by unnoticed. It is enumerated in all the local floras, but omitted in five of the local catalogues, namely, those for Somerset, Bristol, Norwich, Man, and Renfrew. Its inclusion in the Flora Bathoniensis shows that it must be found in or near to the county of Somerset; and Mr. Woodward states, in his additions to the Rev. Mr. Mann's list of Norwich plants, that it also occurs about that town. The catalogues for the Isle of Man and Renfrewshire are probably far from complete. A plant that is common in Shetland may be expected at several hundred feet of elevation in England, but the highest locality on record hitherto is that of Settle. The present species grows in the same situations as Papaver Rhœas.

Geography.—Latitude, 28—61. Europe. Asia.

Ireland. Channel Isles. Azores. Canaries. Norway. Sweden. Netherlands. France. Switzerland. Germany. Portugal. Spain. Baleares. Italy. Greece. Russia. Crimea. Caucasus? Papaver dubium is more a boreal plant than are the other British species of its genus; extending from Norway, Sweden (in the vicinity of Upsal), and the provinces of Middle Russia (Island of Oesel, Esthonia, &c.), southwards to the Canaries, Spain, Mallorca, Italy (Rome), Greece (Messenia and Laconia), and the Crimea. It occurs also in gardens in Northern India, to which it has probably been introduced from Eastern Europe. Its range of longitude extends from Ireland and the Azores (the island of Flores) eastward to Crimea. The Papaver lævigatum, of Bieberstein's Flora Taurico-Caucasica, is described as a variety of Papaver dubium, by Ledebour, in Flora Rossica, which thus extends the range of the latter into the tract of Caucasus. In America, P. dubium is becoming naturalised in Pennsylvania.

1. Peninsula.—Frequent in Devon, though less common than Papaver Rhœas. Near Chudleigh. Seen about Barnstaple. About Bath, at Wyck, Salisbury Hill, and at the rocks near St. Catherine.

2. Channel.—Rare within eight miles of Poole. Very common in the Isle of Wight. In Sussex.

3. Thames.—South Kent. Tonbridge. Field near Weir Mill pond, near East Grinstead. Lavender Hill. Battersea. Seen abundantly in Thames Ditton, and the adjacent parishes. Seen by the Thames, between Walton and Weybridge, copiously. About Oxford. Not common about Banbury. About Hampton Court. Common about Hertford. Frequent about Dedham.

4. Ouse.—About Ipswich. About Bungay. Abundant about Yarmouth. Abundant within ten miles of Norwich. Lakenham. Common about Lynn. Cambridge. Odsey. Common in Bedfordshire.

5. Severn.—Common about Alcester. Allesley and Coleshill. In Worcestershire. Much more frequent than

P. Rhœas about Cheadle. Not unfrequent in Shropshire. Generally about Shrewsbury. Bridgnorth. Quatford, near Bridgnorth. Near Newport. Near Ludlow. Cressage. Abundant in calcareous spots, on the western side of the Malvern Hills.

6. South Wales.—Common near Swansea. Fields about St. Justinian's Chapel, opposite Ramsey Island.

7. North Wales. — Anglesea. Neighbourhood of Wrexham.

8. Trent.—Gracedieu and Rothley, Charnwood Forest. Blidworth. Apsley. Mansfield. Farnsfield. Derbyshire.

9. Mersey.—Seen in the Hundred of Wirrall. About Liverpool. Very common about Manchester.

10. Humber.—Cliff fields, near Bradford. In several places near Settle. Heslington fields, and elsewhere, near York. Common about Castle Howard. Malton corn fields. About Richmond.

11. Tyne.—Not rare in Durham and Northumberland. Lower district of Tees. Opposite St. Cuthbert's, Holy Island.

12. * * *.

13. West Lowlands.—Occasionally about Glasgow, as at Bogle's Hole. About Strathaven.

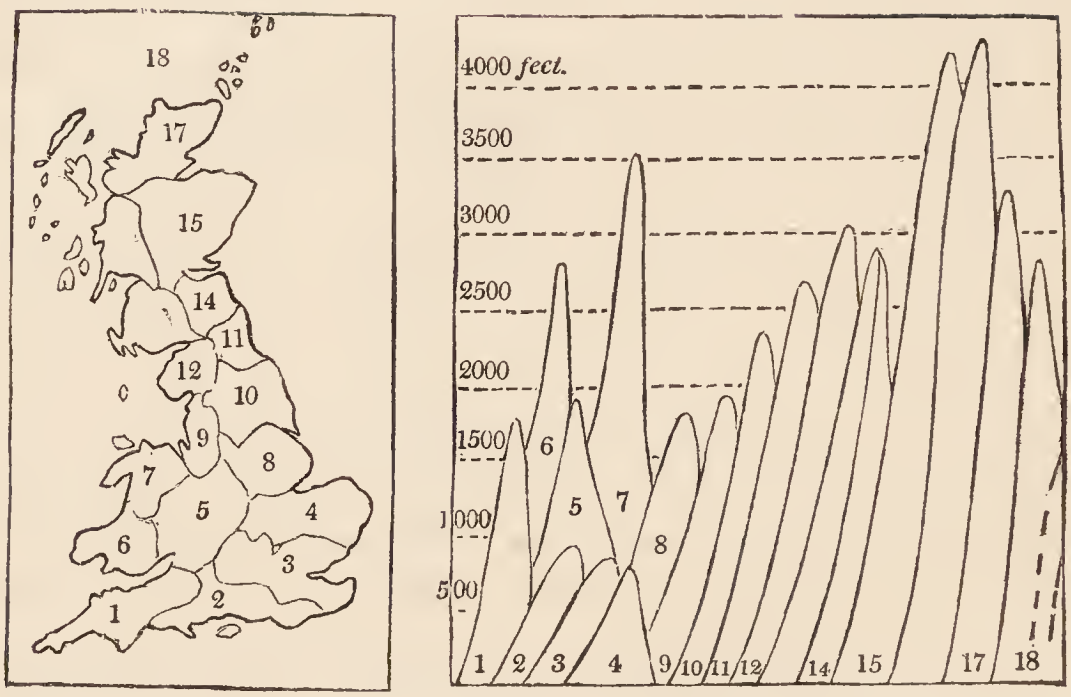
14. East Lowlands.—Common about Berwick. Seen by the shore, and elsewhere about Edinburgh.

15. East Highlands.—Seen near Perth, and on the Hill of Kinnoul, at the opposite side of the river Tay. Not unfrequent about Aberdeen. Parish of Alvah, perhaps introduced. Very common in Moray. Seen about the town of Inverness.

16. * * *.

17. North Highlands.—Seen about Dingwall. Seen about Golspie.

18. North Isles.—In many parts of North Uist, Harris, and Lewis. Orkney. Common in Shetland.



Districts. Altitude of Districts.

31. Papaver Argemone, *Linn.*

Papaver Argemone and P. maritimum — Withering.
Cerastites macrocephala — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. * * *. East Lowlands, 14. East Highlands, 15. * * *. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Moray. Catalogues. — Somerset. Poole. Wight. Sussex. Kent. Grinstead. Esher. Hertford. Dedham. Ipswich. Bungay. Norwich.

Lynn. Warwick. Worcester. Swansea. Denbigh. Leicester. Derby. Tees. Man. Alvah. Ross. Hebrides.

Specimens.—Devon—*Bot. Soc. Edinburgh.* Isle of Wight—*Bot. Soc. London.* Near Stone Castle, Kent—*H. W.* Thames Ditton, Surrey—*H. W.* Kelsall, Herts—*Bot. Soc. London.* Near Royston—*Miss Twining.* Norfolk—*Mr. George Cooper.* Nottinghamshire—*Mr. T. H. Cooper.* Bidston, Cheshire—*H. W.* Edinburgh—*Mr. R. Maughan.*

Britain.—Latitude, 50—58. Rather partial. Agrarian. Papaver Argemone is less common in England than either of the two preceding species, while in Scotland it may take an intermediate place, being apparently more common there than Papaver Rhœas. Its range extends from Cornwall to Ross and the Hebrides; but the plant appears to be of rare occurrence in the North Highlands and North Isles; while, as far as is shown by the published localities, it may be quite absent from the West Lowlands and West Highlands. It is enumerated in all the English local floras, but is absent from three of the Scottish floras, namely, those for Lanarkshire, Glasgow, and Aberdeen. It is likewise omitted from the catalogues for Bristol, Banbury, Settle, Richmond, Renfrew, and Orkney. It grows only in places of moderate elevation, and in situations similar to those in which Papaver Rhœas is found; having, perhaps, a greater adaptation to sandy ground and the neighbourhood of the sea.

Geography.—Latitude, 35—59. Europe. Africa. Ireland. Channel Isles. Sweden. Netherlands. France. Switzerland. Germany. Spain. Baleares. Sardinia.

Sicily. Italy. Greece. Russia. Crimea. Barbary. Papaver Argemone is not described in the published floras of Upsal, Petersburg, or Moscow; but it is stated to be found in several provinces of Southern Sweden, in the islands of Oeland and Oesel, and in some of the provinces of Middle Russia, as Livonia and Lithuania; countries within which probably its northern limits are to be found. It occurs generally in Europe between the Baltic and North Africa, and, according to the Flora Atlantica, is found also in the corn fields of Barbary. Its range of latitude may thus be said to extend from Barbary to the island of Oesel, and its range of longitude from Ireland to the Crimea.

1. Peninsula. — Seen about Penzance. North Bovey, Devon. Ilsington. Mount Pleasant, above the Exmouth warren. Fields by the Exe, near Exeter. In Somerset. In the vicinity of Bath, by the road side near Limpley Stoke, on Bowden hill, and in Spye park.

2. Channel. — Abundant in a few localities about Poole. The maritime variety (of Withering) on the shore at Weymouth. Corn fields, between Corsham and Puckeridge, in the vicinity of Bath, but in Wiltshire. Abundant about Shanklin, Yarmouth, and in other places on the green sand (?) and chalk. In Sussex. Not common about East Grinstead.

3. Thames. — South Kent. Very common about Tonbridge. The maritime variety about Sandown Castle. Seen near Stone Castle, in North Kent. About Reigate. Seen in Thames Ditton, Claygate, Hersham, and neighbouring parishes. Near Oxford, in the Parks; at South Leigh; and at Eynsham. Common about Hertford. Near Royston. Kelsall. Not uncommon about Woodford. Common about Dedham.

4. Ouse. — Common in fields near Freston, in the vicinity of Ipswich. Rather uncommon about Bungay. Abundant about Yarmouth. Common about Norwich. Common about Lynn. Gravel pits by the lower road from Cambridge to Gogmagog hills. Hinton. Anglesey. Common in Bedfordshire.

5. SEVERN.—Not rare about Alcester. Claverdon, in Warwickshire. In Worcestershire. Atley, near Shrewsbury. Near Ludlow. Weston, near Hawkestone. Whiston, near Albrighton. Shiffnal. Near Newport. Pulley. Red Barn. Hancott Pool. Westfelton, in Shropshire. Frequent on the Herefordshire side of the Malvern hills.

6. SOUTH WALES.—Frequent in corn fields about Swansea.

7. NORTH WALES.—Rare in Anglesea; but found between Llanfaelog church and the sea; also in plenty about Newborough. About Wrexham.

8. TRENT.—Gracedieu and Rothley, near Charnwood Forest. Frequent in Nottinghamshire. Derbyshire.

9. MERSEY.—Seen about Bidston, and elsewhere on the coast of the Mersey. Common in the neighbourhood of New Brighton. Sandy places about Liverpool. Not unfrequent about Manchester.

10. HUMBER.—Malton corn fields. In fields between Howden and Booth Ferry. Near Beverley. Heslington field, and other places near York. Castle Howard. The maritime variety near Beverley.

11. TYNE.—Corn fields in Durham and Northumberland. About Stockton. Lower Tees.

12. LAKES.—At Roosebeck, in the North of Lancashire. Very common in the Isle of Man, and the only species of its genus that is marked in Mr. Forbes's list of Manx plants.

13. * * *.

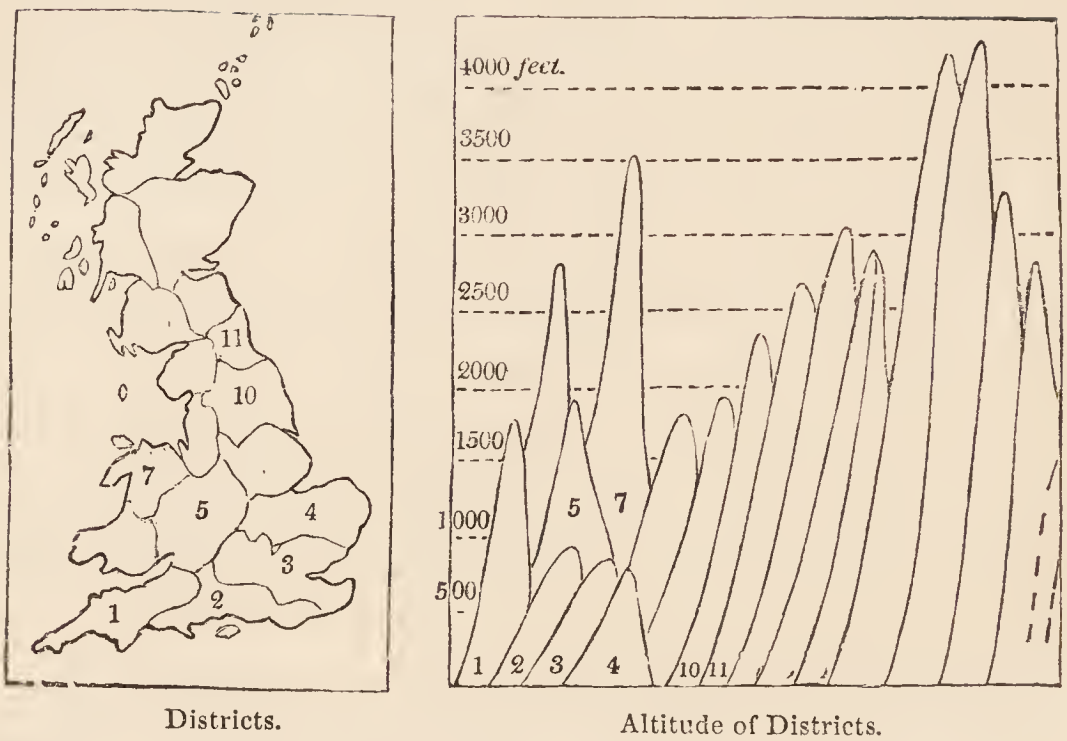
14. EAST LOWLANDS.—Common about Berwick. Seen below Salisbury Craigs, near Edinburgh. In a field near Newhaven, on the Forth. In a field near the Botanic Garden, Edinburgh. Road sides about Lasswade.

15. EAST HIGHLANDS.—Seen by the road side between Kinnoul and Kinfauns, near Perth, in 1832; but in 1841 I walked along the same road without seeing a specimen. In the parish of Alvah, probably introduced. Very common in Moray. Seen about Inverness.

16. * * *.

17. NORTH HIGHLANDS.—In Mr. Wilson's Catalogue of Ross-shire plants.

18. NORTH ISLES.—In the island of Orinsay, North Uist, where it was observed by Mr. Babington and Dr. Balfour.



Districts. Altitude of Districts.

32. Papaver hybridum, *Linn.*

Cerastites hybrida — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. * * *. North Wales, 7. Humber, 10. Tyne, 11.

Floras. — Devon. Tonbridge. Oxford. Bedford. Cambridge. Yarmouth. York. Tyne. Catalogues. — Somerset. Poole. Wight. Sussex. Kent. Lynn. Worcester.

Specimens. — Corn field, near Exmouth, Devon — *H. W.* Isle of Wight — *Bot. Soc. Edinburgh.* Ramsgate — *Bot. Soc. London.* In a field between Stone Castle and Darenth Wood — *H. W.* Baldock and Ashwell, Hert-

fordshire— *Bot. Soc. London.* Walton, Essex — *Mr. W. Christy.* Ringstead and Burnham, Norfolk — *Miss Bell.* Below Llandudno, at the Great Ormeshead — *Mr. J. E. Bowman.* Corn fields, on the coast, between South Shields and Sunderland — *Mr. R. B. Bowman.*

Britain. — Latitude, 50—55 (or 56). Partial. Agrarian. Papaver hybridum is peculiar to England and Wales, its area not including any part of Scotland. It is by no means a common plant in England, though extending from the south coast, as in Cornwall and Kent, northward to the county of Durham. It is apparently absent from the districts of South Wales and the Mersey; and it is very local in those of the Severn, North Wales, and Humber. Though more frequent in the districts of the Thames and Ouse than elsewhere, it cannot be designated a general plant, even within the limits of those two districts. It is found in cultivated ground, chiefly or exclusively over strata of chalk and lime, or in soils which contain much lime in some form.

Geography. — Latitude, 30—55. Europe. Asia. Africa. Ireland. Channel Isles. Netherlands. France. Germany. Portugal. Spain. Sardinia. Sicily. Malta. Italy. Greece. South Russia. Crimea. Caucasus. Egypt. Papaver hybridum is less widely diffused than our other indigenous species of its genus; being limited to the countries bordering on the Mediterranean and Black seas, and a few places situate north-westward of the Alps. The northern limit crosses Ireland, England, Mecklenburg and Thuringia. Southward, it occurs in the Spanish peninsula, in Sicily, in Greece, and, according to the work of Forskael, in Malta, Tenedos, and Egypt. In Russia, it

occurs only in the extreme south, or in the country about the Black and Caspian seas. Presl assigns it to the region of the vine, in Sicily.

1. Peninsula. — Cornwall. Seen in fields near Exmouth. In a field near Dawlish. Staddon Heights, near Plymouth. Abundantly in fields at the mouth of the river Parret, at Steart, and Burnham.

2. Channel. — Rare within eight miles of Poole. Waste ground near Salisbury. Isle of Wight, very frequent; especially near Yarmouth, in corn fields about Wellow and Thorley, associated with Bupleurum rotundifolium and Galium tricorne. ("The flowers of this species are far more fugacious than any of the rest, and fall so early that it is difficult to find specimens retaining their petals after nine or ten o'clock" — Dr. Bromfield.) Among corn, on the downs of Sussex.

3. Thames. — Not common about Tonbridge. Edge of the cliff, near Arncliffe Fort, Dover. In corn fields around Ramsgate. Fields near the Medway at Rochester. Among the corn between Gravesend and Cobham. About a chalk pit, by a copse skirting the Park at Cobham. With Papaver somniferum, in the first corn field to the left of the Fox and Hounds, at Darent's Lane End. Seen in a field between Stone Castle and Darent Wood. On the downs near Ewell. Between Dorking and Denbies. Parks near Oxford. Ensham. Near the half-mile trees, Ensham road from Oxford. Baldock and Ashwell, Herts. Near Walton, Essex.

4. Ouse. — About Bury. Near Bradwell Mill, Yarmouth. Nearly half a mile (or "just") out of St. Benedict's Gates, Norwich. Near the church at Lakenham. At Wells. Fields at Barton Bendish. Burnham. Ringstead. Paradise, near Cambridge. Hinton. Fulbourn. Anglesey. Between Royston and Melbourne. Common in Bedfordshire.

5. Severn. — In Worcestershire, according to Mr. Lees's catalogue.

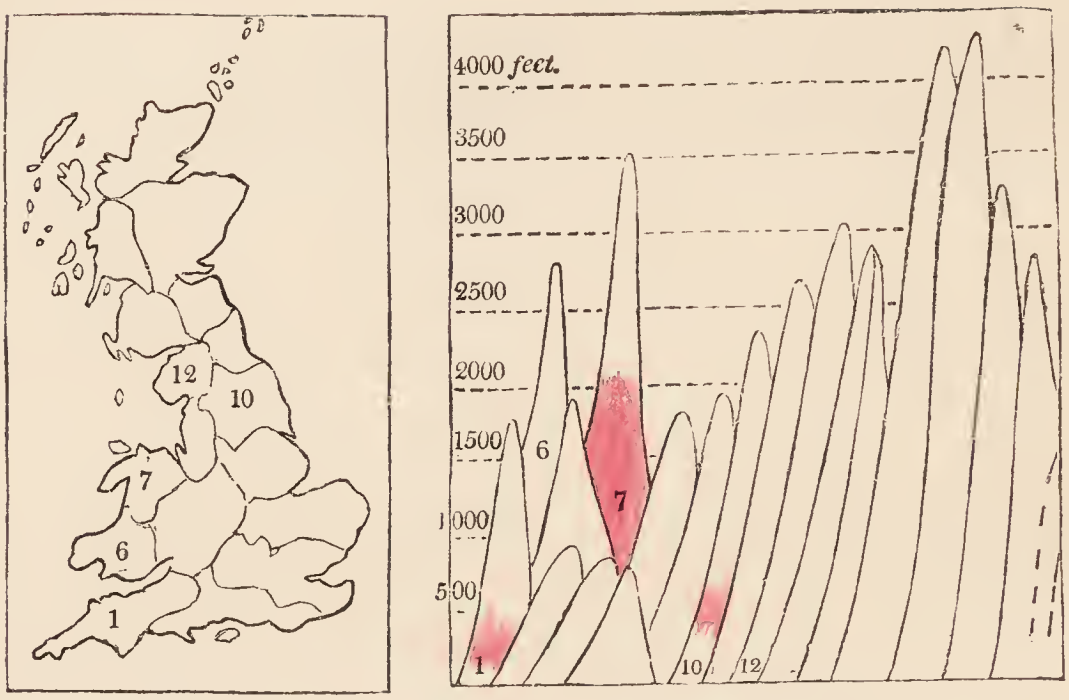
6. * * *.

7. North Wales. — Below Llandudno, at the Great

Ormeshead. Corn fields near the Store House upon Rhyl Marsh.

10. HUMBER. — Malton, in corn fields. Near Thirsk. On the Wolds.

11. TYNE. — Corn fields on the coast, between South Shields and Sunderland. About Durham. In corn fields on the magnesian limestone about Whitburn, Cleadon, Fulwell, and Sunderland. Near Alnwick?



Districts. Altitude of Districts.

33. Meconopsis cambrica, *Viguier.*

Papaver cambricum—Hudson, Withering, Smith.
Cerastites cambrica—Gray.

Districts.—Peninsula, 1. South Wales, 6. North Wales, 7. Humber, 10. Lakes, 12. (West Lowlands. East Lowlands. East Highlands.)

Floras.—Devon. York. Edinburgh. Aberdeen (introduced). Moray (introduced). Catalogues.—Somerset. Swansea. Settle.

Specimens.—Woods at Leemouth—*H. W.* "Yschewd Inon Garn (Waterfall), Neath Valley, Brecknockshire"—*Bot. Soc. London,* 1842. "Harbel road," Barmouth—*Bot. Soc. London,* 1842. By streams from Carnedd David

—*H. W.* Shaded lanes, about Settle, Yorkshire — *Bot. Soc. London.* Near Ambleside —*Bot. Soc. London.* Near Dumfries — *Professor Balfour.* Near Edinburgh, but doubtless the outcast of a garden — *Mr. G. N. Lloyd.* Pasture ground, at Woodhall, near Edinburgh — *Mr. W. Brand.* Cleish, Kinross-shire —*Bot. Soc. Edinburgh.*

Britain. — Latitude, 50—55. Local. Agro-arctic. Meconopsis cambrica is clearly indigenous in the mountainous tracts of Wales, and has also the appearance of being truly so in that of the Peninsula. The districts of the Humber and Lakes are less certain, although the plant may be really indigenous in those districts also. The presumption is much against the Scottish localities, all of which may (as some certainly) have originated from gardens. Even in the warmer and drier climate of Surrey, the Meconopsis will naturalise itself at the foot of walls and in shady parts of gardens, where the spade is a rare intruder. It is found near the sea level about Leemouth, in Devon, and at an altitude of 300 feet, under a rock by the road side between Bangor and Nant Phrancon. Hence it ascends to 2100 feet, or upwards, on the rocks above Llyn Idwell, in Caernarvonshire. Usually it is found under the shade of trees or rocks, especially near cascades or running waters; but I have seen it growing on the stony beds of mountain streams in Caernarvonshire, where it was freely exposed to the sun.

Geography. — Latitude, 42—55. Europe. Ireland. France. Meconopsis cambrica has a particularly circumscribed geographical range, being limited to the British Islands and the Pyrenees; in the latter of which it is stated to grow at altitudes of 1000—1800 metres, or about 3300—5900 feet. The narrow area within which

this pretty flower has been ascertained to grow, of course puts it out of the way of most botanists, and thus renders specimens of it highly acceptable to foreign botanists, in parcels sent to them from this country.

1. Peninsula.—Seen in a wood by the West Linn, near Leemouth or Linton; also by the East Linn, near the Water's Meet, two miles from Leemouth. Abundant in the woods around Lidford Waterfall. In woods at Endsleigh and Dunterton. On the rocks at Cheddar. Culbone Cliffs. At the bottom of the hill, south-east of the village of Cutcombe.

6. South Wales.—Plentiful at the waterfalls about Pont Nedd Vechan; also in a valley above Aberdylais. "Yschewd Inon Garn (waterfall), Neath valley, Brecknockshire."

7. North Wales.—Craig cwm Pistill, near Newtown, Montgomeryshire. Breiddin Hills. Harbel (?) road, Barmouth. Abundant on the rocks of Craig y Cae, Cader Idris. Seen on a rock by the high road between Bangor and Nant Phrancon; also by the streams flowing down the west side of Carnedd David; also on the rocks above Llyn Idwell. "On the back of Snowdon, going from Caernarvon to Llanberris, not far from the Castle." Gravelly shore of Llanberris upper lake. By the river at Llanberris. (The same, or three adjacent localities.) By the Ogwen, near Dolawen slate quarries. Near the bridge at Aber, Caernarvonshire, in the bed of the river. Near Pont Meredith. Sown by the late Mr. J. E. Bowman on limestone rocks, near Wrexham.

10. Humber.—Sparingly on the river bank at Settle. In shady lanes about Settle. At Feizor, a few miles from Settle. Near Sedbergh. Mossdale head, in Wensleydale. Wood End, near Thirsk. Near Londesborough. Wheatley, near Halifax. About Weathercoat Cave, near Ingleton.

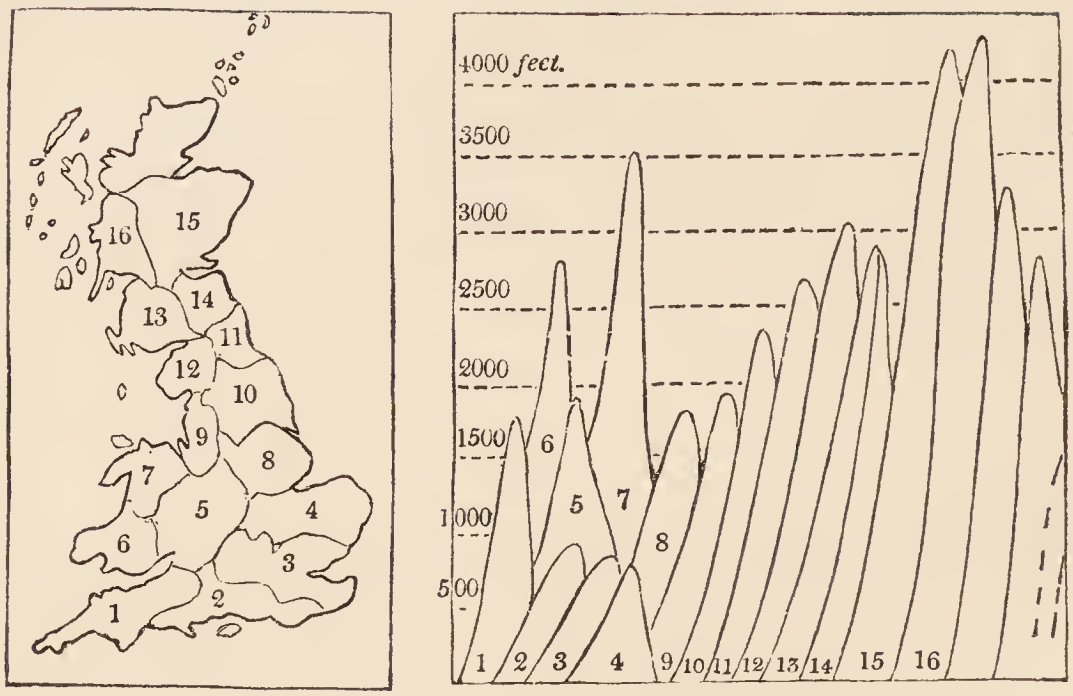
12. Lakes.—Near Holker, North Lancashire. Brathay. Near the Ferry-house, by Winandermere. Near Ambleside. Between Ambleside and Rydale. In shady lanes, near Kirby Lonsdale. Grassmere. Plentifully about Kendal. Peat Lane, near Kendal. Keswick.

Naturalised in hedges near Pigmy Hall, Derwentwater. Seen in Borrodale, but probably originating from neighbouring gardens.

13. West Lowlands. — Near Dumfries.

14. East Lowlands. — Banks of the Water of Leith, near Woodhall, Edinburgh. Pasture ground, near Woodhall, naturalised. Braid woods, near Edinburgh.

15. East Highlands. — Cleish woods, Kinross-shire. Near Richmond Hill, Aberdeen, rare, and not wild. Gordon Castle, Moray, near the gate, and certainly introduced.



Districts. Altitude of Districts.

34. CHELIDONIUM MAJUS, *Linn.*

CHELIDONIUM MAJUS and C. LACINIATUM — Gray.

DISTRICTS. — Peninsula, 1. Thames, 2. Channel, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16.

FLORAS. — Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Moray. CATALOGUES. — Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Wor-

cester. Swansea. Denbigh. Leicester. Derby. Settle. Richmond. Tees. Renfrew.

Specimens.—About the village of Newlyn, near Penzance, Cornwall—*H. W.* Millbrook, near Southampton—*H. W.* Cobham, Kent—*Bot. Soc. London.* A garden weed, in Thames Ditton parish, Surrey—*H. W.* With double flowers on a hedge-bank, by the road side, near the Lodge of Ember Court, near Thames Ditton—*H. W.* Near Teddington, Middlesex—*H. W.* Near Norwich, but half a mile from any dwelling—*Mr. George Cooper.* Wallington, Norfolk—*Miss Bell.* Pontnewydd, Monmouthshire—*Bot. Soc. London.* Nottinghamshire—*Mr. T. H. Cooper.* In the county of Durham, generally near old gardens—*Mr. R. B. Bowman.* New Abbey, Kirkcudbrightshire—*Mr. W. Brand.* Road side, near a garden, Linlithgow—*H. W.* Kinloss Abbey, Moray—*Rev. G. Gordon.* Dumbartonshire—*Dr. Joseph Hooker.*

Britain.—Latitude, 50—58. Rather general. Agrarian. Chelidonium majus is at best a dubious native of Britain; and if indigenous in England, it is scarcely so in Scotland. It is reported to grow in all the districts, excepting the two most northern districts of Scotland. The only flora from which it is omitted is that of Aberdeen, though in that of Moray it appears merely as a plant probably introduced. It is enumerated in all the English local catalogues, except that for the Isle of Man; but, on the other hand, it is absent from all those of Scotland, with the exception of the Renfrew list. The Chelidonium grows about Settle, and I have never found it in any place more elevated than that town, which is about 500 feet above the sea. It grows on hedge banks, in neglected gardens, by road sides, and about old walls.

Geography. — Latitude, 28—62. Europe. Asia. Ireland. Channel Isles. Madeira. Canaries. Norway. Sweden. Netherlands. France. Germany. Switzerland. Portugal. Spain. Sardinia. Sicily. Italy. Greece. Russia. Crimea. Caucasus. Altai. Siberia. Chelidonium majus is distributed over nearly all Europe, excepting the most northern latitudes, being found in Norway, up the east coast of Sweden northward to Hudiksvall, and in Finland. It is enumerated in the Floras of Petersburg and Moscow, and is said to range across the whole of Siberia. Southwards we find it in the Spanish peninsula, in Sicily, in various parts of Greece, in the vicinity of Constantinople, and in the tracts of Caucasus and Altai. Holl has it in his list of Madeira plants, and Webb and Berthelot inform us that it occurs in Teneriffe; but no recorded locality on the African continent has been ascertained for this plant. It is found in some few places in the United States, into which it has been imported from Europe. Wahlenberg records it as growing about the villages everywhere in the tract of the Carpathians. Presl assigns it to the regions of the vine and oak in Sicily, that is, between the sea and 4000 feet of elevation.

1. Peninsula. — Seen at Newlyn, near Penzance. Frequent in Devon. About Chudleigh. Somerset. Common about Bath.

2. Channel. — Common within eight miles of Poole. Isle of Wight, under shady hedges, but by no means common in the island. Frequent about Newchurch. Dr. Bromfield has never met with it in the immediate neighbourhood of Ryde. Seen at Millbrook, west of Southampton. A doubtful native of Sussex. Frequent about houses, in the vicinity of East Grinstead.

3. Thames. — Common about Tonbridge. A doubtful native of South Kent. In the stream, by the road side,

at Beachborough, near the cottage before which a fine variegated sycamore stands. Cobham. About Reigate, more frequent on sand than chalk. Seen occasionally about Thames Ditton, Moulsey, Esher and Hersham, always in suspicious localities. Seen with double flowers, on the hedge bank, near the Lodge gate at Ember Court, Moulsey. Battersea fields. Lavender Hill. The variety "laciniatum" among "the ruins of the Duke of Leeds's seat at Wimbledon." About Oxford. About Banbury. Twickenham. Seen by the road side, at Teddington. Rare about Hertford. Woodford, in Essex. Chigwell. Common about Dedham.

4. Ouse.—In several places about Ipswich, but not common. About Bungay. Common about Norwich. Wallington. Gaywood and Cougham, in Western Norfolk. About Cambridge. Common in Bedfordshire.

5. Severn.—Neighbourhood of Bristol. Common about Alcester. Allesley and Coleshill. In Worcestershire. Frequent near towns and villages in Shropshire. Walford. Buildwas and Acton Burnell. Near Newport, Shropshire. Priors Halton. Near Ludlow. Near Oswestry. Harley. Plentiful about Pontnewydd.

6. South Wales.—On old walls about Neath and Britton Ferry. "At Llanbedie." Near Tenby. St. David's.

7. North Wales.—Near Llanidloes, on the Aberystwith road. Seen about Bangor. In hedges near Lligwy, Anglesea. Seen about Llangollin. Near Wrexham.

8. Trent.—Common about Charnwood. Bradgate ruins. Rather common in Nottinghamshire. In Derbyshire.

9. Mersey.—Seen about Congleton, in considerable abundance, along some hedge banks of old gardens. In lanes about Eastham, in the west of Cheshire. North from Liverpool, near the inland villages, but not near the sea coast. Walton, near Liverpool. Aigburth. Garston. West Derby. Allerton.

10. Humber.—About Leeds. Rather scarce about Settle. About Richmond. Thorp Arch. Kirkham Abbey. Field at Ganthorp. Clifton, Bishop's Thorpe,

and other places, near York. Balby, near Doncaster. Dunnington. Kexby. Wilberfoss. Londesborough.

11. Tyne. — Common in hedges near Norton. Lower Tees. Generally near old gardens, in the county of Durham. In hedges, near farm houses and villages, in Durham and Northumberland.

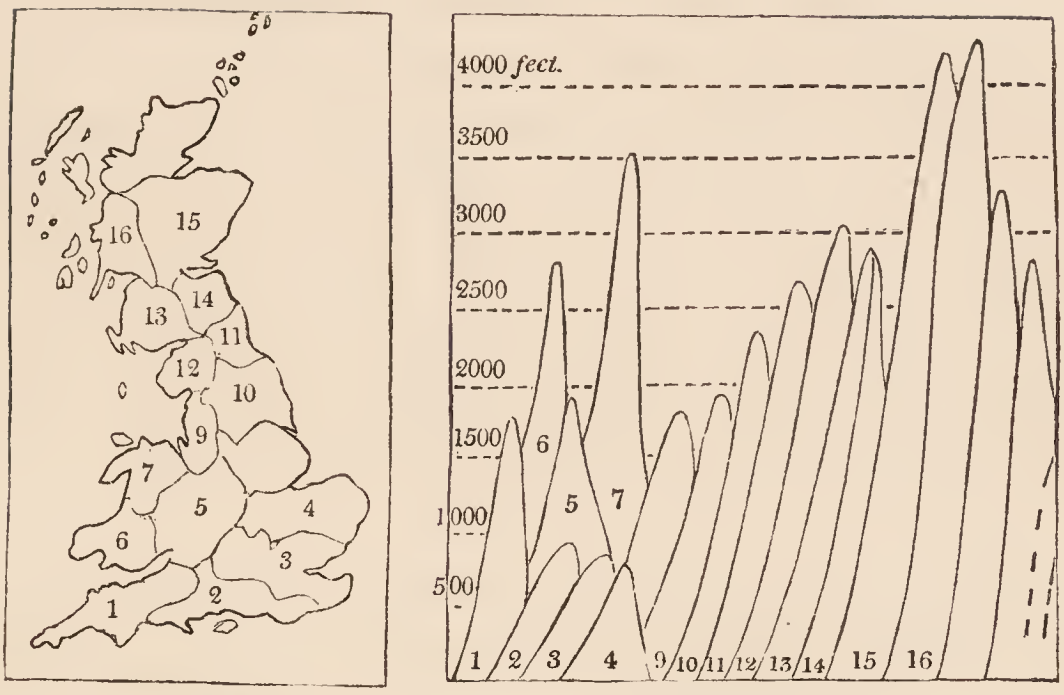
12. Lakes. — Seen about Keswick, but not common there.

13. — West Lowlands. — New Abbey, Kirkcudbrightshire. Not uncommon in Lanarkshire. Occasionally about Glasgow. Lochwhinnoch.

14. East Lowlands. — Dyke, north of the Magdalen Fields farm house, Berwick. Occasionally in cottage gardens, near Berwick. Road side, half a mile east of Coldstream. Ruins of Corstorphine Castle. Between the eighth mile-stone and Cokenzie, on the Haddington road, from Cockenzie. Seen in Linlithgow, near a garden.

15. East Highlands. — A doubtful native in Moray. Kinloss Abbey. Dumphail. Dunfermline's garden. Forres. Cawdor.

16. West Highlands. — The variety "laciniatum," in Dumbartonshire.



Districts. Altitude of Districts.

35. Glaucium luteum, *Linn.*

Chelidonium Glaucium — Hudson.
Chelidonium luteum — Withering, Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. * * *. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16.

Floras. — Devon. Cambridge. Yarmouth. Anglesea. Liverpool. Tyne. Berwick. Edinburgh. Glasgow. Moray (introduced). Catalogues. — Somerset. Poole. Wight. Sussex. Kent. Ipswich. Lynn. Swansea. Denbigh. Renfrew.

Specimens. — Near Penzance, in Cornwall—*H. W.* Near Bristol—*Mr. George Cooper.* On the shore, near Ryde, in the Isle of Wight—*Miss Twining.* Ventnor, Isle of Wight—*Bot. Soc. London.* Brighton—*Bot. Soc. London,* 1840; but sent under the name of "Papaver cambricum." Ramsgate, Kent—*Bot. Soc. Edinburgh.* Beach near Walmer, Kent—*Bot. Soc. London,* 1841. Hunstanton, Norfolk—*Miss Bell.* Yarmouth, Norfolk—*Mr. James Paget.* Shore, Gower, Glamorganshire—*Bot. Soc. London.* Sea shore, Cardiff—*Bot. Soc. London.* Conway Bay—*Dr. Howitt.* Charlestown, Fife—*Professor Balfour.* Argyleshire—*Dr. Joseph Hooker.*

Uncertain Localities. — Banks of Denholm Cauld, Roxburghshire—*Rev. James Duncan, in New Botanist's Guide.*

Britain. — Latitude, 50—57. Partial. Agrarian. Glaucium luteum is rather frequent on the coasts of England, though rare on those of Scotland, on which it extends northward to the shores of the Clyde and Forth. It occurs on the coasts of all the English districts, unless that of the Trent should prove a real exception, as, at present, it is an apparent exception, through the want of recorded locality there. It is possible that the localities on the north side of the Forth may have originated in ballast; but this being only conjecture, the range of the plant is here considered as extending to the East Highlands, and beyond the 56th parallel of latitude. As a sea-side plant, it is limited to low ground, and its occurrence above the latitudinal parallel of 56 cannot show its adaptation to bear a climate equally severe, as would be borne by the inland plants growing under the same parallel. In reference to this subject, Mr. Tudor remarks, that near

Bootle, on the Lancashire coast, the Glaucium "was injured by the severe winter of 1837-8, very few of the plants appearing above ground in the spring of 1838, but towards the autumn he noticed a few to reappear." (See Hall's Flora of Liverpool, where copious notes are given, on the injuries caused to plants by the cold of the winter mentioned in the extract.)

Geography.—Latitude, 28—57. Europe. Asia. Africa. Ireland. Channel Isles. Canaries. France. Switzerland. Germany. Portugal. Spain. Sardinia. Sicily. Malta. Italy. Greece. Crimea. Caucasus. Asia Minor. Barbary. Glaucium luteum is found generally on the coasts of the Mediterranean, ascending also up the Atlantic coast of Europe as far north as Ireland and Scotland. It is found also on the south coast of the Baltic, and occurs in a few inland localities between the Baltic and Mediterranean. We do not find it described in the Floras of Belgium, Holland, or Hamburg, and in the Flora Suecica of Wahlenberg it is mentioned only in the list of plants omitted by that author on account of their slender claim to be held indigenous in Sweden. In the Prodromus Floræ Scandinaviæ (or Flora of the countries round the Baltic), Retz includes the present species, adding the mark which indicates it not a native of Sweden. Koch gives a locality in Mecklenburg, which is probably the most northern habitat on the Continent. It occurs in Crimea, and on the eastern coast of the Black Sea. Don enumerates it among the plants brought by Mr. Fellowes from Caria and Lycia. It is named also among the plants collected in the Canary Islands, by Messieurs Webb and Berthelot. It has been carried from Europe to America, where it is now found wild on the coasts of Virginia and Carolina.

1. PENINSULA. — Seen near the Land's End; also about Penzance; also at Kynance Cove. Shore near Crafthole. Frequent along the coast of Devon. Exmouth. Teignmouth. Paignton sands. Braunton Burrows. Common on the coast of Somerset. Burnham. Minehead. Street. Stotford. Frequent in many places about Portishead.

2. CHANNEL. — On the Pebble beach, at Lodmoor, near Weymouth. Common within eight miles of Poole. Brading shore, Isle of Wight. Shore near Ryde. Ventnor. St. Helens. Norton. Newtown. Frequent in the Isle of Wight. Shore between Southampton and Netley. Southsea beach. Abundant on the shore at Portsea. On the shore to the west of Brighton, in the greatest profusion.

3. THAMES. — South coast of Kent. Lydden Spout. Very common about Deal and Walmer. About Dover. Ramsgate.

4. OUSE. — Suffolk coast, particularly about Dunwich. Sea coast at Walton and Felixtown, ten or twelve miles from Ipswich, extremely common. Occasionally by the south pier, and on the coast, near Yarmouth. Plentiful at Snettisham. Hunstanton. Heacham beach, West Norfolk.

5. SEVERN. — A few specimens on a muddy heath, near Penpool, in the vicinity of Bristol. On the ballast heaps, on the eastern side of the river Usk, at Newport.

6. SOUTH WALES. — Swansea Burrows. Very plentiful on Cromlyn Burrows, two miles east of Swansea. On the shore between Swansea and Mumbles, in great profusion. Frequent about Salthouse Point, and in many places by the sea shore, near Swansea. Aberavon. Near Port Tennant, Singleton. Shore, Gower. Shore, Cardiff. Coast near St. David's. On Tenby Burrows. On the shore south of Aberystwith. Under the Castle hill at Aberystwith. Shore, two miles north of Aberystwith. At Borth Sands, six miles north of Aberystwith. Very abundant along the whole coast of South Wales.

7. NORTH WALES. — Not uncommon on the beach in Anglesea. Seen between Beaumaris and Penmon Point. On the shore, near Conway. On the shore between the Great and Little Ormesheads. On the north coast of Denbighshire.

8. * * *

9. MERSEY.—Along the shore, near Parkgate. Seen on the sands about Bootle and Crosby. Near the mouth of the river Alt, on the North shore, near Liverpool.

10. HUMBER.—Sea side in various places. Hornsea. Bridlington Quay.

11. TYNE.—At Seaton. Completely naturalised on the ballast hills of Tyne and Wear. Willington ballast hills.

12. LAKES.—Cartmel Sands; and Roosebeck, North Lancashire. Walney Isle.

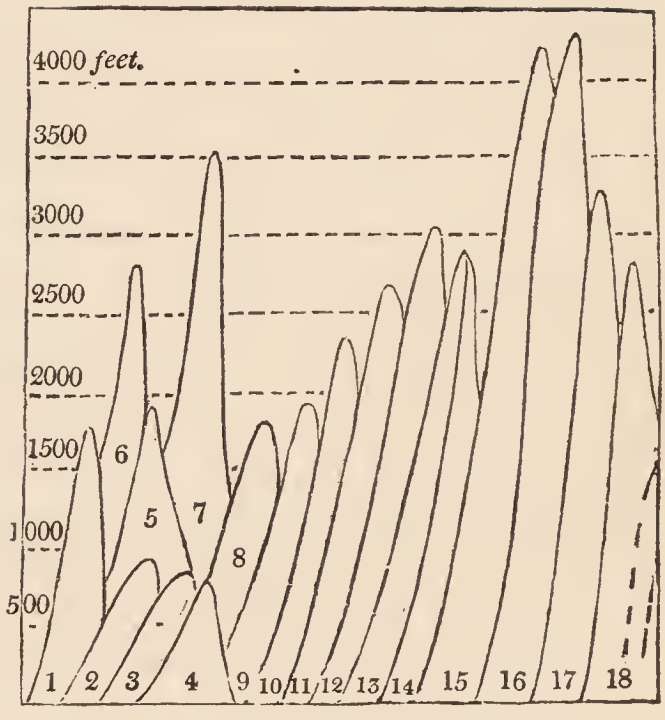
13. WEST LOWLANDS.—On the shore of Solway Firth, about a mile to the west of Newby. East side of the Mull of Galloway. Holy Loch, Renfrewshire.

14. EAST LOWLANDS.—Sandy sea coast, at Coldingham, near Berwick. Shore between Dunglass dean and the Coves, Berwickshire. Sandy shore, near Gosford. Gravelly bed of the Water of Leith, beyond Coltbridge.

15. EAST HIGHLANDS.—Coast near North Queensferry. Charlestown, Fifeshire. As a weed, near gardens, at Elgin, certainly introduced.

16. WEST HIGHLANDS.—Seen near Dunbarton. On the shore at Helensburgh, plentifully. Abundant in Arran.

Districts.



Altitude of Districts.

36. Fumaria capreolata, *Linn.*

Fumaria officinalis, var. capreolata — Hudson.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras. — Devon. Bath. Oxford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Poole. Wight. Sussex. Kent. Dedham. Ipswich. Worcester.

Swansea. Denbigh. Derby. Richmond. Tees. Renfrew. Alvah. Hebrides. Orkney.

Specimens. — Harborne, Staffordshire — *H. W.* Donnington, near Shipwell, Salop — *Bot. Soc. London.* Brownhall, Dumfries — *Bot. Soc. London.* Lanarkshire — *Dr. Joseph Hooker.* Near Edinburgh — *H. W.* Hedge bank near Dean, Edinburgh — *Mr. W. Brand,* but possibly the specimen belongs to F. officinalis. In corn fields, by the river, below the town of Inverness — *H. W.* In a potato field, by Hailam Inn, on Loch Errboll, Sutherland — *H. W.*

Britain. — Latitude, 50—59. Rather general. Agrarian. Fumaria capreolata has an almost general range through Britain, though absent altogether from many of the tracts whose plants have been recorded in catalogues. It occurs in all the districts; and it is stated to be found as far south as Cornwall, and as far north as Orkney. It is omitted from the floras of Tonbridge, Reigate, and Bedford; and likewise from the catalogues for Bristol, East Grinstead, Esher, Banbury, Hertford, Bungay, Norwich, Lynn, Warwick, Leicester, Settle, Isle of Man, and Ross-shire; so that, while general with respect to the districts, it is by no means an universal plant. It grows in low situations, on hedge banks, way sides, and in cultivated grounds.

Geography. — Latitude, 32—59. (S.L. 33.) Europe. Asia. Africa. South America. Ireland. Channel Isles. Azores. Madeira. Netherlands. France. Switzerland. Germany. Portugal. Baleares. Sardinia. Sicily. Italy. Greece. Asia Minor. Algiers. Buenos Ayres. Valparaiso. Fumaria capreolata, if a distinct

species, is no doubt often confused with F. officinalis, so that it becomes difficult to speak with certainty respecting its geographical distribution. It is enumerated by Retz in his list of plants of Scandinavia or the Baltic, but it is apparently unknown in Sweden. It is stated to occur as far north as Holstein, on the Continent of Europe; and it is included also in the Flora Haffniensis, as a plant found in the vicinity of Copenhagen. Southwards, it extends to the Azores, Madeira, Algiers, Sicily, Greece, and Asia Minor, being enumerated by Don among the plants brought by Mr. Fellowes from Caria and Lucia. Fumaria capreolata is not mentioned by Ledebour in his Flora Rossica; unless, indeed, his description of the fruit of his Fumaria media may seem to bring it nearer to the present species than to Fumaria officinalis, with which latter several botanists seem disposed to unite the F. media of De Candolle and other authors. Ledebour, however, describes the flowers of his F. media as being half the size of those of the French plant so called, while the English F. capreolata has the flowers much larger than those of F. media. Some doubt also attaches to the South American plant, since Hooker and Arnott describe the fruit of the Valparaiso specimens "apiculate as in F. parviflora; but the sepals are characteristic of the species." If Fumaria Burchellii, as in De Candolle's Prodromus, is to be united with F. capreolata, we must add South Africa to the countries which produce the present species. Fumaria media (of Ledebour's Flora Rossica) is stated to grow at 800—1000 fathoms of altitude about the river Terek.

1. Peninsula. — Abundant in Cornwall. Frequent in Devon. Seen about Landkey, three miles east of Barnstaple. Tavistock. Kingsteignton. Teignmouth. Ilsington. North Bovey. In Somerset.

2. Channel. — Very common within eight miles of

Poole. Corsham, Wiltshire. Frequent in the Isle of Wight. Sea shore west of Ryde. In Sussex.

3. THAMES.—South Kent. About Battersea. Near Losely; and by the road side between Guildford and Merrow. Behind the Parks, Oxford. Garden ground, at Headington. Sparingly at Edmonton. Not very common about Woodford. Common about Dedham.

4. OUSE.—In several places about Ipswich. Rather rare about Yarmouth. Ormesby. Near Gogmagog Hills, Cambridge.

5. SEVERN.—Stapleton and Crewe's Hole, near Bristol, in plenty. On Gravel Hill, near Erdington, Warwick. In a hedge at Shrawley. Near Abberley. Harborne, near Birmingham. Dimsdale, near Cheadle. On banks near Ludlow. Donnington, near Shipwell. Hedges about Frankwell, Shrewsbury. "Dorrington Pool dam." Near Whittington. Not uncommon about Wrockwardine and Wellington. About Shrewsbury generally. Bayston Hill. Common in Herefordshire. At Abergavenny.

6. SOUTH WALES.—Common by road sides between Ferry and Port Tennant. In Glyn Neath, between the Lamb and Flag Inn and Pont Nedd Vachan. Rather plentiful under hedges about Aberystwith.

7. NORTH WALES.—Frequent about Llanidloes. Seen about Bangor. On banks by the road side between Caernarvon and the Menai bridge. In hedges near the Little Ormeshead. Not very common in Anglesea. At Llangefni. Near Bodafon uchan. "Both (F. officinalis and F. capreolata) common about Wrexham. I have not found Arnott's distinction satisfactory, and consider the two but varieties"—(Mr. J. E. Bowman). Seen about Llangollin.

8. TRENT.—Frequent in the sand district of Nottinghamshire. Between Duffield and Matlock.

9. MERSEY.—In a lane leading to Haswell, West Cheshire. Very common about Manchester. Frequent about Liverpool. Brick lane, Everton, near Liverpool.

10. HUMBER.—At Harrogate and Thorp Arch. Near Rotherham. In a hedge at Clifton, near York. Near Sheffield. In hedges near Beeston. In the lane leading to Skeeby from Richmond. Not common near Richmond. Near Whitby.

11. TYNE.—Lower tract of Tees. On waste ground

under a wall at Wolviston, near Stockton. Common in Northumberland and Durham.

12. Lakes.—Behind the station at Winandermere.

13. West Lowlands.—Brownhall, Dumfries. Hedge near Motherwell, Lanarkshire. Hedges about Hamilton, near Glasgow. In Renfrewshire.

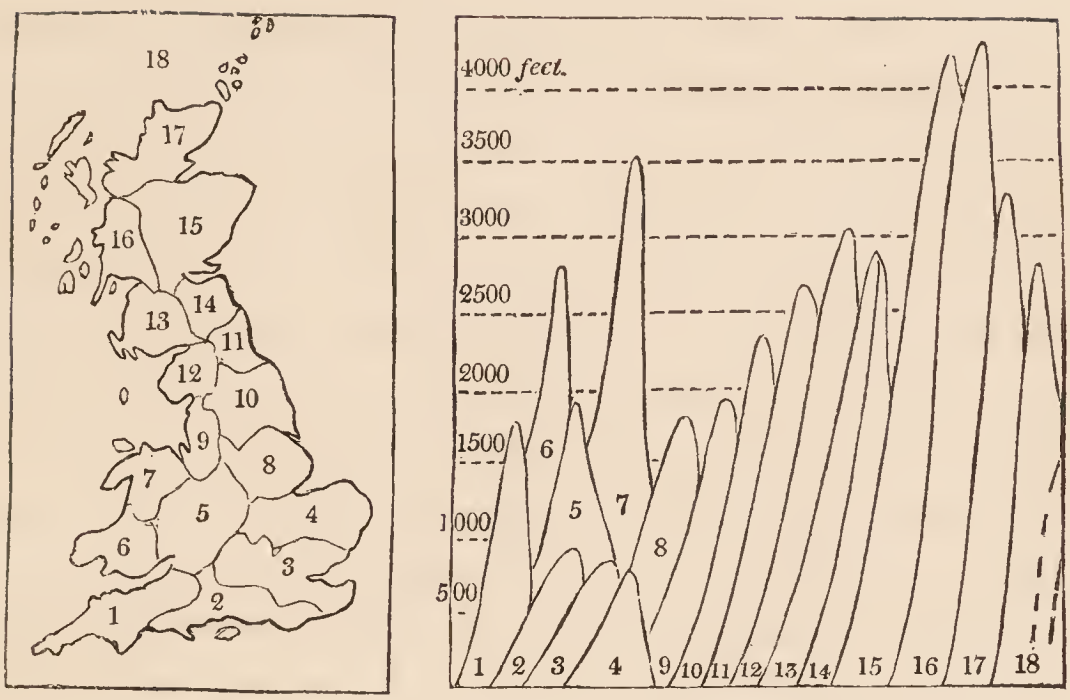
14. East Lowlands.—Frequent about Berwick. In a field near the Botanic Garden, Edinburgh. Fields near Craigmillar Castle. Salisbury Craigs. About Redhall, four miles from Edinburgh. Hedge near Dean ("F. capreolata"—Mr. Brand; but coming near F. officinalis).

15. East Highlands.—By the hut, at Old Bridge of Don, near Aberdeen. Banks of Dee; but not frequent, near Aberdeen. Parish of Alvah. Perhaps introduced to Moray. Pluscarden. Kinloss. Seen in corn fields, near the river, below the town of Inverness.

16. West Highlands.—Among the rocks by the sea side, going from Corry to Brodie, in the Isle of Arran.

17. North Highlands.—Seen about Hailam Inn, on Loch Errboll.

18. North Isles.—In many parts of North Uist, Harris, and Lewis. Orkney.



Districts. Altitude of Districts.

37. Fumaria officinalis, *Linn.*

Districts.—Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17. North Isles, 18.

Floras.—Devon. Bath. Tonbridge. Reigate. Oxford. Bedford. Cambridge. Yarmouth. Salop. Anglesea. Liverpool. Notts. York. Tyne. Berwick. Edinburgh. Lanark. Glasgow. Aberdeen. Moray. Catalogues.—Somerset. Bristol. Poole. Wight. Sussex. Kent. Grinstead. Esher. Banbury. Hertford. Dedham. Ipswich. Bungay. Norwich. Lynn. Warwick. Worcester. Swansea. Denbigh. Leicester.

Derby. Settle. Richmond. Tees. Man. Renfrew. Alvah. Ross. Orkney.

Specimens.—Shanklin, Isle of Wight—*H. W.* Shirley, near Southampton—*H. W.* Near Newhaven, Sussex—*Mr. W. C. Trevelyan*, who labels the specimen "F. Vaillantii," perhaps correctly. Near Maidstone, Kent—*Mr. W. C. Treveleyan*, who labels this also as "F. Vaillantii." Near Stone Castle, Kent—*H. W.* Box Hill, and Thames Ditton, Surrey—*H. W.* Hampton Court, Middlesex—*H. W.* Nottinghamshire—*Mr. T. H. Cooper.* Keswick, Cumberland—*H. W.* Lanarkshire—*Dr. Joseph Hooker.* Hedge, near Dean—*Mr. W. Brand.* Kinnoul Hill, Perth—*H. W.* Fields near the town of Inverness—*H. W.*

Britain.—Latitude, 50—59. Very general. Agrarian. The most abundant species of the order, almost universally distributed through the low grounds of Britain; yet is it apparently scarce or wanting in the North Isles. It is included in all the local floras and catalogues, with the single exception of the catalogue for the Hebrides, where it may easily have been overlooked. It is mentioned in the list of Orkney plants, while, in the Hebrides, only Fumaria capreolata is found, and, in the Shetland Isles, only F. parviflora, according to the published lists of species in those islands. It is mostly found in cultivated ground, occasionally on hedge banks or by road sides.

Geography.—Latitude, 25—67. Europe. Asia. Africa. Ireland. Channel Isles. Madeira? Canaries. Lapland. Norway. Sweden. Netherlands. France. Germany. Switzerland. Portugal. Spain. Sardinia. Baleares. Sicily. Italy. Greece. Russia. Crimea. Caucasus. Siberia. Japan. Arabia Felix. Barbary. The form which authors have

generally described under the name of Fumaria officinalis (and which probably, in some instances, may include other forms now described as distinct species) is very widely distributed over the old continent, though shunning the very cold climates. According to Gunner, it is frequent in Nordland; and it is found in Sweden as far north as Asele in the southern part of Lapland. It occurs also about Petersburg, Moscow, Kazan, Orenburg, and Jekaterinburg on the eastern side of the Ural mountains. Hence it extends throughout Europe, and southwards into Barbary, Arabia, India, and Japan. It is likewise enumerated in Holl's list of Madeira plants; but Lowe seems to doubt the occurrence of this species in Madeira. Webb and Berthelot have it among their plants of the Canaries; and possibly the species of the Azores, which I have before given as F. capreolata (page 239.), may be called F. officinalis by others, though it has globose (not obcordate) fruit.

1. Peninsula. — Seen about Penzance. Frequent in Devon. Near Chudleigh. Seen about Barnstaple. Somerset. Common about Bath.

2. Channel. — Very common within eight miles of Poole. (F. media, common within eight miles of Poole — Dr. T. B. Salter's Catalogue.) Very common in the Isle of Wight. ("We have several forms or varieties of this plant, but I have never succeeded in finding any thing approaching to the F. parviflora, of English Botany, or the species so called on the Continent, and gathered by me some years ago at Montpellier" — Dr. Bromfield.) Seen about Shanklin. Seen about Shirley, near Southampton. Near Newhaven, Sussex ("F. Vaillantii"). Frequent about East Grinstead.

3. Thames. — Common about Reigate. Seen about Whitemoor pond; about Box Hill; in Thames Ditton and adjacent parishes; and elsewhere, in Surrey. South Kent. Very common about Tonbridge. Near Maid-

stone ("F. Vaillantii"). Seen near Stone Castle. About Oxford. Common about Banbury. Seen about Hampton Court. Common about Hertford. Common about Dedham. Common about Woodford.

4. Ouse. — In several places about Ipswich. Bungay. Abundant about Yarmouth. Common about Norwich. Common in West Norfolk. Cambridge. Common in Bedfordshire.

5. Severn. — Neighbourhood of Bristol. Very common about Alcester. Allesley and Coleshill. Worcestershire. Common in Shropshire. Not abundant about Pontnewydd.

6. South Wales. — Common about Swansea. On Constitution Hill, Aberystwith.

7. North Wales. — Wrexham. Anglesea.

8. Trent. — Common about Charnwood. Very common in Nottinghamshire. Derbyshire.

9. Mersey. — Seen about Congleton; about Alderley; in the hundred of Wirral, and elsewhere in Cheshire. Very common about Liverpool.

10. Humber. — Common in Yorkshire. About Leeds. About Richmond. Not very common about Settle.

11. Tyne. — Lower tract of Tees. By no means frequent in Northumberland and Durham.

12. Lakes. — Seen about Keswick. Very common in the Isle of Man.

13. West Lowlands. — Frequent in Lanarkshire, "especially in seed-beds, where it is often mistaken for carrots." Common about Glasgow. Renfrewshire.

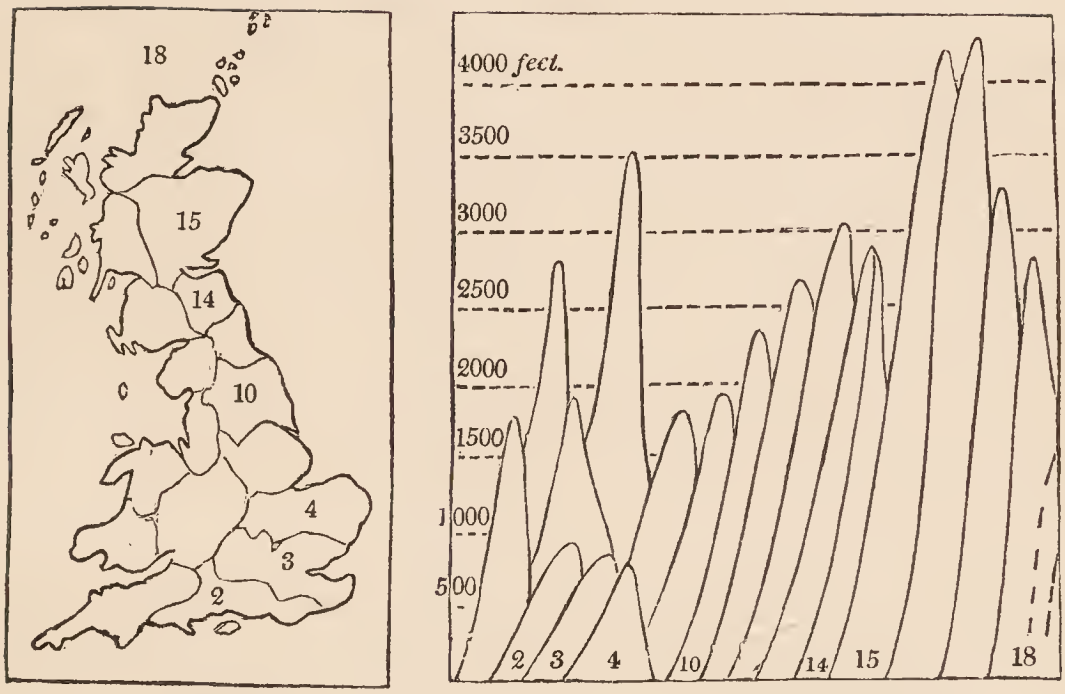
14. East Lowlands. — Common about Berwick. Frequent about Edinburgh. Salisbury Craigs.

15. East Highlands. — Kinnoul Hill, near Perth. Common about Aberdeen. Alvah. Very common in Moray. Seen near the town of Inverness.

16. West Highlands. — Seen near Dumbarton.

17. North Highlands. — Ross-shire. Seen about Tongue; also about Loch Errboll, Sutherland. Seen at Reay, on the north coast of Caithness.

18. North Isles. — Orkney.



Districts. Altitude of Districts.

38. Fumaria parviflora, *Lam.*

Fumaria parviflora and F. micrantha — Hook. Brit. Flora.

Districts. — Channel, 2. Thames, 3. Ouse, 4. Humber, 10. East Lowlands, 14. East Highlands, 15. North Isles, 18.

Floras. — Cambridge. Yarmouth. York. Moray.
Catalogues. — Poole. Kent. Ipswich.

Specimens. — On all sides of Edinburgh — *Mr. W. Brand.* (Having unfortunately mixed the labels of other specimens before they were glued to paper, I am unable to specify their localities correctly.)

Uncertain Localities. — Under the existing uncertainty respecting the distinctness of the alleged species, and the correct application of the names bestowed upon them, all the localities must partake of the like uncertainty. The species observed by Mr. Anderson, in fields near Teignmouth, according to the Flora Devoniensis, "is only a variety" of F. officinalis. I am now more inclined to refer also to F. officinalis the specimens gathered by Mr. Trevelyan, at Newhaven, in Sussex, and near Maidstone, in Kent; though they were published in the New Botanist's Guide, under the name of F. Vaillantii.

Britain. — Latitude, 50—58 (or 61). Partial? Agrarian. Fumaria parviflora, as Mr. Babington restricts the name, is doubtful as an English plant, while F. Vaillantii, according to the same botanist, "appears to be plentiful throughout England." Amid the present uncertainties before adverted to, it is impossible to describe the range of these alleged species separately, or even together. If we can rely upon Mr. Edmonston's list of Shetland plants, Fumaria parviflora is the only species of those islands; and being also reported to grow near Poole, its range of latitude would seem to extend through the whole of Britain. Few localities, however, are yet on record, and none of those few are assigned to the Western districts. Its places of growth are on cultivated and waste ground, at slight altitudes.

Geography. — Latitude, 25—60 (or 61). Europe. Asia. Africa. Canaries. Ireland. Sweden. Netherlands. France. Germany. Portugal. Spain. Baleares. Sardinia. Sicily. Italy. Greece. Russia. Caucasus. Altai. Asia Minor. North India. Algiers. Fumaria parviflora, spicata,

Vaillantii, micrantha, and densiflora, of various authors, are all united here; it being quite impossible to ascertain the geographical distribution of these reputed species severally. Under one or other of these names, we find a small-flowered Fumaria described in floras and lists, which imply a geographical range from Upsal, Livonia, Volhynia, and Altai, southwards to the Spanish peninsula, Algiers, Sicily, Greece, Asia Minor, Northern India, and the Canary Isles.

2. Channel. — Rare within eight miles of Poole.

3. Thames. — Chatham Hill, Kent. Woldham, near Rochester. Near the road between Gad's Hill and Gravesend. Dover. South Kent. In corn fields on the summit and southern declivity of the Hog's Back, Surrey; and in lanes at its foot. At Brookham. Coulsdon. Near Epsom. Corn fields near Burford Bridge.

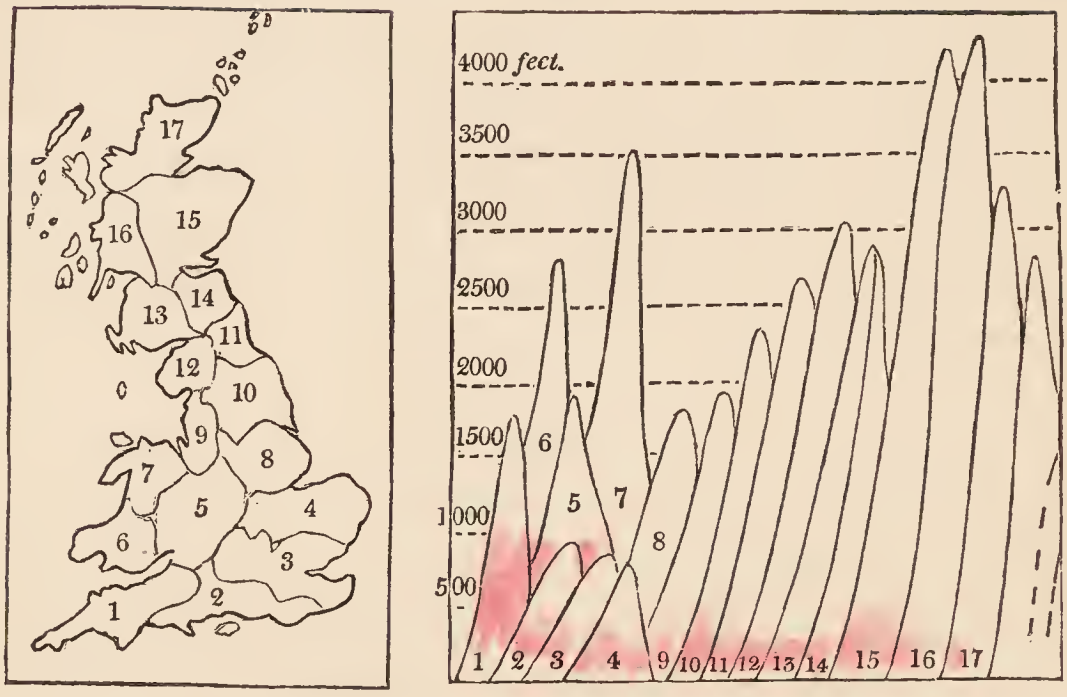
4. Ouse. — In several places near Ipswich. Suffolk side of Newmarket. As a weed in gardens near Yarmouth, very rare.

10. Humber. — In the Flora of Yorkshire, but no locality mentioned.

14. East Lowlands. — At Hill Side, north of the Calton Hill, Edinburgh. In Mr. Waddell's grounds at Hermitage, near Leith. Near Musselburgh. On all sides of Edinburgh.

15. East Highlands. — Airlie, Forfarshire. A single plant of it found on the road side near Forfar. Forres. Moray. Inverness?

17. North Highlands. — Abundant in Shetland.



Districts. Altitude of Districts.

39. Corydalis claviculata, *DC.*

Fumaria claviculata — Hudson, Withering, Smith.
Corydalis clavicula — Gray.

Districts. — Peninsula, 1. Channel, 2. Thames, 3. Ouse, 4. Severn, 5. South Wales, 6. North Wales, 7. Trent, 8. Mersey, 9. Humber, 10. Tyne, 11. Lakes, 12. West Lowlands, 13. East Lowlands, 14. East Highlands, 15. West Highlands, 16. North Highlands, 17.

Floras. — Devon. Bath. Tonbridge. Reigate. Salop. Anglesea. Liverpool. York. Tyne. Berwick. Edinburgh. Glasgow. Aberdeen. Moray. Catalogues. — Somerset. Wight. Sussex. Kent. Esher. Dedham. Norwich. Lynn. Worcester. Denbigh. Leicester. Settle. Tees. Renfrew. Ross.

Specimens.—In a wood, called the Ledds, by the river Mole, near Esher, Surrey; also in a coppice between Claremont Park and Okeshot, Surrey—*H. W.* Snaresbrook, Essex—*Bot. Soc. London.* Mousehold, near Norwich—*Mr. George Cooper.* Malvern Hills, Worcestershire—*Bot. Soc. London.* Near Pontnewydd, Monmouthshire—*Bot. Soc. London.* Near Ogwen Bank, valley of Nant Phrangon, Caernarvonshire—*H. W.* Bardon Hill, Leicestershire—*Mr. Churchill Babington.* Near Halifax—*Mr. Roberts Leyland.* Woods near Kirkham Abbey, Yorkshire—*Bot. Soc. London.* Near Barnardcastle, Durham—*Mr. John Storey.* Near Streatham Castle; also near Ryton, Durham—*Mr. R. B. Bowman.* Near Wooler, Northumberland—*Mr. Richard Embleton.* Aberfoyle, Perthshire—*Bot. Soc. London.* Cottage roofs, at the mouth of Glen Lyon, Perthshire—*Mr. W. Brand.* Cawdor Wood, Nairnshire—*Mr. W. Stables.*

Britain.—Latitude, 50—58. Rather general. Agrarian. Corydalis claviculata is distributed through Britain, from the district of the Peninsula to that of the North Highlands; being found in the counties of Devon and Ross, and in most others intermediate between these two. The only district from which it appears to be wholly absent, is that of the North Isles. It is, however, wanting in six of the local floras (namely, those for Oxford, Bedford, Cambridge, Yarmouth, Nottinghamshire, and Lanarkshire), and in fifteen of the local catalogues; so that it is a plant of scarce rather than common occurrence, notwithstanding the wide area over which its distribution extends. I presume that the locality near Two Bridges, on Dartmoor, exceeds 1000 feet of altitude, and the plant may be found also above that height on the Wrekin, in Shropshire. It occurs at 500 feet, or upwards, in Perth-

shire, and perhaps above that elevation in other northern counties. It is found in damp woods and hedges, and on rocks and roofs in the Highlands; apparently requiring a light soil composed of decaying leaves or other vegetable remains.

Geography.—Latitude, 37—58. Europe. Ireland. Netherlands. France. Germany. Portugal. Northern Italy. Greece. Corydalis claviculata is limited to a small portion of the earth, being found only in the British Isles, and in a few countries of the west and south of Europe. It occurs in Holstein, North Germany, Holland, Belgium, France, Portugal, North Italy, and Greece ("in agro Argolico"). Like the Meconopsis cambrica, consequently, it is an acceptable plant when sent to the continental collectors of botanical specimens.

1. Peninsula.—Hedges at Ilsington. North Bovey. Manaton. Among the rocks of Lustleigh Cove. Wistman's Wood, Dartmoor. Near Mamhead. Peter Tavy. Mary Tavy. Banks of the Teign, between Chudleigh and Canon Teign. Seen on Dartmoor, in an oak coppice, near Two Bridges. Enmore, Somerset. Bromfield. Seven Wells. Overstowey. Conygear Hill, Dunster. Charlinch.

2. Channel.—In wet thickets, but not common, in the Isle of Wight. In many places, about Sandown and Newchurch. Extremely common about Southampton. Near Netley Abbey, it covers the ground in some parts like a net. Roundhurst coppice, near Black Down, Sussex. Near Rackham Common, towards the Wild Brooks. In hedges by the road between Hailsham and Eastbourne.

3. Thames.—On the High Rocks, Tonbridge, and in the way from the High Rocks to Rusthall Common. In a field upon the east side of Willesborough Leas, near the bank upon which Aspidium Oreopteris and Blechnum boreale grow. Plentiful on trees in a wet copse at Littleton, right hand of the road in going from Reigate.

Seen in the Ledds, near Esher. Also, on the contrary side of Esher, between Claremont Park and Okeshot. Coulsdon. Martha's Chapel (near Guildford?); and likewise on the extensive common, called Blackheath, near Shalford, Surrey. Snaresbrook, Essex. In many places near Chelmsford.

4. Ouse.—In the eastern part of Dodnash Wood, near Dedham. In the great Alder carr, running from between Bergholt and Brantham, in the brook, below Dodnash farm. Marden Hill woods, near Dedham. Moushold, near Norwich. Thorpe. In plenty at Blackburgh thicket, near Wormegay. Woolferton Wood. Bowsey.

5. Severn.—In some of the least frequented lanes about Birmingham (formerly?). At Picket Rock, near Kidderminster. Abundant among loose stones, on the declivities of the Malvern Hills. Bramshall Park, near Uttoxeter. About Cheadle. South side of the Wrekin. Among loose stones on the north-east side of the Wrekin. Not uncommon in Shropshire, according to the Flora of the county, from which the following localities, as far as "Ketley," are taken. West side of Pimhill. Wooded base of the Wrekin, near the brook between that hill and Lawrence Hill. Craigforda, near Oswestry. Chesterton Mill, Caynton Wood. Lodge Hill, near Froddesley. Wood at the west end of Lyth Hill. Upon Froddesley Hill, and near Church Stretton, upon the rock on the right hand entering the town from Shrewsbury. Harmer Hill. Abundant on Lawrence Hill, an eastern satellite to the Wrekin. Longwynd. Treglach woods, near Oswestry. Among the stones at the back of Froddesley Park. On Hawkeston Hills. In Chetwynd Park. Ketley. Observed in one spot only in the neighbourhood of Pontnewydd, Monmouthshire.

6. South Wales.—Near Aberystwith. In a rough and bushy place, near Caradog mill and waterfall, about eight or nine miles south-east of Aberystwith, on the road to Pont Rhydvendigad and Strata Florida Abbey.

7. North Wales.—Plentiful about Llanidloes, Montgomeryshire. On the hill above Barmouth. Near Capel Cerig. Seen near Ogwen bank, vale of Nant Phrangon. Very rare in Anglesea; but found on the south side

of Carn ynghornwy. Miniera Hill, Wrexham. Abundant in hedges, near Llangollin, by the road side from Chirk.

8. Trent.—Summit of Bardon Hill. On the Whitwick craigs, Charnwood. Rowter Rock, Derbyshire. Seen near Matlock Bath.

9. Mersey.—Plentifully in a hedge on the left hand side of the footpath leading from North Birkenhead to Bidston Lighthouse, very near to the lighthouse. Occasionally on walls about Bidston. Crosby. Seaforth. Knott's Hole, near Liverpool.

10. Humber.—Near Leeds. Among the rocks of Stone Hall, near Rawdon, seven miles from Leeds. Near Halifax. Woods near Kirkham Abbey. In the lane to Skeeby, from Richmond. Longwith, near York. Hookstone craigs, near Knaresborough. Bingley. Addle Moor. Arncliffe Wood. Abundant in low bushy woods, on sandstone soil, about Settle.

11. Tyne.—Near Streatham Castle. In hedges near Beamish. Greencroft, Durham. On rocks between Eglestone and Staindrop. On rocks near Redpath. Near Barnardcastle. Near Ryton. Newcastle town-moor. Near Wooler. In Heaton dean, among bushes on the banks of Ouse burn. On the Oakwood banks, near Hexham. On Roadley and Great Waneyhouse craigs. On rocks above Tecket waterfall. At Little Waneyhouse craigs. Among the rocks on Longridge dean. On Alnwick Moor. Heckley craigs. Near New Berwick.

12. Lakes.—Dry stony places in Furness Fells. In a marsh on the east side of Kendal Castle. Hallen Fell, by Ullswater. Patterdale. Dalemain. Seen near Keswick. Ashness Gill, near Derwent Water.

13. West Lowlands.—Woods at Drumlanrig, Dumfries. Ruthwell. Said to grow on the thatch of houses near North Park, near Glasgow. Renfrewshire.

14. East Lowlands.—Among the rocks in Longridge dean, near Berwick, plentiful. In the Pease Bridge dean, on stony spots between the Forresters' houses. Ravelston quarry, near Edinburgh.

15. East Highlands.—Woods near Aberdour, Fifeshire. Aberfoyle, Perthshire. Tops of cottages, entrance of Glen Lyon. Seen near Killin; also on cottage roofs,

by the road side, between Callander and Leni Pass. Abundant about Aberdeen. Den of Rubislaw. Banks of the Dee. Banffshire. Cawdor Wood. Courach at Rothes. Lynleish, in Strathspey. Knockando. Relugas. Inverness.

16. West Highlands.—Dumbartonshire.
17. North Highlands.—Ross-shire.

(*Introduced Papaveraceæ.*)

1. Papaver somniferum, *Linn.* — This species has been long admitted into the lists of British plants, though on slender claims to be received as a native production. It was allowed place in Ray's Synopsis, and succeeding writers have always let it pass muster among true Britons. The following, and probably other localities, have been indicated for it. In Somerset: — In a sand pit, near Glastonbury, with Vicia lutea, in a wild spot, pretty abundant. Spreading widely over the sand hills at Burnham. In Dorset: — Most abundant for miles a little eastward of the burning cliff, near Weymouth. In the Isle of Wight: — Not uncommon at the back of the island, in waste ground, coming up where the earth is disturbed, as at Ventnor, St. Lawrence, and elsewhere; also in corn fields occasionally; of course not indigenous. In Kent: — A doubtful native of South Kent. Near the Medway, at Rochester. Corn fields about Dartford. In Surrey: — At Coulsdon. In Oxfordshire: — Near the Observatory, Oxford. By Godstow Nunnery. Between St. Clement's and Cowley marsh. In Norfolk: — On the banks of all the fen ditches, where the soil is sandy, in the parish of Hockwold cum Wilton, "certainly wild." Framlingham. Borders of Castle Rising wood. In Cambridgeshire: — By the Roman road from Cambridge to Ely. Waterbeach fen. On the banks of the closes which separate Denny farm from the Ely road. Rampton. In Worcestershire: — Severn side, below Worcester. In Shropshire: — Occasionally about Bromfield, near Ludlow. In Nottinghamshire: — Mansfield. Sparingly in Nottingham forest. In Yorkshire: — Gravel pits in Campsall Park. About Leeds. In Durham: — On the ballast hills of Tyne and Wear. Near Seaton. Near Norton. In Renfrewshire: — About Lochwhinnoch. In Forfarshire: — In newly trenched ground, by road sides, &c. about Delvine House, near Coupar. In Moray: — Walls about Pluscarden Priory, certainly introduced. It is seen occasionally by road

sides, on refuse heaps, and about the sea shore, in other parts of England; but the localities are scarcely worth the trouble of recording them.

2. GLAUCIUM VIOLACEUM, *Juss.* — Though this species has maintained its ground in Cambridgeshire considerably more than a century, it yet appears to spread very slowly in England. Ray records a locality for it between the villages of Swaffham and Burwell, in Cambridgeshire; and it still grows in the neighbourhood of Swaffham. Relhan adds the locality of a field near Newmarket. It is also stated to have been found about forty miles from Aylsham, towards Cromer, Norfolk.

3. CORYDALIS LUTEA, *Lindley.* — This is a more recent introduction into our floras, as neither Ray nor Hudson have it. Withering, Smith, and succeeding authors have adopted it as British "on sufferance." Various localities have been put on record, but all in places where other garden flowers might be expected to appear occasionally. In Cornwall: — On St. Michael's Mount, probably planted on the walls and rocks, as an ornament. In Devon: — It was seen also rather plentifully at the foot of an old wall, by the road between Bishop Tawton and Newbridge, in North Devon. Near Totness. In a hedge near Exeter, on the Moreton road, hardly wild. Not uncommon about Bere Ferrers and Bere Alston. In Somerset: — On a wall at Dunster, not far from the church. On an old wall at Chilton Polden. About Bath: — On an old wall near the top of Holloway, and on waste ground near Woodland Place. At Batheaston. At Farnborough and Temple Cloud. In Wiltshire: — On walls about the Almshouses, at Corsham. In the Isle of Wight: — Very rare, naturalised on old walls. In Kent: — On walls at the Wells, near Rose Hill House, Tonbridge. The Moat, near Seven Oaks. In Surrey: — On a wall at the west end of Farnham. Coulsdon. In Berkshire: — Caversham, near Reading. In Middlesex: — On a wall close to Harefield church. In Hertfordshire: — Rare, and not indigenous, about Hertford. In Norfolk: — Frequent on old walls about Norwich. In Gloucestershire: — Neighbourhood of Bristol. On an old wall near Huntley.

Broadway Hills. In Warwickshire: — On walls in Mellos Lane, and St. Mary's churchyard, Warwick. Under a wall, opposite Mr. Penrice's, Abbot's Salford. In Worcestershire: — On a limestone wall, near the church at Abberley. In a shady lane below Abberley church (same locality ?). In Herefordshire: — Mr. Lees saw "a wall completely enshrouded with it, at Lea, about six miles east of Ross." In Pembrokeshire: — On the walls of Penally churchyard, two miles west of Tenby. In Derbyshire: — Near Castleton (but this is supposed to be an error). Matlock. Duffield. In Cheshire: — On an old wall near Marple, four miles from Stockport. In Yorkshire: — Near Fountain's Hall, by Fountain's Abbey. On walls at Londesborough. At Holmhead, near Giggleswick, growing wild in great abundance. In Northumberland: — Naturalised on old walls at Netherwitton, and on rocks at Harnham. On a wall at Dunstan Steads. In Moray: — On garden walls about Elgin, certainly introduced.

4. CORYDALIS SOLIDA, *Hook.*—This also is comparatively a recent introduction into our descriptive floras. Ray and Hudson have it not. Withering, Smith, and other writers admit it, but on very slender grounds. Not many localities are found on record. In Hampshire: — In a wood at Wickham, near Fareham. In Warwickshire: — Woods near Studley. At Perry Hall, near Birmingham, in a meadow between the house and river. In Worcestershire: — Abberley woods. In Staffordshire: — At Blithfield. In Shropshire: — Formerly found (1796) in a small alder copse, adjoining the cascade, about a quarter of a mile above Cound Stank bridge, but not to be found there in 1799. Near Hanwood, and between Wellington and Wrockwardine. In Nottinghamshire: — In an old quarry at Mansfield. Near Annesley Church. In Lancashire: — Near Ulverstone. Between Cartmell and Kendal. In Westmoreland: — At Kendal, but in an old garden. In Leven's Park, five miles from Kendal. Wattsfield, half a mile from Kendal. In Cumberland: — Walton House, by a farm-yard. Catsteads, near Brampton.

(*Rejected Papaveraceæ.*)

1. GLAUCIUM PHŒNICEUM, *Gært.*—Hudson says that the present species was sent from Norfolk, with G. violaceum, by Mr. Stillingfleet. It has also been reported to grow on Portland Island, Dorsetshire. No modern botanist appears to have found this plant, though several have sought for it, and it is too conspicuous to have been overlooked.

END OF THE FIRST PART.

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