We have not, of course, made use of this new volume practically; but from what we see of it, we should, without hesitation, recommend it to any person beginning the delightful study of mosses as the most likely of all those within our knowledge to suit his needs. E. F.

OUR BOOK SHELF.

Catalogue of the Described Diptera from South Asia. By F. M. Van der Wulp. 8vo. Pp. 220. Published by the Dutch Entomological Society. (The Hague: M. Nijhoff, 1896.)

COMPARATIVELY few entomologists interest themselves in *Diptera*, and therefore the number of species of the order enumerated in the present catalogue is only 2889, and doubtless represents only a small percentage of those actually existing in the rich fauna which it samples; for the *Diptera* are probably the third most numerous order of insects, surpassed only, according to the indications of our present knowledge, by the *Hymenoptera* and *Coleoptera* in the total number of species which they may be expected to include. Prof. Van der Wulp is recognised as one of our first living authorities on *Diptera*, and his work will prove of great use to specialists, especially as M. Bigot's "Catalogue of the *Diptera* of the Oriental Region," published in the *Journal* of the Asiatic Society of Bengal for 1891 and 1892, is both imperfect and inaccurate. The introductory part of the work is written in English, and includes a "Review of the Literature of Oriental Dipterology" and a bibliographical list of books and papers consulted. There is also a table of contents at the beginning, and an index of families and genera at the end. We cannot have too many books of this description; for although the number of undescribed species of insects is enormous, it is perhaps even more important to attempt to keep pace with the rapidly-accumulating mass of descriptive matter by means of carefully compiled monographs and synonymic reference catalogues, than to confine our energies to piling up additional descriptions by the hundred or the thousand. W. F. K.

History of Modern Mathematics. By David E. Smith. (London: Chapman and Hall, Ltd., 1896.)

"HIGHER Mathematics," edited by Mansfield Merriman and Robert S. Woodward, is a text-book for classical and engineering colleges, and is a work containing 600 pages. Each chapter is written by a different author, and is devoted to some special branch of mathematics; chapters i., ii., iii., &c., dealing with solutions of equations, determinants, and projective geometry respectively. The eleventh and last chapter, a reprint of which we have before us, is written by Mr. David E. Smith, of the Michigan State Normal School, and deals with the "history of modern mathematics." Of course it has not been intended here to give a complete history of modern work, but just a sufficient survey of the whole domain to give a student an intelligent idea of the way in which the more recent advances have been made, and the ends gained thereby. Each mathematician has, as a rule, his own speciality; but each of these is one link in the chain which, when put together, forms the whole. Such a history as Mr. Smith gives here fulfils this point, and its shortness and conciseness will be favourable to students of mathematics. The text is increased in value by the numerous footnotes, and a short bibliography is given at the end; this latter is, however, by no means complete, as the author remarks, but he gives references for those who wish to go further afield. For a biographical table of mathematicians he refers to Fink's "Geschichte der Mathematik," p. 240, and for the names and positions of living mathematicians to the "Jahrbuch der Gelehrten Welt," published at Strassburg.

Graphical Calculus. By Arthur H. Barker. (London: Longmans, Green, and Co., 1896.)

A VERY timely book; and useful to instructors in the elements of the subject in providing a number of apt and eloquent illustrations of fundamental ideas. It represents a series of lectures addressed to engineering students, liable to be repelled by pure abstractions, and preferring concrete representations in which their ideas can take root; a complete contrast to the ordinary mathematical text-book of the school of Todhunter. The author should point out that the gradient of 1 in 100 (p. 13) means an angle whose tangent is 0·01 only in the indoor mode of reckoning on a plane; but that in construction of the railway, the angle is made with a sine of 0·01; the two modes of measurement are indistinguishable practically.

Integration is introduced simultaneously with differentiation, as in many respects a simpler idea to grasp; we can realise the growth of a tree at the end of a year, although the rate of growth is imperceptible. Our ordinary mathematical text-books make the mistake of keeping integration in the background too long. G.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Utility of Specific Characters.

I MUST confess to still feeling some difficulty in understanding my friend Prof. Lankester's position, notwithstanding his explanations.

The correlation principle was arrived at by Mr. Darwin after a careful examination of a large body of facts. I quote the carefully considered words in which he sums up his conclusions:—

"Correlation is an important subject; for with species, and in a lesser degree with domestic races, we continually find that certain parts have been greatly modified to serve some useful purpose; but we almost invariably find that other parts have likewise been more or less modified, without our being able to discover any advantage in the change. No doubt great caution is necessary in coming to this conclusion, for it is difficult to overrate our ignorance on the use of various parts of the organisation; but, from what we have now seen, we may believe that many modifications are of no direct service, having arisen in correlation with other and useful changes." ("Animals and Plants under Domestication," vol. ii. pp. 354–5.)

It does not appear to me that there is anything in this which conflicts with the doctrine of the "utility of specific characters." The non-useful parts of the correlated chain (if any) are sustained by the useful, and the *whole* seems to me part of the "specific character." If Prof. Lankester had no other object but to call attention to Mr. Darwin's correlation principle, I think this was a little superfluous, for it is part of the mere grammar of Darwinism.

But the point of his speech at the Linnean Society, and of the subsequent account he gave of it in NATURE, appeared to me to go a good deal beyond this, and to be of considerable interest and importance.

In the cases cited by Mr. Darwin, the correlated structures are almost all, to use Prof. Lankester's words, "obvious and measurable." This we would expect in the correlated variation of homologous parts on which Mr. Darwin lays such stress, and which form the bulk of the instances which he gives.

Prof. Lankester's "suggestion" was that "obvious species marks may be only superficial and non-significant phenomena correlated . . . with other less obvious but really important life-saving peculiarities, which might well escape the observation of the describer of specific characters." He then adduces Wells's theory as "a case which seemed to [him] most striking and suggestive in connection with the utility of specific characters." And so I think it is. I ventured to express an opinion that if established it would prove very damaging to, at any rate, the universatility of that doctrine. I certainly supposed that that was Prof. Lankester's object in bringing it forward.