class of the *Sphæriæ*, among which the *cytispore* always accompanies the ascophorous conceptacles (e. g. *Sphæria leucostoma, ambiens, corticis, pulchella, Leveillei, profusa*, &c.).

It may be suspected that certain *Sphæriæ* do not exist at all, or are only met with commonly under the three principal forms which they may take on. In *Sphæria Laburni*, even, the stylosporous form (*Sphæropsis, Sporocadus*) is as frequent as, if not more common than, the perfect thecigerous state. *S. sapinea* appears to be known only with acrogenous spores, yet it is sometimes combined with its *cytispore*. *S. Oreades, atrovirens, Hederæ*, and a crowd of others, commonly present themselves with merely a gongylary reproductive apparatus. Hence it might be concluded with much probability, that the group of the *Sphæropsides* and that of the *Cytisporacei* (which claim a great number of *Phyllostictei*) include a number of *Pyrenomycetes*, the perfect states of which are to be sought among the *Sphæriaceæ* properly so-called, and which consequently must one day be united to them, when persevering investigations shall have clearly made known the constituent elements of each species.

Finally, there is a constant fact to which it is still desirable to call attention, namely the order of development of the different terms of which we believe the species of Fungus to be composed. It is such, that the *spermatia* which may be contemporaneous with the *stylospores* always precede the appearance of the perfect or thecigerous form. This anterior development may take place even several months before, as is seen in the *Rhytismæ* which only ripen their *spores* in spring, while their *spermatia* (*Melasmiæ*) are developed at the close of the preceding summer. Without in any way prejudging the nature and office of these *spermatia*, it is imposible to avoid remarking that they precede the *endothecal spores* in the same manner as the *antheridia* of the Ferns or *Equiseta* precede the origin of the seminiferous capsules of those plants.

BIBLIOGRAPHICAL NOTICES.

Manual of British Botany, containing the Flowering Plants and Ferns arranged according to the Natural Orders. By Charles Cardale Babington, M.A., F.L.S., F.G.S. &c. Third edition, with many additions and corrections. London: Van Voorst, 1851. Pp. 434.

Mr. Babington's 'Manual' has become so well known to all British botanists in the two previous editions through which it has passed, that a third can require of us no formal introduction. The features which distinguish it most strongly from other works of a

similar nature are of such a kind as to afford no room for great organic changes. The book is emphatically a "Manual"; and most of the modifications and improvements introduced in the present edition tend to make it answer to its name even more thoroughly than before. We are aware that some persons would always have preferred to have had it more expanded and less concise; but in this view they forget the important distinction between a Manual or Synopsis and a complete descriptive Flora. We have no work on British botany of the latter class more recent than Smith's; and, excellent as that is in many respects, it is quite inadequate to our present wants: but it is delusive to expect that *any* mere enlargement of diagnoses with supplementary small-talk, however valuable or interesting, can really make up the deficiency. An author warmly devoted to his science exercises no small degree of self-control in forbearing to dilate on points which have specially engaged his attention: but the wisest plan for him is to make the sacrifice at once and confine himself to essentials, or at least to such conditions as are fully compatible with portability and salient clearness. A formidable difficulty however still remains: a book written in the vernacular and avowedly intended for the hand rather than the library must necessarily have somewhat of a popular character: whose interests then ought to be consulted, the botanist's or the botanophilist's? Should facility of discovery of names, or strict scientific truth, be the primary object? The question is not very easily answered: it is too much the fashion just now to lavish pharisaical contempt upon "mere collectors": surely their shallow knowledge of plants is better than none at all, and we have little chance of drawing out from among them recruits to the ranks of true botanists, if we scornfully leave them to the guidance of popular scribblers, scarcely better informed than themselves. On the other hand, it is manifestly wrong, though the occasional practice of illustrious authors may be pleaded in excuse, to sacrifice natural to definite and systematic but artificial arrangements, or to describe the facts of nature—not as they are, but—as they appear to the inexperienced eye, without giving warning of the illusion. Mr. Babington seems always to have had in view the benefit of both classes of readers, but more distinctly now than before: there is an increase of scientific rigour; confessedly natural genera are not fused together because each happens to have only one or two British representatives; but English terms are in several cases substituted for Latin ones, new subdivisions of genera introduced for the sake of convenience, and alphabetical indices of species appended to the accounts of *Rubus*, *Hieracium*, *Salix*, and *Carex*. All the descriptions have been carefully weeded of superfluous words or observations, and fewer synonyms, authorities, and localities are given; we observe also that the abbreviations are increased and some convenient terms borrowed from Mr. Woods: so that, notwithstanding the number of species discovered or discriminated in the last four years and the addition of an account of the Characeæ (occupying above four pages), there is an increase of only six pages upon the 2nd edition. It is almost superfluous to say that the descriptions are effectually revised through-

out (several useful hints being taken from Hooker and Arnott), and show marks of constant labour in both the field and the study along with attention to the work of others up to the latest moment. Some persons may perhaps be annoyed at seeing the accounts of a few species, respecting which controversies have lately taken place or strong adverse opinions been expressed, left unchanged: but it is unwise, where grave doubts still exist, to make such alterations *as can scarcely lead the way to fuller knowledge*. Mr. Babington has advanced more than a step towards making our lists genuine summaries of British vegetation by including in brackets "a considerable number of plants which only occur in the Channel Islands, or there is reason to suppose have never been really detected in Britain; or have been added to our Flora by previous writers, but are not now to be found; or, although decidedly naturalized, have very slender claims to be considered as aboriginal natives." But the process of purgation must be carried further still and extended to nearly all the plants now marked with an asterisk. It is perhaps better not to banish these excluded species to the limbo of an appendix, but brackets are by no means sufficient to distinguish them from genuine natives: the use of small and insignificant type would probably be the best plan. There would then be room for an increased number of brief notes on plants likely to occur: we cannot think that Mr. Babington has done wisely in cutting them down in this edition.

It is now time to give a brief account of the principal individual changes, premising that neither we nor our readers can be competent to judge of the merits of many of them without having seen in Britain the plants in question. Two new *Thalictra* are introduced, *T. flexuosum* (Reich., Fries) and *T. saxatile* (D.C.) which is identical with *T. Kochii* (Fries). *Ranunculus aquatilis* adds *R. confusus* (Godr.) to its already large progeny. Submersed leaves are described for both the yellow Water-lilies: we suspect they are known to but few botanists, except those whose attention may have been attracted by their curious appearance, somewhat like lettuces, at the bottom of clear lakes or slow streams. The Fumitory lately described by Mr. Babington as *F. agraria* (Lag.) is referred as a variety to *F. capreolata* in accordance with Dr. Arnott's views: the account of the whole genus is remodelled. *Nasturtium anceps* of the last edition is wisely given up. The old arrangement of *Brassica* and *Sinapis* is restored. The stipulate species of *Alsine* are transferred, after Hooker and Arnott, to *Paronychiaceæ*: the genus so formed is not however called *Spergularia*, but *Lepigonum*; and reasonably enough, for the former name was originally affixed to a mere sectional division, and its *generic* use is quite recent. *Cerastium tetrandrum* is allowed to be a form, probably a young one, of *C. atrovirens*, but of course Curtis's name has the priority. Mr. Babington seems to abandon the characters drawn from the hypogynous ring in the *Geranias*; we certainly have found it very variable. *Ulex Gallii* (Planch.) is still kept under *U. nanus*, but noticed at some length as probably distinct. As no allusion is made to the supposed *Trifolium strictum* of Anglesea, mentioned in an early number of the 'Botanical Gazette,' we presume

Mr. Babington has discovered some error. *Orobus* is merged in *Lathyrus*. Of the *Rubi* it is enough to say that they have been evidently worked up fully anew, and that there are now forty-three species where four years ago thirty-six were given. Dandelion and the Hawkbits have nearly all recovered their old familiar names. Fries's Monograph has of course rendered necessary a thorough revision of the *Hieracia*, but much research is obviously still required: *H. Schmidtii* ("Tausch") vanishes, we know not whither: *H. Lawsoni* divides into *H. anglicum* (Fries) and *H. pallidum* (Biv.): Mr. Babington's *H. denticulatum* becomes *H. strictum* (Fr.), and Smith's is referred to *H. prenanthoides*: *H. inuloides* ("Tausch") is now *H. crocatum* (Fr.); and several new species are added. The four supposed *Armeriæ* are of course united: the wonder is how they ever came to be separated: it is evident that Mr. Babington followed in Boissier's steps far too blindly. The *Atriplices* are better described than before, but they are not yet in a satisfactory condition. The *Salices* are prodigiously reduced, chiefly according to Mr. Leefe's views: few things are wanted in British botany more than a really good monograph of this genus. Our hapless Blue-bell receives its fourth British generic name! it seems likely, however, that it really ought to be called *Endymion*, and so romantic an appellation is sure to be popular. *Sparganium natans* of our ditches becomes *S. minimum* (Fr.), the old name being retained for a long-leaved plant which would appear to be rare with us. The *Potamogeton* doubtfully referred to Fries's *P. zosteraceus* is apparently considered a new species, called *P. flabellatus*: Mr. Babington's words lead us to believe that it is common. We now come to the complicated question of the arrangement of the *Carices*: in the first twenty-eight species the transfer of *C. Boenninghauseniana* and *C. axillaris* to the Hypoarrhenæ and the change of position of *C. elongata* are the only alterations: may we take this opportunity of protesting against the received separation of Acroarrhenæ and Hypoarrhenæ? The discrepancy of statements about the two species above mentioned shows the uncertainty of the characters; nor is the grouping at all natural, however convenient: strictly speaking, we have in Britain but three series; the (more or less) rhizomatous group from *C. incurva* to *C. disticha* (including *C. brizoides*, *lagopina*, and *leporina*), the uncoloured group with fruit tending to be squarrose from *C. vulpina* to *C. Boenninghauseniana*, and the tawny panicled group (nearly parallel to the last) from *C. elongata* to *C. teretiuscula*: Mr. Babington describes sp. 16–21 as "glaucous," translated, we presume, from Andersson's "glaucescentia": but he ought to have seen that the word here means "*becoming* glaucous" (see Andersson himself, p. 56), for several of the species are bright green when fresh. The distigmatic section is treated in accordance with Fries's and Andersson's views, except that *C. pulla* and *C. Grahami* are unnaturally retained there: whether mere forms of *C. vesicaria* or not, they are at all events most closely allied to it, and except in size and colour scarcely differ from some of its not uncommon lowland states. The next division is considerably improved with Andersson's help, except that the fallacious and arbitrary distinction

of erect or pendulous spikes is retained, and *C. glauca*, though intimately allied to *C. panicea*, is banished to a distance; nor should *C. strigosa* and *C. pendula* have been separated from *C. sylvatica* and *C. Pseudocyperus*, to which it might be well to add *C. lævigata* and *C. depauperata*. Objections will doubtless be made to *C. Œderi* being restored to specific rank, and perhaps rightly: but then they must not be founded on ordinary small or condensed specimens of *C. flava*, which are evidently by no means what Mr. Babington has in view. Some confusion may arise from several changes of nomenclature; yet they appear unavoidable, and it is quite time for British botanists to cease to ascribe oracular authority to the Linnæan Herbarium. *Lastræa uliginosa* (Newm.) is retained as a variety of *L. cristata*, but Mr. Babington is "very imperfectly acquainted" with it: is any one otherwise? *Cystopteris dentata* is again separated so far as the plants from the "Breadalbane Mountains and Cumberland" are concerned: they must therefore differ from the common dentate variety of *C. fragilis* of Wales and Teesdale. The account of the *Charæ* is a brief summary of the provisional monograph given in our pages a year and a half ago: it is to be hoped that the neglect with which they have hitherto been treated may now exist no longer.

This sketch gives a very imperfect idea of the volume: but, after all, it is in the field that the excellences of a Manual can best be tested. Still let no one suppose that all is done which requires to be done: even in the most familiar genera there is work for every one for some years to come: we know very little, for instance, of the different modes of growth collectively called "perennial" in the different species, and the imitation of them in annuals, particularly with reference to the relation of the vegetative and reproductive systems. But we are favourably placed at present for the progressive study of plants: the differences, which a few years back made wide schisms among British botanists, have latterly been greatly reduced; and if the reproach, that 'it is our custom to study exotics, but dogmatize on native plants,' has not altogether passed away, its just application is at least much narrowed.

We subjoin lists of the species introduced and suppressed in Mr. Babington's present edition.

SPECIES INTRODUCED.

Thalictrum flexuosum, *R.*
—— saxatile, *D.C.*
Ranunculus confusus, *Godr.*
—— tripartitus, *D.C.*
Thlaspi virens, *Jord.*
Viola stagnina, *Kit.*
Sagina ciliata, *Fr.*
Medicago sylvestris, *Fr.*
Melilotus arvensis, *Willd.*
Poterium muricatum, *Spach.*
Rubus Leesii, *Bab.*
—— fissus, *Lindl.*
—— affinis, *W. et N.*
—— latifolius, n. sp.
Rubus imbricatus, *Hort.*
—— incurvatus, *Bab.*
—— thyrsoideus, *Wimm.*
—— mucronatus, *Blox.*
—— calvatus, *Blox.*
—— fuscus, *Weihe.*
—— Hystrix, *Weihe.*
—— pallidus, *Weihe.*
—— pyramidalis, *Bab.*
—— scaber, *Weihe.*
Pyrus scandica (Sorbus, *Fr.*).
Epilobium lanceolatum, *Seb. & Mauri.*
Saxifraga Andrewsii, *Harv.*

Filago apiculata, *G. E. Sm.*
—— spathulata, *Presl.*
Gnaphalium norvegicum, *Gunn.*
Hieracium rupestre, *All.*
—— pallidum, *Biv.*
—— oreades, *Fr.*
—— saxifragum, *Fr.*
—— atratum, *Fr.*
—— cæsium, *Fr.*
—— dovrense, *Fr.*
—— gothicum, *Fr.*
—— corymbosum, *Fr.*
Orobanche Picridis, *F. W. Schultz.*
Teucrium Botrys, *L.*
Statice Dodartii, *Gir.*
Anacharis Alsinastrum, *Bab.*
Simethis bicolor, *Kunth.*
Luzula Borreri, *Bromf.*
Sparganium minimum, *Fr.*
Potamogeton trichodes, *Cham.*
Naias flexilis, *Rostk.*
Carex brizoides, *L.*
—— Œderi, *Ehrh.*
Apera interrupta, *Beauv.*
Triticum laxum, *Fr.*
Lolium linicola, *Sond.*
Cystopteris dentata, *Sm.*
And the Charæ.

SPECIES SUPPRESSED.

Nasturtium anceps.
Brassica Cheiranthus.
Viola lactea.
Cerastium atrovirens.
Hypericum maculatum.
Prunus insititia.
—— domestica.
Rubus fastigiatus.
—— tenuis.
—— Borreri.
—— Leightonianus.
—— Lingua.
—— humifusus.
—— Schleicheri.
Carduus Forsteri.
Hieracium Schmidtii.
Linaria italica.
Atriplex microsperma.
—— prostrata.
Urtica Dodartii.
Ulmus campestris.
—— major.
—— carpinifolia.
—— glabra.
—— stricta.
Salix decipiens.
—— Russelliana.
—— amygdalina.
—— rugosa.
—— ferruginea.
—— sphacelata.
—— cotinifolia*, &c.
—— propinqua, &c.
—— radicans, &c.
—— retusa.
Zostera angustifolia.
Poa montana.

Remarks on "Hymenopterologische Studien by ARNOLD FOERSTER, 1stes Heft, Formicariæ, Aachen, 1850." By WILLIAM NYLANDER, M.D., of Helsingfors.

Having had an opportunity of seeing the above-named treatise by M. Foerster, on the species of Formicidæ inhabiting the German provinces on the Rhine, in which he has done me the honour of bestowing special attention on my essay on the natural history of this family †, I have thought that the expression of my opinion concerning the determination of some species in his work would not prove altogether unserviceable. As Mr. Walker has at the same time kindly

* The changes of nomenclature render it impossible to extricate singly the species suppressed in this and the two next groups.

† Adnotationes in Monographiam Formicarum borealium, 1846; Additamentum in Monogr. Form. bor. 1846; Additamentum alterum in Monogr. Form. bor. 1847.