

In the work now before us, Dr. Minks considers the question of the so-called parasitic Lichens. In 1880, in "Morphologisch-lichenographische Studien," II., he had said that "Lichen and parasite are two irreconcilable conceptions." In the present work he develops this idea and extends it to a considerable number of Lichens, the apothecia of which had been previously considered to belong to the thallus on which they are found, and applies the term "syntrophy" to all such. In a syntrophic lichen, by careful microscopic investigation, the epiphytic apothecium is found to have a very delicate thalline tissue of its own, from which it derives sustenance independently of the foreign thallus on which it grows. Dr. Minks describes this relation in language almost as picturesque as that used by Schwendener, in a phrase which has become classic. The syntrophic apothecia, he says, "are guests, because they offer nothing to the host, but claim services from him without compensation. But they are not boarders, else they might properly be termed parasites, but only lodgers. They are tenants, who pay no rent, but share the lot of the landlord."

In application of this doctrine, Dr. Minks considers a number of genera and species of Lichens, which, from his point of view, are syntrophic. Prominent among these is the genus *Pyxine*, the apothecia of which are syntrophic on species of *Physcia*. Others are the *Caliciacei* and the *Gyalectacei*, the latter being elevated to the dignity of a tribe, while the author follows Nylander in combining the *Lecanorei* and the *Lecidei* in one tribe, the *Lecanolecidei*.

It were much to be desired that some of our younger botanists and microscopists, instead of consuming time in tedious and often superficial attempts to determine species, and of accepting as a dogma the Schwendener theory, neglecting to study what has been said on both sides of the controversy, would make themselves familiar with the copious literature of the last few years, and apply themselves to the study of the morphology and physiology of the Lichens, which, from whatever point of view they are considered,

are among the most remarkable products of the vegetable kingdom. They might be able, by patient labor and by not being in too much haste to arrive at conclusions, to make valuable contributions to the vexed controversy. W.

The Story of the Atlantic Telegraph. By HENRY M. FIELD. New York, Chas. Scribner's Sons.

THE story of difficulties overcome in the endeavor to accomplish a great work is always interesting, and the account here given of the laying of the Atlantic cable reads like a romance. As is natural, since the writer is a brother of his, the work of Mr. Cyrus W. Field is given the most prominence, but we notice with pleasure that the indomitable perseverance and courage of the financiers engaged in the undertaking is recognized as it should be.

The Voltaic Cell. By PARK BENJAMIN, LL.B., Ph.D. New York, John Wiley & Sons.

DR. PARK BENJAMIN has had long experience in collecting the material for encyclopedic treatises, and the reader of this book may be sure that nearly all that could be collected on the subject has been incorporated here. This, however, does not necessarily constitute a good book, and in the present case the material used in cementing together the vast quantity of contained information might have been improved upon had a little more care been spent on this part of the work. For instance, while the list of cuts of storage cells is a very complete one, the theory of the changes which go on during the charge and discharge is hardly touched upon. The book contains a large number of valuable tables of conductivities of solutions, heats of combination, etc.

R. A. F.

THE Egypt Exploration Fund's new circular respecting the archæological survey of Egypt may be obtained from Dr. W. C. Winslow, 525 Beacon Street Boston.

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The undersigned has skins of Pennsylvania and New Jersey birds, as well as other natural history specimens: which he wishes to exchange for marine, fresh water, and earthworms of the South and West. Correspondence with collectors desired. J. Percy Moore, School of Biology, University of Pennsylvania, Philadelphia.

For sale or exchange.—I have a Caligraph typewriter (No. 2) in perfect order and nearly new. It is in a heavy leather, plush-lined office case, the whole costing me about \$100. I desire to obtain for it, either by sale or exchange, a new, No. 5 "Kodak" camera, with six double feather-weight plate-holders and the latest pattern of their tripod. The lens and pneumatic time-shutter must also be the same as those now sold with the last No. 5 Kodak. The price of what I desire in exchange is \$78. Address, for particulars, P. O. Box 314, Takoma, District of Columbia.

For sale.—An Abbe binocular eye-piece for the microscope. Alfred C. Stokes, 527 Monmouth St., Trenton, N. J.

For sale or exchange.—One good long range Remington B. L. rifle, 44 calibre, also land and fresh water, and marine shells. Want shells, Safety, camera or printing press. A. H. Boies, Hudson, Mich.

Fine collection of microscopic slides for sale, or would exchange for first-class pneumatic bicycle. J. E. Whitney, Box 549, Rochester, N. Y.

For sale—A Zentmayer new model U. S. Army Hospital monocular stand. Price \$110, will sell for \$75. Address H. C. Wells, No. 151 Broadway, New York.

For sale—A complete set of the third series of the American Journal of Science (1870-1893) handsomely bound in single volumes in dark brown half morocco. Address G. H. Williams, 803 Cathedral Street, Baltimore, Md.

Wants.

WANTED, as principal of a flourishing technical school, a gentleman of education and experience who will be capable of supervising both mechanical and common school instruction. Special familiarity with some technical branch desirable. Address, giving age, qualifications, etc., J. B. Bloomingdale, Fifty-ninth street and Third avenue, N. Y.

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A COMPETENT TEACHER of botany in college or university is open to engagement. Address L., Box 86, Rochester, Mich.

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