

meaning; the class *Gymnospermæ* is given on one page as of superior value to *Incompleta*, on another as included within it; and it is difficult to understand how the terms "loculicidal" and "septicidal" can be applied with propriety to a mono-carpellary capsule like that of the primrose. The statement that "the tables on classification have been compiled from Dr. Hooker's 'Student's Flora of the British Islands'" is rather misleading, when we find, on p. 14, the Gamopetalous orders with inferior ovary included in "Calycifloræ." But defects of this sort are incidental to any attempt of the kind. Dr. Aveling may be congratulated on the success of his effort, if it be not of a very high order.

Vergleichende Untersuchungen über den Bau der Vegetationsorgane der Monocotyledonen. Von Dr. P. Falkenberg. Mit drei Tafeln. (Stuttgart: F. Enke, 1876.)

OUR knowledge of the anatomical structure of the stem of Monocotyledons has hitherto been pretty much confined to that of palms, and has been founded to a great extent on the researches of Mohl and Mirbel. It has hence been assumed, perhaps somewhat rashly, that the type of structure is far more uniform in the stem of Monocotyledons than of Dicotyledons. For the purpose of investigating this point Dr. Falkenberg has submitted to very careful examination the stem of one or more species belonging to as many as seventeen orders or sub-orders of Monocotyledons, and shows that our previous conceptions must be modified in several respects. The stem of Monocotyledons, he states, is divided into an inner central cylinder and an outer cortical layer by a separating sheath which is developed in some cases from the internal, in other cases from the external tissue. As regards the course of the fibrovascular bundles in the central cylinder, and the degree to which they are differentiated from the fundamental tissue, he finds three different types of structure. Perhaps the most important correction of ideas previously accepted is his complete refutation of the statement found in so many text-books, that Monocotyledons have none but adventitious roots. Dr. Falkenberg asserts that the existence of a normal tap-root is general in Monocotyledons, with the exception of those that are altogether destitute of a root. The adventitious roots which subsequently, in many cases, supplant the original tap-root, do not differ from it in an anatomical point of view. A. W. B.

Jenkinson's Practical Guide to the Isle of Wight. By Henry Irwin Jenkinson, F.R.G.S., &c. Also Smaller Practical Guide. (London: Stanford, 1876.)

MR. JENKINSON, by his practical guides to the Lake District, Carlisle, and the Roman Wall, has already proved himself possessed of a rare faculty for the work of guide-book making. The handy volumes before us are quite equal to those previously published. The "Guide to the Isle of Wight" is evidently the result of conscientious work and minute painstaking; the author has gone over all the ground described, and made himself well acquainted with all the historical and antiquarian knowledge which adds interest to the various places referred to. The introduction to the larger "Guide," covering upwards of eighty pages, contains a *résumé* of the scientific knowledge which bears on the island—its geology, its flora, and its fauna. This part seems to us carefully and accurately compiled, and by the scientific visitor will be considered a valuable addition to the volume. Mr. Jenkinson divides the text of his "Guide" into six sections, grouped round the chief towns of the island, each section being accompanied by a full and clear and carefully executed map. Altogether Mr. Jenkinson's "Guide" is a thoroughly good, and we believe trustworthy, one; and while it deserves the title "practical," and will be of the greatest use to the visitor, the general reader might read it through with interest and profit.

LETTERS TO THE EDITOR

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A Science Museum

THE fact that the Science and Art Department have had before them for at least ten years the proposal to establish a science museum, is shown conclusively enough in NATURE for last week. May I be allowed to draw attention to a still earlier suggestion of the same character? As far back as 1859, two years after the establishment of the Patent Office Museum, the Commissioners of Patents laid a Report before Parliament, in which the following passage occurs:—

"It is intended to make the Patent Office Museum an historical and educational institution for the benefit and instruction of the skilled workmen employed in the various factories of the kingdom, a class which largely contributes to the surplus fund of the Patent Office in fees paid upon patents granted for their valuable inventions. Exact models of machinery in subjects and series of subjects, showing the progressive steps of improvement in the machines for each branch of manufacture, are to be exhibited; for example, it is intended to show in series of exact models each important invention and improvement in steam propellers [steamboat propulsion] from the first engine that drove a boat of two tons burden to the gigantic machinery of the present day, propelling the first-rate ship of war or of commerce. The original small experimental engine that drove the boat of two tons burden, above referred to, is now in the museum, and is numbered one in the series of models of propellers."

Unhappily this brilliant project rested unfulfilled. "No. 1" of the series of models of steamboat propellers had but few followers, while other branches of mechanical science did not get so far as to have even a "No. 1." The conception was excellent, the execution lamentably deficient. Thus the collection which was to have expanded into a museum of mechanical and industrial science degenerated into an old lumber-room, and, instead of expanding over the ground originally allotted to it, contracted into its present dimensions.

Into the causes of this failure there is no need to enter. The thing has failed, and there is an end of it. Luckily there is a chance of something better now, and it is to be hoped that we shall soon have the collection belonging to the Patent Office divided into two parts—one part to be sent to the Science Museum, and the other to the nearest dust-heap. So long as it belongs to the Patent Office, the aggregation of rubbish will be sure to continue. The Commissioners have never exercised a power of selection, and any foolish invention, so that it is only the subject of a patent, has the right of *entrée*. Naturally it is not the important inventions which make their appearance at South Kensington. As part of a Patent Office, a museum is practically worthless. It is hardly possible to imagine an invention which—at least to an expert—cannot be as clearly explained by descriptions and drawings as by a model. For purposes of experiment and instruction models are obviously invaluable. By no other means, for instance, can *motion* be rendered intelligible to a class of students or a popular audience. When the object, however, is simply to define what an inventor has discovered or constructed, so that it can be understood by an expert, a drawing and a description are nearly always much better—always as good—as any model. The only reason why the Patent Office should have charge of such a museum is that the officials of the office are in constant communication with the particular class likely to contribute to the museum. Patent cases are fruitful in models, constructed, not for the engineers, but to enable the engineers to explain to those who have no special mechanical knowledge the action of the different apparatus before them. Many such models are of no public interest, but many are well worth preservation, and it was thought that from these and like sources the Patent Office Museum would soon grow rich. The event has hardly justified the hope, but that is no reason why, under better management, the promises held out fifteen years ago should not now be realised. With all its deficiencies, the Patent Office Museum has done one good service. It has preserved some quite invaluable examples of early mechanical science which would otherwise have been scattered to the four winds—most of them to the west wind and the States. These are ready to form the best possible foundation for the mechanical section of the Science Museum, a section