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REVIEWS

The Vegetable Kingdom, with upwards of Five Hundred Illustrations. By John Lindley, Ph.D., F.R.S. Bradbury & Evans.

WHATEVER difference of opinion may exist amongst his contemporaries with regard to the position which Dr. Lindley ought to have conceded to him as a botanist, there can be no doubt that he has done for the literature of botany in this country more than perhaps was ever done by any previous writer. During the last twenty years he has produced a series of works, any one of which would have served to have constituted the reputation of an ordinary man. It is the astonishing facility with which he expresses himself, and the iron power which he has been able to throw into the necessary labour to be done, that have enabled him to occupy successfully every department of botanical literature. He has, in fact, enjoyed almost a monopoly in the writing of botanical works; and this it is which has exposed him to the carpings of the envious and the criticisms of the ignorant. It is vain, however, to abuse the work of an author whose only answer is more work; or to criticize the labours of a man who labours with the steam power of twenty:—above all, of a man who freely criticizes his own productions, and allows that what was written twenty years ago is not to be the rule of to-day.

But Dr. Lindley is not a mere writer of botanical books. There have been few men, if any, who, in the pursuit of a science, have cultivated every department and every relation which that science can sustain, so successfully. He commenced his career in this country, when botany could hardly be said to be cultivated as a science; when the collecting of strange plants, and sticking them on white pieces of paper with a hard name attached to them, were all that was considered necessary to make a man a botanist. The Linnean Society, it is true, had been founded; but, abiding by the letter of its patron name, rather than the spirit of the man, it confounded the means of the study of botany with its end, and regarded the ascertaining the number of stamens and styles in a plant as the climax of botanical observation. Robert Brown had also lived and observed,—but the facts and principles of that greatest of botanists were regarded only as ingenious theories. There was little knowledge of the intimate structure, and less of the functions, of plants; and even that little was not applied to any systematic elucidation of the relations that exist between the various members of the vegetable kingdom. It was at this period that Dr. Lindley commenced observing and writing. His reflective mind early detected the insufficiency—not to say absurdity—of the artificial system, as used by the followers of Linnæus in this country; and saw clearly that the true object of botany was only to be obtained through the means of that method of studying plants, which had first been pursued by his own great countryman, Ray, successfully developed by Adanson and Jussieu on the continent, and rendered so much more philosophical and accurate by the profound genius of Robert Brown. His first efforts in observation were directed to the study of the relations of plants; and ever since, his works have had for their object the correct estimate of the structure and functions of the vegetable kingdom with a view to their scientific arrangement. We would not here institute a comparison between his labours and those of Brown. They have been of different orders, and in different fields: but of this we are convinced,

that Brown has found in Dr. Lindley an ardent disciple, and one who has done more to extend his fame and apply his principles of classification than any other European writer.

Of the numerous works produced by Dr. Lindley, on physiological, structural, descriptive, and systematic botany, 'The Vegetable Kingdom' may be regarded as the flower and fruit. The former works were the branches, leaves, stipules, and bracts; which, by the morphological process of more extended observation and maturer thought, were to be metamorphosed into the flower of the present goodly volume. This work embraces a general view of the structure, classification, and uses of plants;—and the whole is arranged according to the natural system. This is not, however, the first comprehensive work of the author arranged according to the natural system. One of the first complete books in our language on this subject was his 'Introduction to the Natural System of Botany.' This was followed by 'The Natural System of Botany,' and a small work entitled 'Nixus Plantarum;' and in all of these he developed views more or less peculiar to himself. By a reference to those works, it will be found that the present arrangement differs materially from that in his former books. This will, undoubtedly, be urged by many not only as an objection to the author's views on the ground of unsettledness, but, perhaps, amongst the remnant of Linnean systematists left in this country, as an objection to the natural system, itself. But such objectors certainly cannot comprehend the object of a natural system,—which is not "a system of nature," as some fanciful theorists suppose, but an attempt to arrange those objects in nature together which are most like each other, and to separate those which are most unlike. It is, then, in the very nature of increasing knowledge to disturb those relations which exist, and to discover others which have not been previously suspected. The man who believes his system to be the only true one—alike in religion and science—resists the progress of truth, arrests the development of his own mind, and, according to his influence, throws a stumbling-block in the way of others. Just in the same way as every observation on the heavenly bodies influences the calculations of the astronomer, so does every observation on the tissues of plants, the discovery of every new form, tend to modify the views of the botanist. In the change which a botanist feels compelled to make in the subordinate groups of his system, he interferes not with the fundamental principles on which that system has been constructed; but makes it in accordance and in obedience to those principles,—so that what seems needless change to the ignorant, is only the result of necessity on the part of the instructed. That Dr. Lindley has perfected the natural system we do not think:—that he has made many improvements and added thereby greatly to our knowledge of plants, and consequently of the science of botany, we think no one would venture to deny.

The present work is much more extensive than the former by the same author, and is the result of an amount of labour which few but the author could command. The general plan is similar to that of "The Natural System;" and its object is to give a general outline of the structure and uses of plants through the relation of a natural system. A new feature in the work is an Introduction,—in which the general principles of classification in botany are laid down, and a survey of the various natural systems from the time of Ray to the present is given. Dr. Lindley justly vindicates the claim of Ray to be the first philosophical expounder of a natural system of

plants: at the same time, we think the author would have added to the value of this part of his work had he given an outline of the systems previous to the time of Ray;—those of his contemporaries, as of Tournefort and Rivinus, —and others previous to Jussieu and De Candolle, as that of Adanson. From this part of the work, we learn that the author's system of arrangement has undergone several changes previous to its assuming its present form. All these changes may be regarded as a departure from the system of De Candolle; from which they have differed,—first, in the constitution of groups of plants of a higher value than Orders, and inferior to Classes,—and second, in the forming a larger number of natural classes. Of the practical value of such combinations as Dr. Lindley's groups or sub-classes, and alliances standing between orders and classes, there can be little doubt; and the only objection that can be urged against them is their frequently artificial characters—so that violence is done to the definition of the characters of the lower groups for the sake of arrangement. Such violence, however, will always depend on the more or less artificial character of the higher groups. As an instance, we may give De Candolle's divisions of the Exogens; in which the greater or less union and development of the corolla was made the basis of three sub-classes, according as plants had polypetalous, monopetalous, or incomplete flowers. Now this was highly artificial; brought together orders very differently constituted, and separated others which as strongly resembled each other. In the present work, Dr. Lindley has got rid of these distinctions; and polypetalous, monopetalous, and incomplete orders mingle together in his alliances.

From the time of Ray, three great classes, or divisions, of the vegetable kingdom have been recognized by almost all the advocates of a natural system:—these are Exogens, Endogens, and Acrogens. From their agreeing in a number of other particulars, besides the growth of the stem, they have been called by other names; but these three classes have always been maintained. They have been stated to be truly natural combinations,—and on that account necessary as the basis of any natural system. This, however, we would point out as an error:—there is no system or arrangement in nature, as we regard systems and arrangements. A system, with man, is the arrangement of so many words so as to express certain facts in nature, in accordance with certain fundamental ideas which he possesses of the likeness or unlikeness of things in nature,—not the expression of any arrangement in the mind of Divinity, of which we have not, and cannot by possibility have, any rational conception. Such classes, then, are more or less artificial, after all; and this is seen in the fact, that the characters of these classes will not apply to all plants. Since the establishment of these classes, there have not been wanting diligent observers who have pointed out many plants that could not be said properly to belong to any one of the three great ones. Thus arose minor classes: and Gymnosperms and Rhizanthus were separated from the rest. These minor classes were found to strengthen the larger ones,—just in the same way as the forming a small natural order will strengthen two or more large allied ones. Relying on this fact, Dr. Lindley has added a small natural class with the name Dictyogens; and divided the old class Acrogens into two,—one of which is called Thallogens. The following are the author's characters of the classes of plants:—

<i>Asexual, or Flowerless Plants.</i>	
Stems and leaves undistinguishable.	I. THALLOGENS.
Stems and leaves distinguishable.	II. ACROGENS.

Sexual, or Flowering Plants.

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| Fructification from a thallus. | III. RHIZOGENS. |
| Fructification springing from a stem. | |
| Wood of stem youngest in centre. | |
| Cotyledon single. Leaves parallel-veined. Permanent wood of stem confused. | IV. ENDOGENS. |
| Leaves net-veined. Deciduous wood, with a central pith. | V. DICTYOGENS. |
| Wood of stem youngest at circumference; always concentric. Cotyledons, 2 or more. Seeds quite naked. | VI. GYMNOGENS. |
| Seeds inclosed in seed-vessels. | VII. EXOGENS. |

We think, if the principle be admitted of cutting off small sections of large classes, for the purpose of giving them more systematic value, that little or no objection can be raised on the general question against these smaller classes of Dr. Lindley. There is, however, a position of objection which—at any rate with regard to one of them, the Rhizogens—has been taken by Brown and Griffiths, and some of our ablest botanists—namely, that their structure can be easily explained on the supposition that they are reduced forms of Exogens or Endogens. We think this an unsound position; because it assumes what has first to be demonstrated,—that the classes of Exogens and Endogens constitute the best divisions of the vegetable kingdom for carrying out the objects of a natural system. On the same grounds on which the Rhizogens or Rhizanthus have been made lower forms of Exogens and Endogens, they might be made higher forms of Acrogens and Thallo-gens; or Acrogens and Endogens be regarded as reduced forms of Exogens. The question is, whether, for the purposes of classification, the Rhizanthus are not best placed in a separate class?—and we think, with Dr. Lindley, that, in the present state of our knowledge, this is at once the most philosophical and practical method of arrangement.

In the present work, Dr. Lindley has ventured on an English nomenclature of the natural order. Whatever may be the difference of opinion as to the English terms adopted in this work, every one must feel that such a system is desirable. Such words as Starworts and Crowberries are more easily used and remembered by the great mass than Callitrichaceæ and Empetraceæ. Some hesitation might, however, be felt in using such words as Marcgraviads, Kadsurads, Humiriads, and the like, for Marcgraviaceæ, Casuaraceæ, and Humiriaceæ. The attempt, however, is before the public;—and whether all Dr. Lindley's names are adopted or not, its convenience will, we make no doubt, lead to the more general use of English names, and to the smoothing down some of the asperities which are necessarily connected with a first effort. We cannot at all sympathize with those who think these are useless innovations. Whatever tends to popularize a science, and make it more familiar with the mass of men, must not only increase the number of observers in that science, but tend to the legitimate end of all science—the elevation and happiness of mankind.

There are few departments of Natural History which can be successfully explained without the aid of drawings or diagrams,—and none that require it more than botany; and Dr. Lindley has done a great service to the science in venturing so copiously to illustrate this great work. Every natural order is furnished with a drawing, illustrative of its form and structure; so that if the description could be only imperfectly understood, it is at once explained by the plate. This kind of knowledge could at one time only be obtained through the means of expensive monographs,—and these often deposited in still more costly Transactions; but now, for a few shillings, the student of botany may have that which before would have cost him double the number of pounds. We must also award our

praise to a copious and accurate index,—to the valuable artificial analysis of the orders,—and to the practically useful diagnosis of the orders; which will all be found of the greatest value in the study of plants.

The publication of this work must form an era in the botanical science of this country: for, whether we regard the importance of its scientific details, its practical nature—embracing, as it does, a survey of the uses of the animal kingdom to man—or the lowness of its price, it cannot fail to exercise an important influence on the study of botany.

Historical Pictures of the Middle Ages in Black and White. Made on the Spot by a Wandering Artist. 2 vols. Longman & Co.

THE design of this book is not a bad one. You come to some grim-looking castle, some half-ruined monastery, or some grey-turreted church, the great antiquity of which strikes you at once. You next inquire what historical associations, whether in ancient chronicle or tradition, relate to one of these time-honoured relics; and, in almost every country, and especially in Switzerland, you are sure to light on characters and events likely to interest the present age. If history be strictly adhered to, you may instruct as well as amuse.

The fair author commences her picturesque historical sketches with Basle. The cathedral was the burial-place of the Empress Anne (1282), consort of Rudolph I., the founder of Austrian greatness. The corpse was brought from Vienna; and the ceremonial of interment was as splendid as any lover of fine sights could wish to behold. Yet the exposure of the imperial corpse—not in the coffin, but on a magnificent throne—would seem an odd, and not very agreeable, spectacle in our days. The Bishop of Basle and his clergy thought otherwise; and it cannot be denied that they had precedents enough for the ceremony, which, in some parts of the Continent, is not unknown even at this day:—

“All the clergy of his diocese received invitations to be present at this august solemnity; and on Thursday, the 19th of March, 1282, he issued from the gates of the episcopal palace at the head of twelve hundred ecclesiastics (of whom six were abbots), priests conventual and secular, each bearing a lighted waxen torch, to meet the funeral cavalcade at some distance from the city gates. The imperial corpse was received at the door of the cathedral, with all the state and ceremony peculiar to papal pomp, by three other bishops awaiting its arrival with a minor host of dignitaries; and from thence (amid the chaunting of litanies and the chiming of bells) conveyed into the choir, where the coffin was opened, and the deceased empress was placed upon a magnificent throne, which had been erected on a raised platform, surmounted by a dais or canopy of crimson velvet fringed with gold. Her ladies and the distinguished personages who took a prominent part in the procession, dressed in deep mourning, ranged themselves on either side; whilst the four bishops performed a solemn mass before the awe-stricken multitude, assembled in thousands to witness so strange and appalling a sight. Sumptuous robes of rich silk and velvet enveloped the inanimate form of departed majesty. A veil of white silk floated from her head, and a small but elegant crown of silver gilt rested on her forehead. A collar of gold curiously wrought, containing a rich sapphire and other precious stones, was round her neck; and on the pale fingers of her lifeless hands, crossed over her bosom, glittered many costly gems. When the solemn service for the dead was finished, the body was again re-committed to the coffin, and entombed, amid the weeping of her attendants, in the choir close to that of the young prince Charles.”

But the remains of the Empress were not to await the sound of the Archangel's trump at Basle. Wounded by the reflection that, as the cathedral was no longer Catholic, the bones of

her ancestors were reposing in ground not quite so holy as she could wish, Maria Theresa, in 1771, removed them (there were twelve other coffins besides that of Rudolph's consort) to the Abbey of St. Blaise, in the Black Forest.—

“When the tomb of the empress was opened at Basle, the coffin, or rather coffer, being found in too decayed a state to encounter a second journey, the padlocks were removed, and the body carefully transferred to one of solid mahogany, in the presence of the German commissioners and Swiss authorities, to whom a very extraordinary and awful spectacle was then exposed. The whole person of the empress was found in a perfect state, changed only to a deep black—her diadem still rested on her brows, and her golden collar encircled her throat—her royal habiliments preserved their graceful contour—but every hue, every shade of colour, had fled.”

The imperial ornaments were given to the city of Basle, and were carefully preserved until 1830; when, at the close of the unhappy war between the municipality and the neighbouring country, they fell into the hands of parties insensible to their value, who sold them for less than their intrinsic weight in bullion. The necklace was purchased by a jeweller; and an Israelitish pedlar rejoiced in possessing the crown. But, alas! the bodies themselves had not yet reached a final resting-place,—though dirge and anthem and pomp imperial had celebrated their recommitment to the dust, and a stately monument had arisen to commemorate the piety of Maria Theresa. The revolutionary armies of France approached the abbey; and, to save them from profanation, the late Emperor Francis once more removed them to the vault of the Hapsburg family, in the Capuchin Convent at Vienna.

But there is something at Basle deserving of more attention than even the cathedral:—

“The traveller, however brief his sojourn at Basle, cannot fail to remark the solid battlements which crown the opposite shore of the Rhine, and the mass of buildings within, surmounted by a dilapidated church of extremely beautiful architecture: should his curiosity tempt him to cross the fine old bridge which spans the wide and rapid Rhine, and then turn up a dark narrow street to the left, he will find at its extremity the mouldering, but most extensive remains of a religious house, now in part converted into a hospital for invalid soldiers. Mullioned windows, from which hang files of shirts and stockings; Gothic doorways, half blocked up by bricks, and turf, and faggots; fragments of stone, of exquisite workmanship, on which the skilful sculptor had lavished long days of painful labour, profusely scattered over the well-trodden dirty court-yards, tell a lesson of fallen grandeur, and present a picture of bygone splendour not to be mistaken. Reader, that desolate dwelling was once the home of the noblest ladies of Europe! The silent aisles of that deserted church, converted into stables and granaries, yet enclose the dust of princes, nobles, prelates, abbesses, and titled damsels, whose well-authenticated gentle blood could alone have procured them the honour of reposing within its hallowed precincts. A society of Dominican nuns were the possessors of this once sacred edifice—here for many centuries their superior reigned in sovereign power, independent of all control but that of the supreme head of the Romish Church. What a lesson on the mutability of life—on the evanescent nature of earthly pomp and worldly grandeur—may be learned from these crumbling ruins! Of all the noble ladies who lived and died within their holy enclosure, not a name, not a trace exists in this their seat of empire.”

It is the monastery of Klingenthal to which our attention is directed; and the ruins so well described furnish occasion for the historical sketch of “The Nuns' War.” This religious house was founded in 1273, by the Baron of Clingen, under the auspices of the Emperor Rodolph; and its property was greatly augmented by the bequests of nobles in the surrounding provinces, and still more by the money