

Periods,' 'Pliocene Beds,' 'Pleistocene Accumulations,' 'The Steppe Period,' etc.

The abysmal origin of the black shales of the Ordovician, with graptolites, is defended on the following grounds: The persistence of lithological characters over wide areas; their replacement by much greater thickness of normal sediments along ancient coast lines; the frequent occurrence together of blind trilobites and those with abnormally large eyes, and the interstratification of the black shales with radiolarian cherts similar to the modern abysmal radiolarian oozes.

The glacial origin of the boulder beds of the Talchin stage of the Indian series, proposed by W. T. Blanford, is accepted; and confirmatory evidence is cited in the cases of the similar signs of glaciation in beds of a corresponding age in Australia, South Africa and southern Brazil.

As a digest of the general facts of British geology in its special nomenclature the book will be of value to those who have not access to the fuller treatises.

HENRY S. WILLIAMS.

*The Examination of Water (Chemical and Bacteriological).* By WILLIAM P. MASON. New York, John Wiley & Sons. 1899. Pp. 135.

The progress that has been made during the last decade in methods of sanitary water analysis, and especially in the interpretation of the results of such analysis, amply justifies an attempt at the marshalling of the new data and the revaluation of the old. To both students and practical workers the need of a really modern treatise in the English language has become imperative, and Professor Mason's little book will, on this ground, be cordially received. It will be a fact regretted by many, however, that the present work is so limited in scope. While the author correctly insists upon the paramount importance of a complete knowledge of the source of a sample of water and of the conditions under which the sample is collected, and rightly emphasizes the futility of 'standards' of purity, he has evidently not intended to include in this book any discussion of some of the other and most vital problems of water analysis.

The various methods for the determination of

chlorine, nitrites, nitrates, free ammonia, albuminoid ammonia, etc., and the other significant chemical tests are described in the second chapter, and the author's selection of recommended methods will, on the whole, meet with general approval. The useful 'normal chlorine' maps, prepared respectively by the Massachusetts and Connecticut State Boards of Health, are reproduced and the hope is expressed that the task of the water-analyst will, in the future, be made still easier through the preparation of similar charts by other Commonwealths.

Some analysts will consider that more stress might have been profitably laid upon the Hehner method for the determination of 'permanent hardness,' especially in view of the fact that this method has been found greatly superior to the 'soap test' in dealing with the waters in some parts of the United States. In this chapter, too, it will occasion some surprise to find no reference whatever to the Kjeldahl method for determining organic nitrogen.

In the chapter upon bacteriological examination the author seems to be treading on less familiar ground than in the preceding section. In his description of the method of preparation of sugar bouillon the importance of the preliminary removal of muscle-sugar is overlooked, as is the fact that the indol test may be vitiated by the 'presence of muscle-sugar in the broth. Miquel's method of examination and his theory of 'auto-infection' of waters are given a much more important place than would be accorded them by most bacteriologists. The author's statement on p. 117 that 'great cold is not fatal to germ-life' certainly needs some revision.

EDWIN O. JORDAN.

*A Monograph of the North American Potentilleae.*

By PER AXEL RYDBERG. Memoirs from the Department of Botany of Columbia University. Volume II. Issued November 25, 1898. 4to. Pp. 223. 112 plates.

Some years ago Dr. Per Axel Rydberg, a Scandinavian botanist educated in America, became interested in the group of the Rose Family which contains the *Cinquefoils*, and which have been known as the Potentilleae. Finding in the great collections of Columbia University (now transferred to the New York