REPORT

ON THE

PROGRESS AND STATE OF BOTANY IN BRITAIN,

FROM MARCH 1839 TO FEBRUARY 1840, BOTH INCLUSIVE.

By ROBERT KAYE GREVILLE, LL.D. PRESIDENT.

READ AT THE FOURTH ANNIVERSARY MEETING, 1840.

IN preparing the Annual Address, which it falls to my duty, as President of the season, to deliver, I found, after surveying the mass of materials before me, that it was impossible for me to take up and examine in detail the various works and periodicals, which, although emanating from the British press, are devoted to the illustration of exotic plants. I found it also necessary to avoid the consideration of those papers which have been introduced from foreign sources (frequently mere translations of foreign memoirs) into our own journals; as such articles bear little or no reference to the state of Botany, or its progress among ourselves. Were I to enter upon so wide a field as would be presented to me in the absence of such limitations as I have specified, my address would not only engross the leisure of many months to elaborate, but be, after all, too unwieldy to serve the purposes of the Society. I propose, therefore, to confine myself,—1st, To the progress of British Botany; in other words, to Botany as it refers to the vegetation of the British islands. 2dly, To a notice of original works and memoirs published in this country on the general subject. To remedy any inconvenience, however, which may be supposed to arise from the circumstance of various works being unnoticed in my Ad-

dress, I have appended to it as complete a *Catalogue Raisonné* as I have been able to prepare, of every work and original article on the subject of Botany published in this country during the preceding twelve months. Should this plan be acted on by your future Presidents, facilities for preparing an annual catalogue will increase ; and I have no hesitation in saying, that it would prove eminently useful, and stamp an additional value upon your annual Reports ; for there is no publication in this country in which such a list of works is contained.

I find little to record during the past year on the structure of plants. Dr. Lankester has observed a curious phenomenon in the seta of *Funaria hygrometrica*. This part is always twisted when the plant has arrived at maturity ; but Dr. Lankester remarks, that “ if one of the dried setæ be taken in the hand, and its lower portion moistened with the finger, the capsule will be seen to turn from right to left ;” and then, “ if the upper portion be moistened in like manner, the capsule will turn round more rapidly in a contrary direction.” This fact is explained by the elongated tissue of the seta being arranged in a spiral direction during a part of its length ; then becoming straight, and at length, in the upper part, forming a spiral in an opposite direction. It is considered a question whether the motion be caused by the force with which the fluid passes along the bent tubes, thus having a tendency to straighten them ; or whether “ it arises from the mere distension of the external tissue.” Professor Morren has noticed a double direction in the spire formed by the twisting of the tendrils of *Bryonia dioica* ; and Dr. Lankester has subsequently observed in the tendrils of a species of *Passiflora* a twisting not only in two opposite directions, but in alternately different directions, for five or six times, to the end of the spire.*

The Rev. M. J. Berkeley has a highly interesting and instructive paper on the fructification of *Lycoperdon*, *Phallus*,

* Ann. of Nat. Hist. vol. iv. p. 361.

and their allied genera. But it would be scarcely possible to render an abstract of it intelligible, especially in the absence of the plate which accompanies it. We therefore recommend it to the careful perusal of all who are attached to this department of botanical science.*

Professor Lindley observes, in his remarks on the *Fumariæ*, in his admirable work the Natural System of Botany, that he is inclined to consider the parts of the flower of the *Fumariæ* as divided upon a binary plan, in which he differs from De Candolle. After describing the floral envelopes, the arrangement of which he thinks supports his view, he refers to the stamens for additional evidence. It is well known that those organs are combined in two parcels, in each of which is a central 2-celled anther, and two lateral 1-celled ones. Lindley, assuming that the lateral 1-celled anthers of each parcel belong to a common stamen, "the filament of which is split by the separation of the two parcels," concludes that the number of stamens of *Fumariæ* is four, "one of which is before each of the divisions of the flower; an arrangement which is precisely what we should expect to find in a normal flower consisting of two sepals and two petals, and the reverse of what ought to occur if the divisions of the flower were really all petals, as has been hitherto believed."

Mr. George Dickie has brought forward an additional and more interesting argument, confirmatory of Professor Lindley's hypothesis. He has observed that each common filament is traversed by three distinct fasciculi of vessels; the central one, which passes to the 2-celled anther, being double the size of those which pass to the lateral anthers; besides which, the two lateral fasciculi are very near the margin of the filament. In many cases he has found a very slight adhesion of the lateral portions, and in very young flower-buds no adhesion at all. Where partial adhesion only exists, the fasciculi of vessels are nearer the outer than the inner edge of the filament bearing the 1-celled anther.†

From the pen of Professor Morren of Liege we have a

* Ann. of Nat. Hist. vol. iv. p. 155.

† Ibid. vol. iii. p. 440.

memoir of considerable interest on the Discoid Piths of Plants. He observes that discoid piths exist in the families of the *Santalaceæ*, *Juglandææ*, *Phytolacceæ*, *Jasmineæ*, and *Begoniaceæ*, and that there is reason to believe that this form exists in many more plants. After enumerating the various hypotheses which have been advanced in regard to the use of the pith, he remarks, that one fact remains certain, which is, "that the bud has need of pith to be developed; it is its necessary *sustentaculum*." And the author seems to agree with Raspail that the evolution of the bud is in reality a germination under other forms. To account for the discoid character of some piths, Morren assumes that "in the same manner that a fruit *opens* by a *predisposition* of the tissues *destined to break*, that is to say, *to divide*, so a pith perforated with transversal cavities is also thus *pierced* by a *predisposition* in the organic elements, which lose their continuity by means of a structure appropriated to this purpose. If the text of adopted physiologies were taken literally, we should say that it is the mode in which the elongation of the branch takes place which *tears* the pith *regularly* into disks, whilst observation and the anatomy of the organs prove that these disks are the result of a condition of existence of the pith itself, and not of the ligneous apparatus surrounding it. Such is the first conclusion (adds the author) I have come to in this investigation. It will subsequently serve to prove that this phenomenon of the separation of the pith into discoid plates, is attended with several remarkable changes in the cells of this apparatus, and these changes are in fact the strongest proofs that can be brought to show effectually that the pith is a species of *mamilla for the bud*." M. Morren then enters into numerous details, illustrated by figures, and concludes by remarking,—“It is proved, then, by these numerous examples, that a disorganization of tissue does not exist in the formation of these cells. The pith is exhausted by furnishing the bud with its fecule, as does the cotyledon; but if this then changes into a leaf in the epigeous plants, by turning its diachyma green, the pith, on the contrary, from being green, becomes blanched and completely exhaust-

ed, and remains a vehicle for air and reservoir of excreted substances, henceforward of no use for vegetable life.”*

The Rev. Patrick Keith being dissatisfied with the opinion of Dutrochet, and some other modern botanists, that the roots of Exogens are absolutely destitute of pith, has made some observations on two points regarding the pith:—1st, On the extent to which it may be said to occupy the centre of the plant; and, 2dly, On its dimensions or obliteration in aged subjects. Mr. Keith succeeded in finding a pith in the descending axis of seedling plants of *Acer pseudo-platanus*, and *Fagus sylvatica*. He also observed it in the descending axis of a seedling of *Corylus Avellana*, in which the stem measured seven inches in length. In the latter case, Mr. Keith observes, “it was evident that the pith, strictly cellular and under the aspect of a fine thread, descended into the root, without any node or interruption, or breach of continuity whatever, and without any appreciable difference beyond that of colour.” “It may be seen equally well in the root of seedlings of the oak and ash.” Whatever difference of opinion may, therefore, have existed among physiologists in regard to the pith in the descending axis of Exogens, Mr. Keith has established the fact of its existence at least in the young plant.

With reference to the second debatable point, Mr. Keith thus proposes the question:—“Does the pith, after having reached its maximum of diameter, and parted with its specific juices, ever shrink further in its dimensions, whether by the generation of longitudinal fibres within it, or by pressure from without, or by any other cause?”

Mirbel, and many other earlier physiologists, believed that the pith was either obliterated by age or much diminished in diameter. “Those, however, who entertain this opinion,” observes Professor Lindley, “seem not to consider that the diameter of the pith of all trees is different in different shoots, according to the age of those shoots; that in the

* Ann. of Nat. Hist. vol. iv. p. 73.

first that arises after germination, the pith is a mere thread, or at least of very small dimensions,—that in the shoots of the succeeding year it becomes larger,—and that its dimensions increase in proportion to the general rapidity of development of the vegetable system: the pith, therefore, in the first-formed shoots, in which it is so small compared with that in the branches of subsequent years, is not so because of the pressure of surrounding parts; it never was any bigger.”*

In answer to this view Mr. Keith remarks, that the question is, Does the pith of any shoot, be it primary or be it secondary, ever shrink in any perceptible degree after the end of a year's growth? Mr. Keith's observations, drawn from facts which he thinks conclusive, we give in his own words:—“On the 1st of June 1836, I separated from the stool of an ash-stock a stem of three years' growth. It measured about nine feet in length, the growth of each year being distinctly marked, and measuring each about three feet in length. The upper shoot, that is, the shoot of 1835, had a diameter of $\frac{3}{8}$ ths of an inch, with a pith of $\frac{1}{4}$ th at the widest. The middle shoot, that is the shoot of 1834, had a diameter of $\frac{7}{12}$ ths of an inch, with a pith of $\frac{1}{6}$ th; and the lower shoot, that is, the shoot of 1833, had a diameter of $\frac{7}{8}$ ths of an inch, with a pith of $\frac{1}{10}$ th. Now, as the shoots of the several years were equally luxuriant, and the youngest a year old, the pith ought, by hypothesis, to have been of the same dimensions in all of them. Yet it was gradually smaller and smaller from the youngest to the oldest; though it was undoubtedly of equal diameter in the first year's growth of each. For the shoot of a single year, from a different stock, gave a diameter of pith equal to that of the upper shoot of the above stem; and poles of twelve years old gave still a diminishing diameter when inspected towards the base. Whence we infer that the pith keeps shrinking, from one cause or other, long after the period of the first year's growth.”†

* Lindl. Intr. p. 60.

† Ann. of Nat. Hist. vol. iii. p. 77.

To the physiological department of this address belongs an exceedingly interesting and well-written paper by Mr. Daniel Ellis, a member of our Society, on the method of growing plants practised by Mr. Ward. Perhaps no one was so well qualified to take up this subject as Mr. Ellis, whose name has so long been associated with vegetable physiology. The paper to which I now allude, was read before the Society in June, and subsequently published in the 15th volume of the *Gardener's Magazine*. After describing the construction of the plant-case in his own possession, Mr. Ellis relates the circumstance which suggested the invention of the case, and makes some remarks, 1. On the mode in which a smoky atmosphere proves injurious to vegetation. 2. On the condition of plants, in regard to water, in close cases and in the free atmosphere. 3. On the condition of plants, in regard to heat, in close cases and in the free atmosphere. 4. On the condition of plants, with regard to light, under the same circumstances. 5. On the condition of plants, with regard to heat, under the same circumstances. The article is one which does not admit of abridgment, and I beg, therefore, to recommend it to your attentive perusal. The incident which led to Mr. Ward's experiments, as related by Mr. Ellis,—and which you will also find recorded by Mr. Ward himself in the first volume of Sir W. J. Hooker's *Companion to the Botanical Magazine*,—is very interesting, as showing to what important practical conclusions, an apparently trifling circumstance will lead an acute and observing mind. As it is not generally known, I shall make no apology for introducing it in this place. "From his early youth," says Mr. Ellis, "Mr. Ward had been attached to botanical pursuits; but living in a situation enveloped in the smoke of numerous manufactories, he had been compelled to give up the cultivation of plants, after many unavailing trials. At length a simple incident put him on new experiments, and led him gradually to the results we are about to detail. He had buried the chrysalis of a sphinx in some moist mould, which was contained in a

wide-mouthed glass bottle, covered with a lid. In watching the bottle from day to day, he observed that the moisture which, during the heat of the day, rose from the mould, became condensed on the inner surface of the glass, and again fell back to the mould, so as to keep it always in a state equally moist. About a week prior to the final change of the insect a seedling fern and grass appeared on the surface of the mould. After having secured the insect, Mr. Ward set himself to watch the development of these plants in such a confined situation. He placed the bottle on the outside of the window of his study, where the plants continued to grow, and turned out to be the *Poa annua* and *Nephrodium Filix-mas*. From this incident, so well improved by Mr. Ward, have arisen the results, both physiological and practical, which form the subject of the present communication." It is now about twelve years since Mr. Ward commenced his investigations, and he has already conferred on the botanist and horticulturist benefits which no researches of travellers, however successful, nor expenditure of money, however great, could have enabled them otherwise to procure. By means of his glazed cases, rare plants are brought into a healthy and flourishing state from the farthest parts of the world, which, previous to this discovery, could never be made to survive the voyage.*

Mr. Bird has continued his paper on the artificial arrangement of some of the more extensive natural orders of British plants, and has given dichotomous tables for the determination of the genera of *Leguminosæ* and *Umbelliferae*. He observes, that in the analysis of the genera of *Leguminosæ* made by Dr. Lindley, the distinctions upon which the principal divisions (*Loteæ* and *Vicieæ*) are founded, consist in the cotyledons rising above, or remaining beneath the ground during germination. As it is, however, difficult to meet with many species during the earlier stages of development, Mr.

* Gard. Mag. vol. xv. p. 481.

Bird has constructed his tables without reference to Lindley's characters, and has availed himself of others selected from various parts of the plant.*

Respecting this analytical method, Dr. Lindley remarks, that however excellent it is if well managed, it is of all the very worst if used injudiciously. One false step, either on the part of the author who frames it, or on that of the reader, instantly leads astray. Every thing depends upon a judicious selection of contrasting characters on the one hand, and a scrupulous attention to them on the other. He considers it useful as a kind of key to long generic or specific characters and descriptions; and is in favour of its introduction into every work on systematic natural history, on account of the labour it saves the reader, when casual investigation only is the object.

A small volume has recently been published by Mr. Ralfe, in which the analytical method has been extended to all the British phænogamous plants and ferns; and in two appendices he has added an analysis of the genera according to the natural arrangement, and a glossary of the scientific terms employed in the whole volume. The work appears to be carefully executed, and will prove very useful as a pocket companion. Should a second edition be called for, we should recommend it to be printed in a still smaller compass, for the convenience of the pocket.

Our friend Mr. C. C. Babington has revived the discussion relative to *Arctium Lappa* and *A. Bardana*; and believing them to possess really distinctive characters, has given descriptions of them. He observes of *Arctium Lappa*, that the most apparent characters are its large size, large corymbose heads, and glabrous pale green involucre; while *A. Bardana* may be distinguished at a glance, by its smaller size, small racemed heads, and more or less woolly and coloured involucre.†

* Mag. of Nat. Hist. N. S. vol. iii. p. 181.

† Ann. of Nat. Hist. vol. iv. p. 253.

After a very careful investigation, the same botanist is of opinion that "*Ranunculus aquatilis*, *circinatus*, and *fluviatilis* of Sibthorp, are truly distinct species, having excellent and clearly distinguishable characters, when examined in a living state." Besides other discriminating marks, it is observed that "in *R. aquatilis* the carpel is usually ovate, and tipped by the short, straight, blunt, persistent style; in *R. circinatus* the same part is semi-obovate, and the style is twice or thrice the length of that of *R. aquatilis*, and is acute and placed upon the extreme point of the nearly straight side of the carpel, towards which it curves over; in *R. fluviatilis* it is more regularly ovate than in either of the others, and bears the short, straight, persistent, blunt style below the top, upon the straighter side of the carpel." Although Mr. Babington's views are in opposition to those of the late Sir J. E. Smith, of De Candolle, Hooker, and others, yet he is supported in them by the authority of Gaudin, Mertens, Koch, Schlechtendal, and Sturm. We recommend botanists to compare the three plants with Mr. Babington's characters. For myself, I may add, that I have long regarded *R. circinatus* at least, as an undoubted species.*

Mr. Babington has detected characters by which *Allium Porrum* and *A. Ampeloprasum* may be satisfactorily distinguished in the absence of the bulb. The germen in both of them is constricted at about the middle, particularly at the time of flowering; but in that of *A. Porrum* the constricted part is continued upwards, while in *A. Ampeloprasum* it is continued downwards. "In the former the segments of the perigone are shorter than the common filament of the three-pointed stamen, and the anther-bearing point is only half the length of either the common filament or of the barren points; but in the latter the segments of the perigone are longer than the common filament, to which the anther-bearing point is equal, but at the same time only one-third of the length of the barren points."†

* Ann. of Nat. Hist. vol. iii. p. 225.

† Ibid. vol. iv. p. 289.

The seventh volume of the second edition of "English Botany" is now completed, and with it the figures and descriptions of all the Phænogamous plants contained both in the original work and the supplement. The whole being arranged (according to the Linnæan method), it forms a more convenient book of reference than the first edition. It is unnecessary for me to speak in praise of a work the value of which has been so long recognised, and to which the epithet national may well be applied. The proprietor, we are informed in the preface, intends to publish the remaining portion of the original work, containing the Cryptogamia, in accordance with the wishes of a number of subscribers. This part of the undertaking will require careful revision, as comparatively little was known of Cryptogamic plants in general, when "English Botany" was first published. Many of the plates will have to be re-engraved, especially among the Mosses and Jungermanniæ. The lichens are for the most part admirably illustrated, but there is no family, even after all that has been written upon it, in which so large a number of species are vaguely defined.

Mr. Baxter's useful and well-executed illustrations of the genera of the British Flowering Plants, has reached the termination of the 4th volume. Three hundred and twenty genera have now been figured. The letter-press contains a variety of information, and the lists of the localities of the rarer plants are very complete.

The most valuable of the local floras published since your President's last Report, is the *Primitivæ Floræ Sarnicæ* of one of the most active members of the Society, Mr. Babington. The author remarks, that our imperfect knowledge of the botany of the Channel Islands has been "probably caused by their peculiar situation,—being connected geographically with France, and politically with England: their natural history has been neglected by the scientific men of both countries—those of the former not looking upon them as part of France, and the latter rightly considering them as beyond the natural boundaries of the British Isles." The number of flowering plants and ferns contained in Mr. Babington's volume is

848, of which the following species do not exist in the Society's Catalogue.

Ranunculus ophioglossifolius, Vill. *Sinapis Cheiranthus*, Koch. *Erucastrum incanum*, Koch. *Raphanus sativus*, L. *Cerastium atrovirens*, Bab. (Mr. Babington has reduced his *C. pedunculatum* to a variety of this plant.) *Hypericum linarifolium*, Vahl. *Trifolium incarnatum*, L. (Naturalized.) *T. strictum*, L. *Arthrobotium ebracteatum*, DC. *Rubus argenteus*, W. and N. *R. villicaulis*, W. and N. *Myriophyllum alterniflorum*, DC. *Callitriche platycarpa*, Kutz. *Herniaria ciliata*, Bab. *Bupleurum aristatum*, Bartl. (The *B. odontites* of Sm. Hook. &c., but said not to be the plant of Linnæus.) *Nardosmia fragrans*, Rehb. (Naturalized.) *Senecio erraticus*, Bert. *Hieracium lævigatum*, Willd. *Orobanche barbata*, Poir. (Found also in Ireland and Wales.) *Linaria pelisseriana*, Mill. *Salvia clandestina*, Linn.? Benth. *Melissa officinalis*, Linn. (Naturalized.) *Atriplex marina*, Linn. *A. deltoidea*, Bab. nov. sp. *A. rosea*, Linn. *Polygonum laxum*, Rehb. *P. Raii*, Bab. *Orchis laxiflora*, Lam. *Allium sphærocephalum*, Linn. *Potamogeton plantagineus*, Duer. *Scirpus tabernaemontani*, Gmel. (*S. lacustris*, var. *glaucus*, of the Society's Catalogue.) *Sc. pungens*, Vahl. (Var. β . of *S. triquetus* of Smith.) *Bromus maximus*, Desf.

Many valuable critical remarks are dispersed throughout the volume; and amended characters, the result of careful examination and comparison, are given of the more difficult plants. There is also a praiseworthy feature in this little book, which distinguishes it from most of the local Floras of the day; it has been prepared with a constant reference to the state of botany on the continent, and may be considered as an integral part of the European Flora. The second edition, we hope, will be improved by a more specific list of the cryptogamic productions. The Channel Islands must be particularly rich in Algæ. In the preface, the reader will find a sketch of the geological structure of the Islands, by Mr. F. C. Lukis of Guernsey. It would add much to the usefulness of the work, and not materially increase the price, if maps of the two principal Islands were appended to it.

Mr. Hall's Flora of Liverpool is another example of the superiority of the recent local Floras over the great majority of their predecessors. It is accompanied by an excellent map of the country round Liverpool, a sketch of the geological formation of the neighbourhood, by the Rev. Thomas Dwyer, and a valuable appendix of meteorological tables and observations, by Mr. William Armistead. Although the Flora is in the form of a catalogue, with an indication of the localities, &c., it contains many notes and observations.

The Nottinghamshire Flora, by Dr. Howitt, is also in the form of a catalogue; and contains a coloured geological map of the county on a small scale.

The little work, entitled "A Short Account of the Botany of Poole," from the pen of one of our members, Dr. Thomas Bell Salter, contains a list of 420 genera, and 989 species, on the plan of the Society's catalogue, prefaced by several pages of remarks on the general geological and botanical features of the district. It is remarkable that *Erica ciliaris*, only discovered in this country a few years ago, occurs in profusion throughout the whole space between Arne and Corfe Castle, a distance of fully four miles. Heath, says Dr. Salter, is the "prevailing vegetation throughout the whole extent, and this the dominant species. It is taller and more shrubby than the other British species of *Erica*." *Trifolium resupinatum* is found near Ballast Quay at Ham, opposite Poole; but Dr. Salter suspects that the seeds have been brought over in ballast.

Mr. T. Bruges Flower has published a list of plants collected in the neighbourhood of Swansea, Glamorganshire, during last summer; some of which are of considerable rarity. The most remarkable are *Matthiola sinuata*, *Draba aizoides* abundantly on the walls of Pennard Castle, *Brassica Cheiranthus*, *Diplostaxis muralis*, *Inula crithmoides* plentifully, *Senecio erraticus* (quite distinct, in Mr. Flower's opinion, from *S. aquaticus*.) *Lithospermum purpureo-cæruleum*, *Orobanche barbata*, *Acorus Calamus*, &c.*

* Mag. Nat. Hist. N. S. vol. iii. p. 561.

Mr. Wilson Saunders has also published a short list of plants observed by him in the neighbourhood of Kirtlington, Oxfordshire; among which may be particularly noticed *Salvia pratensis*, *Colchicum autumnale*, and *Myosotis cæspitosa* with the corolla of a pure white, a character which it retains under cultivation.*

A list of *Fungi* growing in the neighbourhood of Bristol, has been contributed by Mr. Oxley Stephens. The few observations which are appended, show that the author has been a careful observer of these obscure plants. Two species of Agaric are proposed as new; and *Ag. obscurus*, Pers., added to our Flora. Mr. Stephens has also a new *Cantharellus*, and a new *Sphæria*.†

In Scotland must be classed among local Floras the "Collectanea for a Flora of Moray," which, although anonymous, is known to be the useful production of a member of our Society, the Rev. George Gordon of Birnie. The number of species in the list is 724, of which 65 are marked as doubtful, and 70 as certainly introduced. From meteorological journals kept by the Rev. John Allan at the Elgin institution, and by the Rev. A. Rutherford at Kingussie, we are informed in the preface, that at the former place the mean annual temperature of three years is 48; at the latter 45. The rain gauge at Elgin shewed an annual average of 25·355 inches; at Kingussie of 32·215 inches. These places are nearly the two most distant points in the province.

The Flora of the Shetland Islands has been ascertained by Mr. Edmondston to consist, as far as it is known, of 250 species. The ligneous plants are only 20 in number, viz. *Ulex europæus*, *Hedera Helix*, *Lonicera Periclymenum*, *Sorbus aucuparia*, *Rosa tomentosa*, *Cratægus Oxyacantha*, *Vaccinium Myrtillus*, *Azalea procumbens*, *Arctostaphylos Uva Ursi*, *A. alpina*, *Erica cinerea*, *E. Tetralix*, *Calluna vulgaris*, *Empetrum nigrum*, *Betula alba*, *Salix fusca*, *S. aurita*, *S. aquatica*, *S. herbacea*, and *Juniperus communis*.‡

* Mag. Nat. Hist. N.S. v. iii. p. 239. † Ann. Nat. Hist. v. iv. p. 246.

‡ Loud. Gard. Mag. vol. xvi. p. 102.

The favourite family of Ferns has excited the admiration of one of our entomologists to such a degree, that he has written and put forth a very elegant volume upon the British species. It is a curious book, illustrated with gracefully drawn wood-cuts, which have the still greater merit of being in almost every instance characteristic of the plants they are intended to represent. Although there are many sound and judicious remarks on the value of characters hitherto employed in the discrimination of species, Mr. Newman—the author—must not expect to find botanists prepared to follow him in the exclusion of several recognised ferns, as species, from our Flora. Since the publication of Presl's *Tentamen Pteridographia*, the genera of this family are gradually becoming fixed on more certain principles; and Mr. Newman has kept that work in view, although he has not been implicitly guided by it. The British genera of the *Annulatæ*, as adopted by Mr. Newman, are, *Adiantum*, *Lomaria* (*Blechnum* of British authors), *Pteris*, *Allosorus* (*Cryptogramma*, Br.) *Polypodium*, *Woodsia*, *Cystopteris*, *Polystichum* (part of *Aspidium*), *Lastræa* (part of *Aspidium*), *Athyrium* (*Asplenium Filix femina*), *Asplenium*, *Scolopendrium*, *Ceterach* (*Grammitis Ceterach*), *Trichomanes* and *Hymenophyllum*.

Presl considers *Pteris aquilina* as an *Allosorus*, but our author retains the Linnæan appellation, in which he is supported by the younger Agardh, in his recent Monograph. *Polypodium calcareum*, respecting which there has been, and still exists, a great difference of opinion, is annihilated, being regarded not even as a variety of *P. Dryopteris*. Sadler, (whose opinion is quoted), says, although he sustains the species, that it is not sufficiently established, and remarks, that among other differences, it is inferior in size to *P. Dryopteris*; while, on the contrary, it is affirmed by other botanists to be often twice the size of that plant. Several specimens now lying before me, from the neighbourhood of Malham Water, measure twenty-two inches in height, and eleven inches in breadth, taking the lower pinnæ, from apex to apex. They are rigid robust plants, with bipinnate not ternate fronds. *Woodsia hyperborea* is merged in *W. ilvensis*, from

which circumstance alone, it is presumed that our author considers them identical, for no observations are offered on the subject. The former is "quite distinct as a species," says Sir W. J. Hooker. We hope these gentlemen will adopt an amicable mode of settling so pointed a difference of opinion. *Cystopteris dentata* and *C. alpina* disappear from the station they hold in other works; but to reconcile them to their disgrace, figures of them are introduced along with the verbatim descriptions of Smith. *Aspidium lobatum* and *angulare* of Smith and Hooker, have been compelled to resign an independent existence, and are sheltered under the wing of *Polystichum aculeatum*. This we all know is the *questio vexata* of British botany. There is no doubt that the author will have many to support him in the view he has taken of these troublesome plants, especially with regard to *A. lobatum* and *aculeatum*. Mr. Newman is satisfied that *Aspidium Lonchitis* is a species; but the only satisfactory specimens he has seen are cultivated ones: and the Scottish botanist will be somewhat astonished to learn that it has not been distinctly ascertained to grow out of Ireland! *Aspidium dumetorum* of Smith is brought under *Lastræa dilatata*, Presl. (*Aspid. spinulosum*, Hook.). *Asplenium alternifolium* is regarded simply as an "alternate type" of *A. Rutamuraria*. *Trichomanes brevisetum*, Br., is referred (with unquestionable propriety) to *T. speciosum*, Willd.

There are a few imperfections in this elegant book, which strike a practical botanist at first sight. There are no specific characters;—if characters are not introduced at the head of each article, there ought at least to be a complete synopsis of them. Then, the indices are not after the received fashion of indices in works on Natural History. The species being all separated from the genera, rather impede than facilitate reference. These things, however, are of minor importance; and there is much in the work that deserves the consideration of botanists.

The third and fourth parts of Bauer and Hooker's *Genera Filicum* have appeared in the course of last year, containing illustrations of twenty genera, two of which are new, and

established by Mr John Smith of the Royal Gardens at Kew, a gentleman who has long studied the ferns, and whose accurate knowledge of them is well known to those who have the pleasure of his acquaintance. *Sphaerostephanos*, the first of these genera, is a singularly interesting Indian plant, allied to *Stegnogramma* of Blume, and distinguished by an elevated, subindusiform receptacle in the centre of the otherwise naked sorus, the receptacle being fringed with large pedicellate glands. The other, *Ceratodactylis*, is a Mexican fern, "the sterile portion of the frond agreeing with *Osmunda* in habit, and the fertile pinnules with *Ceratopteris*, and the position of the Sporangia and form of the sori with *Cryptogramma*." Of the high value of a work coming from two such names as Hooker and Bauer, I need not speak. It is, however, to be regretted that the engraving and colouring of the plates are very unequal.

In a few observations on some of the Natural Objects in the neighbourhood of Cheadle, Staffordshire, Mr Carter remarks, that the general features of the county are intermediate between those of the southern and northern counties; and that the Flora consists of a mixture of the plants common in the south with those characteristic of the north of England. *Clematis Vitalba* entirely disappears, and *Empetrum nigrum*, *Saxifraga hypnoides*, *Vaccinium Vitis Idæa*, &c., make their appearance. On a ridge of limestone hills called the Wever hills, several uncommon plants are met with; as *Draba muralis*, *Spiræa filipendula*, *Lathræa squamaria*, *Arenaria tenuifolia*, &c. In a ravine near the village of Oakamoor, Mr Carter discovered what he considers a true wild station for *Valeriana pyrenaica*. Among the peculiarities of the Cheadle flora it is mentioned that the place of *Papaver Rhæas* is wholly supplied by *P. dubium*. *Malva rotundifolia* has not been observed in Staffordshire, and *M. sylvestris* is much less common than *M. moschata*.*

* Mag. Nat. Hist. N. S. vol. iii. p. 72.

Echinospermum Lappula, Lehm., was found by the Rev. E. A. Holmes, between Southwold and Walderwick, on the Suffolk coast, in the month of August 1839. Mr C. C. Babington, who kindly communicated specimens to the Botanical Society, observes, that they had all the appearance of being really natives of England.

A second British station has been discovered for *Carex rupestris*, Wahl., Mr Churchill Babington having gathered it at Inchindamff, Sutherlandshire, in 1838, growing with *C. capillaris* and *Dryas octopetala* at an inconsiderable elevation.

Villarsia nymphaeoides was observed by Mr Morison apparently naturalized in a large piece of water in Lord Abercromby's park, Bridge of Allan: July 1839.

A pelorian corolla in *Pinguicula vulgaris* has been described by Mr Adam White; the first example, probably, that has been observed to occur in the *Lentibulariæ*. He also mentions having seen in the possession of a friend, a species of *Tropaeolum* in a state of pelorization.*

A paper by Dr Davidson of Glasgow, on the removal of the bitter taste and lichenous odour of "Iceland Moss," was read before the Society of Arts for Scotland, in June 1838, and appears in the 28th volume of the Edinburgh New Philosophical Journal. He states on the authority of Berzelius, that "Iceland Moss" (*Cetraria Islandica*) is composed of the following substances: in 100 parts—chlorophylle 1·6, bitter principle 3·0, uncrystallizable sugar 3·6, gum 3·7, apothem of extractive 7·0, starch 44·6, bilichenates of potass and lime, &c. 1·9, amylaceous fibrin 36·2. By following out a process described at considerable length, Dr Davidson deprived the "Iceland Moss" of the bitter principle, and tried it in the formation of bread by making a decoction of it (which on cooling formed a firm jelly), and mixing it with wheaten flour, and it formed a perfectly sweet bread, with a lichenous odour when warm, but which disappeared to a great

* Ann. of Nat. Hist. vol. iv. p. 286.

extent when cold. By treating the plant, previously deprived of its bitter principle, with chloride of lime, it formed a colourless and almost inodorous jelly when boiled with water.

A paper on the Mucilage of the *Fuci*, with remarks on its application to economical purposes, by Dr Samuel Brown, of Haddington, was also read before the Society for the Encouragement of the Useful Arts in Scotland, April 26, 1837. Dr Brown ascertained that what Professor John, and Gaultier Claubry denominate "*Albumen of the Fuci*" is true Mucilage, similar to that which is procured from the Marsh-Mallow, and the seed of *Linum usitatissimum*. He found that a solution of the mucilage of Fucus "yields with borax a jelly which, while drying spontaneously, contracts with such force as to crush the glass vessel which contains it, and that by long boiling with sulphuric acid, it is changed into a substance endowed with the qualities of gum arabic."

His experiments show, "1st, That common sea-wares contain great quantities of mucilage. 2d, This mucilage is easily separable from the other ingredients of the wares. 3d, A solution of mucilage does not become stale or mouldy. 4th, By a very simple process it is converted into gum arabic."

Dr Brown thinks that by removing the saline properties, a vast amount of nutritive matter may be obtained to serve as food both for men and cattle. He also suggests that an abundant supply of gum might be obtained proper to be substituted for the gum arabic of commerce.

The "*Irish Moss*" is mentioned by the author under the name of *Fucus endiviæfolius*, the proper modern name being *Chondrus crispus*.*

Mr George Dickie, who has shown that starch occurs in the nucules of *Chara vulgaris* and in the bodies formerly called capsules of *Pilularia globulifera*,† has ascertained that the reproductive organs of the lichens also contain a substance

* Edin. New Phil. Jour. vol. xxvi. p. 409.

† Mag. of Zool. and Bot. vol. i. p. 382.

which is tinged blue by iodine. He finds this to be the case generally with the *thecæ*, and suggests that the thecæ of lichens may be considered as "globules of starch of a peculiar form, in the interior of which other globules are produced, namely the sporules."*

The most important event to be noticed under the head of Fossil Botany, is the commencement of a valuable publication by Mr Bowerbank on the fossil fruits and seeds of the London clay, illustrated by a great number of accurate figures. Not having had an opportunity of seeing this book, I shall borrow a few lines respecting it, which I find in Professor Buckland's most interesting address delivered at the Anniversary Meeting of the Geological Society of London in February last.

"The great attention the author has long paid to the remains of fruits and seeds which occur in such vast abundance in the Isle of Sheppy, whence he has collected not less than 25,000 specimens, place him in a position peculiarly advantageous for the object before him. In this work drawings will be given of the anatomical structure of many of these fossils, as seen under the microscope. The simple expedient Mr Bowerbank has adopted of preserving these fossils in jars of water, has kept him in the entire possession of every specimen ever placed in his collection; whilst of the thousands of similar fossils that have been deposited in other collections, including that at the British Museum, nearly all have perished from the decomposition of the iron pyrites with which they are always penetrated."†

A systematic catalogue of the fossil plants of Britain was commenced in September 1839 by Mr John Morris, containing characters of the genera, references to authors and figures, &c. This very useful catalogue has not been completed.‡

In the obituary for the last year, the Society has to record

* Ann. of Nat. Hist. vol. iii. p. 165.

† Buckland's Address, p. 33.

‡ Mag. Nat. Hist. N. S. vol. iii. pp. 452. 543.

the loss of two of its members. The Duke of Bedford, first on the list of honorary members ; and William Christy, jun. Esq. of London, one of the earliest non-resident fellows. The Duke of Bedford was distinguished for the lively interest which he took in everything relating to planting and the cultivation of plants in general ; as well as for the kind patronage which he extended to humbler individuals engaged in similar pursuits, or employed in collecting plants in foreign countries. Two splendid works, in which he was aided by his gardener Mr James Forbes, are evidences of his zeal in the cause of botanical science : the *Salictum Woburnense*, and the *Pinetum Woburnense*. In the preface to the latter work the Duke says, " After printing my list of Willows, my health was seriously affected ; but it has pleased God so far to restore it, as to enable me to engage again in one of my most favourite pursuits—the study of nature, in the productions of the forest, the garden, and the conservatory ; and I have derived much pleasure in arranging a catalogue of all the plants which I possess, connected with the genus *Pinus*, and attending its progress through the press." The Duke, however, did not long survive the appearance of the work in which he took so much interest. He died on the 20th of October 1839.

Mr Christy was well known to many members of the Society for his mild and amiable qualities ; to all for his love of science, and the valuable gift which he made to the Society before his death, of his library and herbarium. He was an entomologist as well as a botanist ; and a fine new species of British locust, discovered by himself, was named after him by Mr Curtis. Mr Christy suffered for many months under an incurable malady, and died on the 24th of July 1839, carrying with him to the grave the regret and esteem of all who knew him.

A Catalogue of Botanical Works and Memoirs published in Great Britain, from the beginning of February 1839 to the end of January 1840.

STRUCTURE.

- Babington, Charles C.,—On the Structure of *Cuscuta Europæa*. Linn. Trans., vol. xviii. p. 213.
- Berkeley, Rev. M. J.,—On the Fructification of *Lycoperdon*, *Phallus*, and their allied Genera. Ann. Nat. Hist., vol. iv. p. 155.
- Dickie, G.,—Remarks on the Reproductive Organs of the Lichens. Ann. Nat. Hist., vol. iii. p. 165.
- Lankester, Dr.,—On the Structure of the *Setæ* of *Funaria hygrometrica*. Ann. Nat. Hist., vol. iv. p. 361.
- Morren, Professor Charles,—On the Discoid Piths of Plants. Ann. Nat. Hist., vol. iv. p. 73.
- Valentine, William,—On the Structure and Development of the Reproductive Organs of *Pilularia Globulifera*. Proceed. of Linn. Soc. 1839, p. 21.
- On the Existence of Stomata in Mosses. Linn. Trans., vol. xviii. p. 239.

PHYSIOLOGY.

- Brunhoff, Professor J. De Brignoli de, and Professor Morren,—Notes on the Excitability and Movement of the Leaves in the species of *Oxalis*. Ann. Nat. Hist., vol. iv. p. 338.
- Ellis, Daniel, F.R.S.E.,—Description of a Plant Case, or Portable Conservatory for growing plants without fresh supplies of water and air, according to the method of Mr N. B. Ward, with Physiological Remarks. Loudon's Gardn. Mag., vol. xviii. p. 481.
- Keith, Rev. P.,—On the Pith of Plants. Ann. Nat. Hist., vol. iii. p. 77.
- Meyen, F. J. F., M.D.,—A Report on the Progress of Vegetable Physiology during the year 1837. Translated by William Francis. 8vo.

ARRANGEMENT.

- Bird, Fred. John,—On the Artificial Arrangement of some of the more extensive natural orders of British Plants. Mag. Nat. Hist. New Series, vol. iii. p. 181.

DESCRIPTIVE AND CRITICAL.

- Arnott, Dr G. A. Walker,—Descriptions of some New or Rare Indian Plants. *Ann. Nat. Hist.*, vol. iii. p. 20. 85. 150.
- Review of the Species of *Fumaria*. *Bot. Soc.*, 3d Ann. Rep. p. 99.
- Babington, Charles C.,—On the *Ranunculus aquatilis* of Smith. *Ann. Nat. Hist.* vol. iii. p. 225.
- On *Allium Porrum* and *A. Ampeloprasum*. *Ibid.* vol. iv. p. 289.
- Churchill,—Remarks on British Lichens and *Fungi*, principally on species or varieties new to our Flora. *Proceed. of Linn. Soc.* 1839, p. 32.
- Bentham, George,—Observations on some Genera of Plants connected with the Flora of Guiana; viz. *Symplocos*, *Ciponima*, *Stemmatosiphon*, *Alstonia*, and *Hopea*. *Linn. Trans.* vol. xviii. p. 225.
- On the Structure and Affinities of *Arachis* and *Voandzeia*. *Linn. Trans.* vol. xviii. p. 155.
- Berkeley, Rev. M. J.,—Notice of some *Fungi* collected by C. Darwin, Esq., during the expedition of H. M. ship, Beagle. *Ann. Nat. Hist.* vol. iv. p. 291.
- Contributions towards a Flora of Van Dieman's Land. *Ibid.* vol. iii. p. 322.
- Descriptions of Exotic *Fungi* in the Collection of Sir W. J. Hooker, from Memoirs and Notes of J. F. Klotzsch, with additions and corrections. *Ibid.* vol. iii. p. 375.
- Carter, James,—A few Observations on some of the Natural Objects in the neighbourhood of Cheadle, Staffordshire. *Mag. Nat. Hist. N. S.* vol. iii. p. 72.
- Cook, Captain S. E.,—On *Pinus* and *Abies*, with remarks on a new species. *Ann. Nat. Hist.* vol. iii. p. 296.
- Dickie, George,—Remarks on the *Fumariaceæ*. *Ibid.* vol. iii. p. 440.
- Don, Professor David,—Descriptions of two new Genera of the natural family of plants called *Coniferae*. *Linn. Trans.* vol. xviii. p. 163.
- Gardner, George,—On the Establishment of the Genus *Mouriria*, Juss., as the type of a new natural order; together with notes and observations on the Structure of the Genera *Lygodisodea*, *Cassytha*, and *Carludovica*. *Journ. of Bot.* vol. ii. p. 21.
- Graham, Professor,—Description of several new or rare Plants which have lately flowered in the neighbourhood of Edinburgh, chiefly in the Royal Botanic Garden. *Edin. N. Phil. Journ.* vol. xxvi. p. 419. vol. xxvii. p. 189; vol. xxviii. p. 397.
- Harvey, Hon. W. H.,—On two South African Genera of the Natural Order *Passifloreæ*. *Ann. Nat. Hist.* vol. iii. p. 420.
- Herbert, Hon. and Rev. W.,—*Amaryllidearum Species Novæ*. *Ibid.* vol. iv. p. 28.

- Lindley, Professor,—Characters of Four new Cape *Orchidaceæ*. Ibid. vol. iv. p. 314.
- New *Orchidaceæ*. Ibid. vol. iv. p. 381.
- Lush, Dr Charles,—Note on the Identity of three described Species of *Acacia*. Linn. Trans. vol. xviii. p. 217.
- Marshall, Henry, F.R.S.E.,—Observations on Cinnamon. Edin. N. Phil. Journ. vol. xxviii. p. 27.
- Pamplin, William, A.L.S.,—Remarks on the Botany of Selborne. Mag. Nat. Hist., N. S. vol. iii. p. 137.
- Schomburgk, Mr R. H.,—Description of the Mora Tree, (*Mora excelsa*, Benth.) Linn. Trans. vol. xviii. p. 207.
- Webb, P. B.,—Otia Hispanica seu Delectus Plantarum rariorum aut nondum rite notarum per Hispanias sponte nascentium.
- Wight, Dr Robert,—On the *Laurus Cassia* of Linnaeus, and the Plants producing the Cassia Bark of commerce. Ann. Nat. Hist. vol. iv. p. 179.

FLORAS, MONOGRAPHS, CATALOGUES.

- Babington, Charles, C.,—Primitiæ Floræ Sarnicæ, or an Outline of the Flora of the Channel Islands of Jersey, Guernsey, Alderney, and Sark. 12mo.
- Bentham, George,—Enumeration of Plants collected by Mr Schomburgk in British Guiana. Ann. Nat. Hist. vol. iii. p. 427. 433, and in Journ. of Bot. vol. ii. p. 38.
- Plantas Hartwegianas imprimis Mexicanas adjectis non nullis Grahamianis enumerat novasque describit. Londini (Pamplin).
- Collectanea for a Flora of Moray; or a list of the Phænogamous Plants and Ferns hitherto found within the Province. (The author of this work is the Rev. George Gordon of Birnie.)
- Cowell, M. H.,—A Floral Guide for East Kent, illustrated by two maps.
- Cunningham, Allan,—Floræ Insularum Novæ Zeelandiæ Precursor. Ann. Nat. Hist. vol. iii. pp. 29. 111. 244. 314; vol. iv. pp. 22. 206.
- Dickie, George,—Flora Abredonensis; comprehending a list of the Flowering Plants and Ferns found in the neighbourhood of Aberdeen, with remarks on the climate, the features of the vegetation, &c.
- Flower, Thomas Bruges, F.L.S.—A Catalogue of some of the most interesting Plants collected in the neighbourhood of Swansea, Glamorganshire, during the past summer (1839). Mag. Nat. Hist. N. S. vol. iii. p. 561.
- Francis, G. W.,—The Little English Flora, or a Botanical and Popular Account of all our common Field Flowers.
- Hall, T. B.,—A Flora of Liverpool, with an engraved map, comprising a distance of ten miles round Liverpool; and an Appendix contain-

- ing Meteorological Tables and Observations for the year 1838. By Wilson Armistead. 12mo.
- Harvey, Hon. W. H. and Dr J. H. Hooker,—*Musci Indici*, or List of Mosses collected in the East Indies by Dr Wallich ; with references to the figures of the new species published in Hooker's *Icones Plantarum* ; to which are added those collected by Dr Royle in the northern part of India. Journ. of Bot. vol. ii. p. 1.
- Hooker, Sir W. J. and Dr G. A. Walker-Arnott,—The Botany of Captain Beechey's Voyage. Parts VII. and VIII.
- Howitt, Dr Godfrey,—The Nottinghamshire Flora ; containing the Flowering Plants, Ferns, Mosses, Hepaticæ, Lichens, Characæ, and Algæ. 12mo.
- Loudon, J. C.,—Hortus Britannicus, Second additional Supplement, including all the Plants introduced into Great Britain, all the newly discovered British Species, all the kinds originated in British Gardens, up to March 1839 ; with a new general Index to the whole work, including all the Supplements.
- Newman, Edward,—A History of British Ferns. 8vo.
- Royle, J. Forbes,—Illustrations of the Botany and other branches of the Natural History of the Himalayan Mountains and of the Flora of Cashmere, &c. Part X.
- Salter, Dr Thomas Bell,—A Short Account of the Botany of Poole and its neighbourhood.
- Saunders, W. Wilson,—List of a few rare or interesting Plants noticed in the neighbourhood of Kirtlington, Oxfordshire. Mag. Nat. Hist. N. S. vol. iii. p. 239.
- Stephens, Henry Oxley,—On the Mycology of the neighbourhood of Bristol. Ann. Nat. Hist. vol. iv. p. 246.
- Sweet, Robert,—Hortus Britannicus ; a Catalogue of all the Plants indigenous or cultivated in the gardens of Great Britain, arranged according to the Natural System. 3d Edition. Edited by George Don, F.L.S.
- Webb, P. B.,—Iter Hispaniense, or a Synopsis of Plants collected in the Southern Provinces of Spain and Portugal, with geographical remarks and observations on rare and undescribed species.

ILLUSTRATED WORKS.

- Bauer, Francis, and Sir W. J. Hooker,—Genera Filicum, or Illustrations of the Genera of Ferns, from the original coloured drawings of Francis Bauer, Esq. ; with descriptive letter-press by Sir W. J. Hooker, K.H.L.L.D. Parts III. and IV.
- Baxter, W.,—British Phænogamous Botany, or Figures and Descriptions of British Flowering Plants, vol. iv.
- Bedford, Duke of,—Pinetum Woburnense ; or a Catalogue of Coniferous Plants in the collection of the Duke of Bedford at Woburn

- Abbey; systematically arranged. (Not published, and only 100 copies printed.)
- Curtis,—Botanical Magazine; edited by Sir W. J. Hooker. Nos. 147—158. New Series. Continued monthly.
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- Hooker, Sir W. J.,—*Icones Plantarum*, or Figures, with brief descriptive characters and remarks, of new or rare plants selected from the Author's Herbarium. Part VI.
- Knowles, G. B., and Frederick Westcott,—*The Floral Cabinet*. Continued monthly.
- Lindley, Dr John,—*Sertum Orchidearum*; a Wreath of the most beautiful Orchidaceous flowers. (Part VII. of this work is published.)
- Loudon, Mrs.,—*The Ladies' Flower Garden of Ornamental Annuals*.
- Maund, B.,—*Botanic Garden*. Continued monthly.
- and Rev. J. S. Henslow,—*The Botanist*. Nos. 27—38. Continued monthly.
- Paxton, Joseph,—*Magazine of Botany and Register of Flowering Plants*. Nos. 62—73. Continued monthly.
- Smith, Sir J. E., and James Sowerby,—*English Botany*. 2d Edition, vol. vii. (and last of the *Phænogamous Plants*.)
- Sowerby, C. E.,—*Supplement to English Botany*, Nos. 48—50.

GEOGRAPHICAL DISTRIBUTION.

- Brand, William,—*On the Statistics of British Botany*. Bot. Soc. 3d Ann. Rep. p. 58.
- Wright, Colonel Robert, Governor of the Province of Loxa, &c.,—*Meteorological observations, during a residence in Columbia between the years 1820 and 1830*. Phil. Mag. vol. xiv. p. 95.
(This paper contains observations on the geographical distribution of plants.)

MORPHOLOGY.

- Morren, Professor Charles,—*On the Morphology of the Ascidia of Plants*. Ann. Nat. Hist. vol. iii. p. 305. 411.
- White, Adam,—Note on *Peloria* (occurring in *Pinguicula vulgaris*). Ibid. vol. iv. p. 286.

VEGETABLE CHEMISTRY.

- Brown, Dr Samuel M.,—*On the Mucilage of the Fuci, with Remarks on its application to economical ends*. Edin. N. Phil. Journ. vol. xxvi. p. 409.
- Coxe, Dr,—*Observations on some Fungi or Agarici, which, by deliquescence, form an inky fluid, drying into a bistre-coloured mass, capa-*

ble of being used as a water colour for drawings, and of a very indestructible nature, by means of common agencies. *Proceed. of Linn. Soc.* 1839. p. 19.

Davidson, William, M.D.,—On the Removal of the bitter taste and lichenous odour of Iceland Moss, &c. *Edinb. N. Phil. Journ.* vol. xxviii. p. 260.

Madden, Dr R. H.,—On the mode in which soil operates in producing or facilitating the germination and growth of Vegetables. *Quart. Journ. of Agricult.* vol. x. p. 141.

Thomson, Dr Thomas, Regius Professor of Chemistry in the University of Glasgow,—Chemistry of Organic Bodies. *Vegetables.*

FOSSIL BOTANY.

Bowerbank, James Scott,—A History of the fossil fruits and seeds of the London clay ; with figures. Part I.

Morris, John,—A Systematic Catalogue of the fossil plants of Britain. *Mag. Nat. Hist. N. S.* vol. iii. p. 452. 543.

ELEMENTARY WORKS.

Elements of Botany for Families and Schools. Published under the direction of the Committee of General Literature and Education, appointed by the Society for Promoting Christian Knowledge. 4th edition.

Lindley, Dr John,—*School Botany ; or an explanation of the characters and differences of the principal natural classes and orders of plants belonging to the Flora of Europe, in the botanical classification of De Candolle.* For the use of Students preparing for their matriculation examination in the University of London.

— — — *The Ladies' Botany*, abridged by the author.

Marcet, Mrs.,—*Conversations on Vegetable Physiology ; comprehending the elements of Botany, with their application to Agriculture.* 3d edition.

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Botanical Society,—Third Annual Report and Proceedings for 1838—1839.

Bird, Dr Golding,—Observations on the Application of Heliographic or Photogenic Drawing to Botanical purposes ; with an account of an economic mode of preparing the paper. *Mag. Nat. Hist. N. S.* vol. iii. p. 188.

Brand, William,—Account of a Scheme for arranging and classifying the Botanical Society's *general* Herbarium. *Bot. Soc.* 3d Ann. Rep. p. 108.

- Forbes, Edward,—Notices of Botanical Excursions in the neighbourhood of Trieste. *Ann. Nat. Hist.* vol. iv. p. 307.
- — — Notices of a Botanical Excursion to the Mountains of Ternova in Carniola. *Ibid.* vol. iii. p. 236.
- Gardner, George,—Notice of his Botanical Journeys in Brazil. *Ann. Nat. Hist.* vol. iii. p. 250. 327.
- Graham, Professor,—Report on the Progress and State of Botany in Britain. *Bot. Soc. 3d. Ann. Rep.* p. 30.
- Greville, Dr.,—Directions for collecting Botanical Specimens, and preserving them for the Herbarium. *Bot. Soc. 3d. Ann. Report*, p. 80. (Also published separately by the Society.)
- Hooker, Sir W. J.,—The Journal of Botany, No. 9.
- Linnean Society,—Transactions, vol. xviii. part 2.
- Loudon, J. C.,—Gardener's Magazine, Nos. 108—118. Continued monthly.
- Morren, Professor Charles,—On the Production of *Vanilla* in Europe. *Ann. Nat. Hist.* vol. iii. p. 1.
- Newman, Edward,—Notes on Irish Natural History, more especially Ferns. *Mag. Nat. Hist. N. S.* vol. iii. p. 548.
- Philaletes,—Letter on the Present State of the Hon. Company's Botanical Garden at Calcutta. *Mag. Nat. Hist. N. S.* vol. iii. p. 304.
- Schomburgk, Robert H.,—Narrative of his recent Botanical Expedition in Guiana. *Ann. Nat. Hist.* vol. iv. pp. 194. 322. 428.
- Tweedie, James,—Extracts from a few rough notes of a Journey across the Pampas of Buenos Ayres to Tucuman, in 1835, (containing notices of the Vegetation.) *Ibid.* vol. iv. p. 8.
- Warren, Elizabeth Andrew,—A Botanical Chart for Schools.
- Weissenborn, W.,—On the Flora of Snow Formations, in reference to the Theory of Spontaneous Generation. *Mag. Nat. Hist. N. S.* vol. iv. p. 28.