

tamarind, granadilla, capsicum, mango, sapodilla, quassia, &c. The okra or ochra (*Hibiscus esculentus*) is an exceedingly common vegetable, the capsules before they are ripe being boiled and made into soup, yielding a large quantity of mucilage which is nutritive and aperient. The sea-side grape (*Coccoloba uvifera*) is abundant, and the fruit I have often eaten; it resembles in flavour a fully ripe sloe, and has a most disproportionately large stone.

"I have observed here one tree previously unknown to me, which I am told is a gamboge tree yielding a pigment*. Another tree, called *Orinogue* or *Bois immortelle*, puzzles me, as I can find no trace of it under either of these names. It grows with amazing rapidity, and bears an enormous profusion of leguminous flowers of a flesh and scarlet colour. These flowers are very thick and substantial in their petals, and of a large size, tumbling off the tree in great quantities without ripening their fruit†.

"I still think the cabbage-palm here is different from that so called in the Edinburgh Botanic Garden."

BIBLIOGRAPHICAL NOTICES.

The Botanical Text-Book. By ASA GRAY, M.D., Fisher-Professor of Natural History in Harvard University. 12mo, pp. 413. New York, 1842.

WE have carefully perused this work, and have much pleasure in recommending it to the attention of all students of botany. It gives a comprehensive view of the present state of botanical science, and is written in a clear and lucid style, so as to render it accessible to all classes of readers. It is divided into two parts: 1. an introduction to structural and physiological botany; and 2. the principles of systematic botany, with an account of the chief natural families of the vegetable kingdom, and notices of the principal officinal or otherwise useful plants. The work is illustrated with engravings on wood, which are highly useful to the student.

In giving a short notice of some of the contents of the work, we shall confine our attention chiefly to those subjects concerning which some differences of opinion exist among botanical writers.

In speaking of the changes which the leaves of plants produce on the air during day and night, Dr. Gray remarks,—“It is by an entirely false analogy that the loss which plants sustain in the night has been dignified with the name of *vegetable respiration*, and vegetables said to vitiate the atmosphere, just like animals, by their respiration, while they purify it by their digestion. Respiration is merely a part of digestion: in animals it consists in throwing out the excess of carbon which their highly *carbonized* food contains; in vegetables it consists in the elimination of the superfluous oxygen of their highly *oxidized* food.”

* This is probably a *Vismia* belonging to the natural order *Hypericaceæ*.—J. H. B.

† Probably *Cæsalpinia pulcherrima*, or Barbadoes pride.—J. H. B.

On the subject of the formation of wood, the author adopts the theory of Petit Thouars. The different kinds of inflorescence, and the centripetal and centrifugal expansion of flowers, are explained in such a manner as to render the subject easily intelligible. The same may be said of the explanation given of the carpellary theory.

In alluding to the formation of the placenta in different cases, Dr. Gray notices the theory which has been recently advanced in Germany, in which the placenta is considered an *axile* formation, or one belonging to the axis and not to the carpellary leaves. "This theory," he says, "offers the readiest explanation of free central placentation, especially in such cases as *Primula*. It is also perfectly applicable to ordinary central placentation, where we have only to suppose the cohesion of the inflexed margins of the carpellary leaves with a central prolongation of the axis or receptacle which bears the placentæ. But in the case of parietal placentation, the advocates of this theory are obliged to suppose that the axis divides within the compound ovary into twice as many branches as there are carpels in its composition, and that these branches regularly adhere in pairs, one to each margin of all the carpellary leaves. Its application is attended with still greater difficulties in the case of simple or uncombined pistils, where the ovules occupy the whole inner suture, as in *Sedum* and the Columbine, which are doubtless justly assumed as the regular and typical state of the gynœcium; but to which the new hypothesis can be adapted only by supposing that an ovuliferous branch of the axis enters each carpel, and separates into two parts, one cohering with each margin of the metamorphosed leaf. This view, however, not only appears very improbable, but may perhaps be disproved by direct observation, as it has been most completely by those monstrosities in which an anther is changed into a pistil, or even one part of the anther is thus transformed and bears ovules, while the other, as well as the filament, remains unchanged; a case where the formation of the placenta from a process of the axis is out of the question. The hypothesis, therefore, is entirely untenable as a general theory; and whether it affords a correct explanation of any form of central or basilar placentation, must be left for further observation to determine."

In the systematic part of the 'Text-Book' a good view is given of the principle of classification, and the Artificial and Natural methods are well explained. In speaking of a natural method it is remarked, that this term is applied because the method "expresses the natural relations of plants as far as practicable; for every form yet contrived, or likely to be devised, is to a considerable extent artificial: 1. Because the affinities of a particular group cannot be fully estimated until all its members are known; and thus the progress of discovery leads to changes, or modifies our views, as in every other department of knowledge. 2. Because the boundaries of groups are not so arbitrarily circumscribed in nature as they necessarily are in our classifications, but individuals depart from the assigned limits in various directions (like rays from a centre), the edge of difference being as it were softened down by an easy transition. 3. Because, even sup-

posing the groups to be perfectly natural and their affinities completely understood, it is impossible to arrange them in a single continuous series, in such a manner that each shall be preceded and followed by its nearest allies ; since the same family, for instance, may be equally related to three or four others, only two of which points, at best, can be indicated in the lineal series which must be adopted in books. And 4. we are still obliged to use avowedly artificial characters for the sake of convenience ; as in the arrangement of the numerous orders of Exogenous plants into the polypetalous, monopetalous, and apetalous divisions, although different genera of the same order, or different species of the same genus, may present these very diversities."

The nomenclature of botany receives a due share of attention, and the following remarks in our opinion deserve notice : "As a general rule the names of orders are formed from that of some leading or well-known genus, which is prolonged into the adjective termination *aceæ*. Thus, the plants of the order which comprises the Mallow (*Malva*) are called *Malvaceæ*, i. e. *Plantæ malvaceæ*, or in English, malvaceous plants ; but the rule is only applicable to ordinal names derived from those of the genera, and affords no sanction to the absurd change of *Leguminosæ* into *Leguminaceæ*, *Labiata* into *Labiaceæ*, *Crucifera* into *Cruciaceæ*, &c., names which are formed upon a different principle. The appellations *Graminaceæ* (instead of *Gramineæ*) and *Palmaceæ* (instead of *Palmæ*) are equally objectionable ; the former not being *Plantæ graminaceæ*, but grasses ; the latter not *Plantæ palmaceæ*, but palms : and so likewise *Algæ*, *Fungi*, &c.

In the systematic part the arrangement of DeCandolle has been followed as nearly as practicable, so far as relates to the series of the orders ; while these have been at the same time thrown into small artificial groups for the convenience of analysis. A conspectus of these groups is given, but there is no complete analytical view of the orders. Such an artificial analysis is of great assistance to the student of botany, and we trust that it will be added in a future edition.

Upon the whole, we look upon this work as one of the best Text-Books which has yet appeared. In saying this we by no means wish to undervalue the excellent 'Elements of Botany' published by Dr. Lindley. In the structural and physiological part we prefer Dr. Gray's work as being a fuller and more comprehensive guide to the student, while in regard to the natural orders nothing can be better than Lindley's work, whether we consider the descriptions or illustrations. Lindley's 'Elements,' indeed, appear to us to have served as the model for the work now under consideration.

The British Flora, comprising the Phænogamous Plants and the Ferns.

By Sir W. J. Hooker, K. H., &c. &c. Fifth Edition. London, 1842. Longmans.

We have just received the new edition of this well-known work, which has undergone considerable change in appearance by the genera and species being now arranged under the *natural orders*, instead

of according to the Linnæan system, as was formerly the case. After a careful examination and comparison we do not find that much if any alteration of consequence has been made in the description of the orders, genera, or species. Indeed, even the notes appended to the species in most cases continue to be identically the same, and not the least attention has been paid to the observations upon some of them which have appeared in the 'Transactions of the Botanical Society,' the 'Phytologist,' and in this Journal. In short, with the exception of the introduction of a *few* newly-discovered species, the work may be considered as a differently arranged reprint of the fourth edition. Plates illustrative of the Compositæ and Ferns have been added.

If we had not believed that Sir W. J. Hooker never hoped for, or expected to obtain, any increase of reputation by his 'British Flora,' we should have felt surprise at finding him boldly, and without note or comment (except perhaps a reference to Steudel's 'Nomenclator'!!), combining species distinguished by some of the first botanists of Europe, such as Fries and Koch, whose opinions upon *European* plants we certainly consider of far higher value than that of the author of the 'British Flora:' although, when the species of *other countries* are concerned, we think that no name (Robert Brown's excepted) stands so deservedly high as that of Hooker. The 'Edinburgh Catalogue of Plants' is constantly referred to, and as it has been considered deserving of so much attention, it seems wonderful that (apparently) no application should have been made to its compilers for information concerning numerous species contained in it, upon whose claims to be considered natives of Britain the author states that he is ignorant.

We have much doubt if the change from the Linnæan to the Natural arrangement, although highly satisfactory to us, will tend to promote the sale of the work, and we fear that it will bring into more extensive use a modern but old-fashioned Linnæan flora which has already done considerable injury, from leading its readers back to the ideas of botanical structure that were prevalent fifteen or twenty years since.

We are sorry to see several misprints of considerable consequence still retained in this edition, such as the following, which, as they affect the sense, we notice for the convenience of our readers:—

Page 41, line 26, read *seeds sixteen pendulous*, omitting *in each cell*.

— 282, — 14, — fruit *longer* than the perianth.

— 284, — 12, — spikes lax, filiform, *usually erect*.

— 284, — 45, — lower ones *not* cordate.

— 356, — 48, — *black* capsules.

An Account of Askern and its Mineral Springs, together with a Sketch of the Natural History of the neighbourhood. By E. Lankester, M.D., F.L.S., &c., &c. London, 1842.

In addition to a valuable account of the mineral waters of Askern near Doncaster, the author has given an interesting description of the geology, and a sketch of the botany and zoology of that neigh-

bourhood. The botanical part is the most complete, and may indeed be considered as a pretty perfect flora of the district. The author has adopted a judicious plan for communicating the greatest amount of information in the least possible space, by not giving lists of the plants, but arranging his matter under the following heads :— 1. A numerical statement of the genera and species of each natural order. 2. A list of the less common plants, taking Watson's 'New Botanists' Guide' as the rule for judging of their rarity. 3. A list of the plants common to the twelve counties referred to by Watson, which he has not found near Askern. 4. The names of a few plants which are but rarely seen there, but which are considered of general distribution by Watson. In the zoological department the more interesting species are noticed, and a complete list of the birds that have been found near Askern is given. The chemical and medical portion of the work appears to be well executed, but that does not come within the objects of our journal.

Extracts from 'Excursions in and about Newfoundland during the years 1839 and 1840.' By J. B. Jukes, M.A., F.G.S.

Change of timber in a forest after a fire.—Much of this flat land [in a valley called Southern Gut, Conception Bay,] was covered with raspberry bushes; and Mr. Cousins informed me, that after a fire in the woods the first thing that covers the ground is a luxuriant growth of raspberry bushes, which are gradually succeeded by a thick wood of birch, although previous to the fire nothing but fir and spruce may have been seen for miles.—Vol. i. p. 45.

Newfoundland Dogs.—A thin short-haired dog came off to us today. The animal was of a breed very different from what we understand by the term *Newfoundland dog* in England. He has a thin tapering snout, a long thin tail, and rather thin but powerful legs, with a lank body, the hair short and smooth. These are the most abundant dogs of the country, the long-haired curly dogs being comparatively rare. They are by no means handsome, but generally more intelligent and useful than the others. This one caught his own fish. He ate on a projecting rock beneath a fish-flake or stage where the fish are laid to dry, watching the water, which had a depth of six or eight feet, and the bottom of which was white with fish-bones. On throwing a piece of cod-fish into the water, three or four heavy clumsy-looking fish, called in Newfoundland "sculpins," with great heads and mouths, and many spines about them, and generally about a foot long, would swim in to catch it. Then he would "set" attentively, and the moment one turned his broad-side to him, he darted down like a fish-hawk, and seldom came up without the fish in his mouth. As he caught them he carried them regularly to a place a few yards off, where he laid them down; and they told us that in the summer he would sometimes make a pile of fifty or sixty a day just at that place. He never attempted to eat them, but seemed to be fishing purely for his own amusement. I watched him for about two hours, and then the fish did not come; I observed he once or twice put his right foot into the water and

paddled it about ; this foot was white, and Harvey said he did it to "toll" or entice the fish ; but whether it was for that specific reason, or merely a motion of impatience, I could not exactly decide. The whole proceeding struck me as remarkable, more especially as they said he had never been taught anything of the kind.—Vol. i. p. 191.

Newfoundland Seals.—There are four seals known on the coast:—

1. The bay-seal, (this I believe is the *Phoca vitulina* of Linnæus,) as its name denotes, is confined to the bays and inlets, living on the coast all the year round, and frequenting the mouths of the rivers and harbours. It is the smallest of the four, and prettily marked with irregular spots of small size. From what I have heard I am led to suspect that it breeds in the autumn.

2. The harp-seal (*P. grænlantica*, Müller) is so named from the old male animal having, in addition to a number of spots, a broad curved line of connected blotches proceeding from each shoulder and meeting on the back above the tail, forming a figure something like an ancient harp or lyre. The female has not this harp, neither has the male till after his second year. The young when born are covered with white fur, they are then called "white-coats;" at about five or six weeks old they shed this white coat, and a smooth spotted skin appears. When twelve months old the males are still scarcely to be distinguished from the females. The next season the male has assumed his harp. The harp-seals herd together, at least during the breeding-season, and probably at other times. They are not seen on the coast of Newfoundland at other times, and probably come from the north to the ice-fields on the northern shores of the island for the purpose of bringing forth their young. The mothers leave their young on the ice, and fish about the neighbourhood for their own subsistence, returning occasionally to give suck. We did not absolutely see one suckling her young one, but found milk in the mouths and stomachs of one or two young ones that were brought on board ; and it was of a thick creamy consistence and of a yellowish white colour. Meanwhile the males are congregated together in the open pools of water, sporting about. The young ones increase in size very rapidly from their birth, and are fattest at about three weeks old, at which time they are almost half the bulk of the old ones. From that time the fat diminishes slightly, although the bulk of the internal body increases.

3. The hooded-seals (*Stenmatopus cristatus*, F. Cuvier) are larger than the harps. Their skin is of a lighter gray colour, with many dark irregularly shaped spots and blotches of considerable size. The male is distinguished from the female by the singular hood or bag of soft flesh on his nose. When attacked or alarmed they inflate this hood so as to cover the face and eyes, and it resists seal-shot. The young of this species is not provided with the thick woolly coat of the young harp-seal ; or if they have it, it is shed very shortly after birth. They have whitish bellies and dark gray backs, which when wet have a bluish tinge. The hooded-seals do not form such large herds as the harps, and the male and female seem to keep more to-

gether, both being commonly seen near the young one. The hooded-seals generally bring forth their young two or three weeks later than the harps, and they always occupy different districts, being generally found further to the north.

4. The "square-flipper" is described as being much larger than the hooded-seal. It is, however, very rare, and we did not see one, or hear of one being seen this season. I do not know what is the scientific name of this seal, and whether he has been described at all. Captain Furneaux told us that they were sometimes twelve or even fifteen feet long. It may be the *Phoca barbata* of Müller.—Vol. i. p. 308–312.

Newfoundland Woods.—The woods occupy indifferently the sides or even the summits of the hills and the valleys and lower lands. The trees consist for the most part of fir, spruce, birch, pine, and juniper, or larch; and in some districts the wych-hazel, the mountain-ash, the alder, the aspen, and some others are found. The character of the timber varies greatly, according to the nature of the subsoil and situation. In some parts, more especially where the woods have been undisturbed by the axe, trees of fair girth and height may be found; these, however, are either scattered individuals, or occur only in small groups. Most of the wood is of small and stunted growth, consisting chiefly of fir-trees about twenty or thirty feet high, and not more than three or four inches in diameter. These commonly grow so close together, that their twigs and branches interlace from top to bottom, and lying indiscriminately amongst them, there are innumerable old and rotten stumps and branches, or newly fallen trees, which, with the young shoots and brushwood, form a tangled and often impenetrable thicket. Every step through these woods is a matter of toil and anxiety, requiring constant vigilance to avoid falling, and constant labour to procure standing-room; climbing and creeping, and every mode of progression must be had recourse to, and new directions have constantly to be taken, in order to find the most practicable places through which to force a slow and tortuous way.—Vol. ii. p. 212–213.

PROCEEDINGS OF LEARNED SOCIETIES.

MICROSCOPICAL SOCIETY.

At a meeting of the Microscopical Society held November 16th, 1842, Prof. Lindley, President, in the Chair, a second paper was read by Arthur Hill Hassall, Esq., on the destruction of fruit by fungi. The author stated, that he had obtained more conclusive evidence of the influence of fungi in producing decay in fruit, from the fact that this decay can be communicated at will by inoculating sound fruit with the decayed matter containing the spawn of the fungi, and the effects of this inoculation become manifest in twenty-four hours. The author concluded by observing, that the decay of fruit might be retarded by coating the surface over with a varnish which would ex-



1842. "Bibliographical Notices." *The Annals and magazine of natural history; zoology, botany, and geology* 10, 352–358.

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