17 on structural features is also valuable. Mine waters also receive better treatment than they often do. But in his argument for the importance of ascending juvenile thermal waters one might have hoped to see a comparison of the analyses of waters with those which would be obtained from the connate or meteoric waters stimulated in circulation by hot intrusives. There is a lot of sodium carbonate and sulphate in the mine waters of many regions where "alkali" is also characteristic of the surface waters, while the mine waters of other districts are quite different. It may well be that we have a mixture of waters from more than one source, and while the author rightly attributes to precipitation by mixture of solutions an importance which is often overlooked, yet it may have even greater importance.

The range of reference is rather narrow, mainly, though by no means exclusively, to the western United States. In that respect both of the other books are superior. For instance in discussion of the class of zeolitic native copper deposits no reference is made to the work of Weed and Lewis on those of New Jersey, and one might think that Keweenaw Point was unique, except for a footnote reference to White River, Alaska. With regard to the Keweenawan deposits there are a number of minor slips (p. 397). Copper veins are still of considerable importance at the Ahmeek and adjacent mines, nor was the copper obtained from veins formerly, nor at present, wholly or mainly sulphide. It is usually native, sometimes the basic arsenide, and even in the Nonesuch lode one would hardly say that the ore was "chiefly" chalcocite. The Nonesuch mine saved only the native copper. It is noteworthy that there is no such systematic attempt to present diverging points of view fairly as is made by Ries. Compare for instance the treatment of oolitic iron ores in each. This is probably due to the origin of the book as a course of lectures. So, too, while Lawson is referred to, as to his western work, no reference is made to his Lake Superior work. Neither is Allen's declaration that the Animakie is middle Huronian considered. The Keweenawan is classed without a question as pre-Cambrian.

After the extensive treatment of ore deposits, iron, copper, gold, silver, zinc and lead receive treatment in separate chapters, while all the rest of the substances are dismissed in the last hundred pages.

Two relatively new terms are protore: "low-grade metalliferous material not itself valuable from which valuable ore may be formed by superficial alteration and enrichment," and the horsetail structure applied by Sales to divergent minor fractures. Both these seem to be useful.

There is no list of illustrations.

Alfred C. Lane

Aquatic Microscopy. By Alfred C. Stokes. Fourth Edition. New York, John Wiley and Sons. 1918. Pp. 324.

The new edition of this well-known guide for beginners retains the general features of the earlier editions. Chapter XII. of the third edition, "Some Common Objects worth Examining," has been replaced by a "Synopsis of the Preceding Chapters," which is a convenient, brief key to the forms described in the book. Minor changes have been made in the text, various scientific names have been modernized, and some of the keys have been extended. The book should continue to be a favorite, not only with the young microscopist for whom it is intended, but with many zoological students and teachers as well who desire to identify quickly and easily some of the commoner aquatic organisms.

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SPECIAL ARTICLES

ADAPTATION IN THE PHOTOSENSITIVITY OF CIONA INTESTINALIS

I

Ciona intestinalis of the Pacific Coast[1] re-

[1] These experiments, the details of which will appear later, were performed at the Scripps Institution for Biological Research at La Jolla, California. My thanks are due to Dr. Ritter and his staff for the many courtesies shown me.