mainland, as has earlier been presumed, but that the suspended lime as well as the total lime content first increases, passing from the sea towards the river mouths, and then decreases again in the rivers proper. Regarding conditions in the separate areas and the explanations given thereof, the reader is referred to the original.

K. B.

H. Pettersson and S. Landberg. "Submarine Daylight." Göteborgs Kungl. Vet.- och Vitt.-Samh. Handl. 5 Föl., Ser. B, Bd. 3, No. 7, pp. 1—13, 5 Fig. Göteborg, 1934.

H. Pettersson. "A Transparency-Meter for Sea-Water." *Ibid.* No. 8, pp. 1—17, 4 Fig. Göteborg, 1934.

The oceanographer may desire to make photometric measurements under water for either of two distinct purposes. He may desire to know the intensity of the radiation of various wave-lengths (of which those in the visible spectrum are generally the most important) at various depths, or he may be especially interested in the opacity of the water, which gives a measure of the amount of suspended matter present, and may yield a useful clue as to its origin. If he is interested in both of these problems he can obtain a measure of the opacity from a comparison of the illuminations at different depths, and this course has hitherto been adopted by workers in the subject.

The first of the papers under review describes a simple form of submarine photometer using a Lange selenium cell of the rectifier type, the current being measured by means of a sensitive galvanometer. The apparatus evidently works well in the comparatively smooth water in which it was tested in the Baltic, and the vertical extinction coefficients obtained from the readings show a general similarity to those found under similar conditions by other workers. As no colour filters were used, and the cell possesses a considerable range of sensitivity, the variation in the colour of the light reaching it at different depths complicates the interpretation of the results.

The second paper describes an entirely new form of apparatus in which the reduction in a beam of artificial light due to absorption and scattering in a length of two metres of water is measured by means of a Lange cell. This direct measurement of the transparency of the water avoids several objectionable features inherent in the alternative method of deducing it from the ratio of two daylight measurements, and possesses the further advantage that the rapid variations in transparency with depth which occur under some conditions, can be readily observed. The absolute values of the extinctions so found do not, however, bear any simple relation to the vertical extinction coefficients for daylight, and the result depends, not only on the opacity of the water, but also on the exact design of the instrument and on the colour temperature of the lamp used as a source. It seems probable that instruments of this type will in future be used for studying variations in transparency, and an exact specification, capable of reproduction by other workers, is highly desirable.

H. H. P.