

from the middle of a star-like dichotomously-branched mycelium, which radiates in a single plane. The zoosporangia are separated from the mycelia by a transverse wall. The zoospores are developed in small numbers, and escape by a lateral opening.

1. *O. mucronatum*, nov. sp. In the empty skin of a gnat-larva.

III. RHIZIDIUM, A. Br.

1. *R. mycophilum*, A. Br., is fully described and figured, and the resting-spores traced through their long period of repose.

IV. CLADOCHYTRIUM, nov. gen., Now. The zoosporangia are either developed as intercalary swellings of the one-celled mycelium in the tissue of the host-plant, and separated by transverse walls, or they are terminal at the end of single mycelium threads. The zoosporangia dehisce either by the opening of a long neck, or by a lid. Secondary zoosporangia are developed either in rows or in the interior of old empty zoosporangia.

1. *C. tenue*, nov. sp., in the tissues of *Acorus calamus*, *Iris pseudacorus*, and *Glyceria spectabilis*. Closely related to *Protomyces menyanthis*, De Bary found in the leaves and petioles of *Menyanthes trifoliata*.

2. *C. elegans*, nov. sp., in the gelatinous substance of *Chatophora elegans*.

The last paper is by Prof. Cohn himself—"Remarks on the Organisation of Certain Swarm-Cells." It is chiefly devoted to an account of *Gonium tetras*, A. Br., and certain subjects suggested by the examination of that plant, such as the nature of the "amylum kern," or starch nucleus, the inner organisation of swarm-cells, the cavities and contractile vacuoles in such cells, and the comparison of swarm-cells with one-celled animals. The whole number is one of great interest and will well repay perusal.

W. R. MCNAB

OUR BOOK SHELF

Physiography and Physical Geography. By the Rev. Alex. Mackay. (Blackwood and Sons.)

In his preface the author draws attention "to the peculiar character of the present work," and quotes by way of explanation two paragraphs from the Directory of the Science and Art Department. He remarks that "the student will at once perceive that the author has discussed all the subjects embraced in the new syllabus" of the department. The spirit of this discussion and "the peculiar character of the work" will be best appreciated from a few extracts.

"The combined result of various experiments gives to the earth a density of 5.66 times that of water. But more reliance should be placed on the number indicated by the Great Pyramid, which in this as in so many other great cosmical data, has anticipated modern science by more than 4,000 years." "The sacred volume declares that in the days of Noah the whole world was inundated by a flood, which covered the highest mountains, and that, with the exception of one family, the entire human race was destroyed. A change in the inclination of the earth's axis would certainly produce such a catastrophe—a catastrophe which was accompanied with direful results to all future generations; the alternations of heat and cold became so rapid as to affect the longevity of man, which has from that date gradually shortened from nearly a thousand years to three-score years and ten." "Why the planets move in elliptical orbits" is the title of a paragraph, which, containing no reference to nor explanation of the ellipticity of the planetary orbits, is embellished with a diagram to show why the orbits are circular. "Mountain-chains of the same geological formation are believed to be of the same antiquity; and, however widely separate, are

parallel to one another." "The slow increase in the saltiness of the ocean may account for the otherwise inexplicable fact that frequently since the ocean became inhabited, its varied population became wholly or almost wholly extinguished." "The antiquity of the human species as indicated by geological evidence, no doubt conflicts with the chronology of Usher, founded on our modern Hebrew text. In the matter of antediluvian chronology, however, the Hebrew text has, in all probability, been tampered with, as we have shown at large in a separate work ('Facts and Dates,' p. 62-69). The Septuagint translation—a translation sanctioned by our Lord and his Apostles—assigns to our race an antiquity of nearly 1,500 years more than Usher does. Science is giving its emphatic verdict, in this particular, in favour of the Septuagint; and though the extended chronology may fail in meeting all the difficulties of the case, it will certainly meet many of them. . . . Geologists are too apt to toy with millions of years as if they were playthings, and to show no regard to moderation or common sense. Science has not hitherto been able to determine the actual antiquity of the planet, and probably never will."

The Book of Algebra. By A. T. Fisher, B.A. (London: Stewart's Local Examination Series, 1877.)

MR. FISHER has aimed at writing a short work on algebra for students who have no intention of reading high mathematics. He has done his task well, and the result is a compact and carefully put together little book. The limit he has set himself is to enable a reader to understand all that is required as preliminary to the solution of higher simultaneous equations; hence we have nothing on the Progressions, Notation, Permutations, &c. On a perusal of the work we have been especially struck with the care taken by the author to bring out a book burdened as little as possible with mistakes. For three-fourths of the book he has been assisted by the printers, but in the chapters on surds, indices, and higher equations we have noticed a plentiful crop of typographical errors. Most of these are, however, easily corrected. There is an unfortunate mistake of + for × twice on p. 47; of - for ÷ in Ex. 14, p. 52.

Some readers would require a larger number of examples; those that are given are, on the whole, very well chosen, and there are some useful problems neatly solved. It is possibly an objection, certainly in the elementary parts, that the answers immediately follow the questions. The book is neatly, and for the most part carefully, printed.

Bulletin of the United States Geological and Geographical Survey of the Territories. Vol. iii. No. 2. (Washington, 1877.)

THE second number of the above *Bulletin* contains three important entomological articles from the pens of Messrs. Osten Sacken, Uhler, and Thorell.

The first memoir, from the pen of that distinguished Dipterist, Baron C. R. Osten Sacken, bears the modest title of "Descriptions of New Genera and Species of Diptera from the Region West of the Mississippi, and especially from California," but he who takes up the paper expecting to find nothing but bare descriptions will be agreeably surprised to find it interspersed with analytical tables of the Diptera of the United States, with diagnoses and critical notes on many species already known, with remarks on their geographical distribution, synonymy, and in fact anything that could in any way contribute towards rendering this order of insects clear of comprehension or attractive to the student.

The second article, by Prof. P. R. Uhler, is a report on the insects collected by himself during the exploration of 1875, including monographs of the hemipterous families *Cydnidae* and *Saldæ*, and an account of the hemiptera collected by Dr. A. S. Packard, jun. The monograph of