resources and industries of the State precedes the catalogue of minerals. This, though interesting matter, seems rather out of place. H. B.

ALGÆ

Rabenhorst's Kryptogamen-Flora von Deutschland, Oesterreich, und der Schweiz. Zweiter Band. Die Meeresalgen. Bearbeitet von Dr. F. Hauck. Nos. 7, 8, 9, 10. 8vo. (Leipzig: Ed. Kummer, 1883-1885.)

A Monograph of the Algæ of the Firth of Forth. By George William Traill. 4to. (Edinburgh: Printed for the Author, 1855.)

Notes on Marine Algæ. By Edw. Batters, F.L.S. (*Proceedings* of the Berwickshire Naturalist Club, 1884.)

THE concluding numbers of Dr. Hauck's work have recently appeared. To the description of species is added an appendix in which some new species are described. Then follow a comprehensive key to the genera; an index of families, genera, species, and synonyms; lists of illustrations, and of works on algæ, arranged alphabetically, according to the names of the authors; also the title-page, preface, and table of contents—all most useful auxiliaries to a scientific work.

To the favourable opinion of this work, already expressed in the columns of NATURE (vol. xxix. p. 341), it may be added that the later numbers, treating of the Chlorozoosporeæ and the Schizophyceæ, fully justify this opinion, and Dr. Hauck must be congratulated on the successful completion of what has undoubtedly been an arduous undertaking.

In turning over the pages of the work, one cannot but be struck by the variety of views which, in spite of the closest examination by competent observers with the aid of the best microscopes, still prevail among algologists as to the systematic position of certain algæ.

Not to multiply instances, it will be sufficient to mention the genera Porphyra and Bangia. By Dr. Berthold and Dr. Hauck they are classed with the Florideæ; while Dr. Agardh and M. Rosanoff place them among the Ulvaceæ. As to Goniotrichum, which Dr. Agardh relegates to the Ulvaceæ and Dr. Berthold includes in the Bangiaceæ, Dr. Hauck, in despair of discovering its affinities, places it at the end of the description of species, as of still doubtful position.

Although it may be doubted whether all Dr. Hauck's identifications of British Algæ will be admitted by our botanists, yet the work cannot fail to prove extremely useful in this country, and is, in fact, much needed.

Mr. Traill's work, entitled "A Monograph of the Algæ of the Firth of Forth," consists of an alphabetical list of the marine Algæ of this locality, with their habitats, time of appearance and of fruiting, and the names of the host-plants on which grow such species as are epiphitic. Each copy of the work is intended to be illustrated with some half-dozen herbarium specimens of the rarer Algæ. Those in the copy before the writer are in excellent condition, and are interesting from their rarity.

That Mr. Traill is a most patient and painstaking observer goes without saying. An analysis of the list will show how many species he has collected and observed, which are new, not only to the Firth of Forth, but to the British marine flora. He has watched the growth and development of these plants from their first appearance until their maturity. Among them will be found several Algæ which, though frequent in the south, have not previously been seen so far north; and he has also met with some arctic and northern species which are not only new to the British marine flora, but are not described in Dr. Hauck's work.

Among these northern species may be mentioned *Phlæospora tortilis*, which has a range in this country, so far as is known at present, from the Firth of Forth to Bamborough. While this plant is so abundant in the Baltic as to cause much inconvenience to fishermen by getting entangled in their nets, its existence is not recorded on the German shore of the North Sea. *Urospora penicilliformis*, one of the Algæ found by Dr. Kjellman on the coast of Spitzbergen, is another of Mr. Traill's "finds."

It will be observed that he mentions having obtained the cystocarps of *Rhodymenia palmata*. If he has really met with the true crystocarps of this plant he is fortunate, since Dr. Agardh, Dr. Harvey, Dr. Hauck, and other botanists have hitherto searched for them in vain. Harvey has shown ("Phyc. Brit.," Pl. 217) that bodies outwardly resembling cystocarps are common enough; probably these are what Mr. Traill has found. They are not, however, true cystocarps.

The establishment of the Biological Station at Granton, near Edinburgh, will certainly give a fresh impetus to the study of marine botany in that locality; and there is no doubt that Mr. Traill's work will be found extremely serviceable to local collectors of Algæ.

The *Proceedings* of the Berwickshire Naturalist Club for 1884 contain notes by Mr. Edward Batters on seventeen species of rare and little known Algæ found by him at Berwick-upon-Tweed. A short and clear description is given of each species, and the rarer kinds are illustrated by lithographic plates.

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. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

Ocular After-Images and Lightning

IT will no doubt be of interest to many of your readers to know that the curious optical phenomenon observed by Prof. C. A. Young, when working with a large Holtz machine, and referred to in Mr. Newall's letter (NATURE, vol. xxxii. p. 77), may be produced with very small apparatus.

I have in my possession one of the small Voss machines with 10-inch plates which are now so common. Upon the stand of this instrument I placed two ordinary Leyden jars, about 5½ inches high, in such a position that their tinfoil-covered bottoms touched the brass sockets in which rest the fixed condensers of the machine, while the rods connected with their inner coatings were in contact with the sliding electrodes; with this arrangement sparks of great brilliancy from 1½ to 2 inches in length could easily be produced at the rate of about six per minute. A copy of NATURE was set up against a dark background 4 feet distant from the machine, and at every discharge the paper appeared to be illuminated by two, or sometimes three, distinct flashes of decreasing brightness, which succeeded one another with great rapidity. Each flash was sufficiently