

OUR BOOK SHELF

The Bottom of the Sea. By L. Sonrel. Translated and Edited by Elihu Rich. Pp. 402, 67 Illustrations. (London: S. Low, Son and Co. 1870.)

WE cannot do better than quote part of the translator's preface, wherein he states that the book "bears the same relation to the strictly scientific treatment of the subject as a popular lecture on art to instruction in the studio; a ramble through a museum to a lecture on science; or a short pleasure-sail on the coast, with here and there an opening glimpse of the scenery," &c. M. Sonrel devotes the first portion of his book to submarine orography, with full explanations of deep-sea soundings, configuration of sea-bottom, submarine scenery, the various charts of the sea-bottom, and the like. The phenomenon of phosphorescence is explained; and the colour and temperature of the ocean are also dwelt on; next comes submarine life, with a long description of wonderful sponges, polypi, and corals. He relates, also, many legends with regard to marine monsters. Then we have man, and his work at the bottom of the sea, divers, diving apparatus, raising of ships, construction of bridges, submersion of towns, submarine volcanoes—all are graphically described. The last part is devoted to the action of rivers and currents on the sea-bottom, the dunes of Gascony, and villages buried beneath them. M. Sonrel lastly illustrates the insignificance of man compared with the ocean, by telegraphic cables, with an engraving of a fossilised cable. The following passage ends this interesting volume:—"If the intelligence of man has placed him at the head of the creation, the feeble influence that he can exercise over Nature ought to humble his pride. All that he can accomplish by physical labour is almost imperceptible by the side of the work effected by the microscopic infusoria; man, the giant, is dwarfed in results by the almost invisible atom!" This book is well illustrated throughout, and is admirably adapted to those who require light scientific reading.

Lehrbuch der Chemie für Land und Forstwirthe. Von S. J. Möser. Large 8vo., pp. x. and 355. (Vienna: Braumüller, 1870.)

IN this work, which was written for agricultural students, Dr. Möser has made it his aim to supplement the educational deficiencies under which his German pupils labour; and as the time which they can devote to purely chemical study is (he informs us) unduly limited, he brings into prominence in this manual only the more general and important facts, while the minor details, which are described in a smaller type, are kept somewhat in the background. The inorganic part is comprised in 183 pages, inclusive of an appendix, in which we are pleased to notice special sections devoted to the formation of saltpetre and the soil. The organic part contains 202 pages, and is consequently cut very short; but certain parts of it and its appendix are occupied very fully with physiological chemistry, and seem to have been ably executed,—perhaps more *con amore* than the rest of the *Lehrbuch*. Dr. Möser offers an apology for adopting the old notation; but we think his views on this subject are likely to alter with a new edition.

La Chambre Noire et le Microscope: Photomicrographie pratique. Par Jules Girard. (Paris: F. Savy. London: Williams and Norgate.)

THIS little volume contains a useful description of the apparatus required for photographic representation of microscopic objects, and a detailed account of the various operations involved in this art. It also describes the application of photomicrographic plates for lectures and educational purposes, by means of the oxyhydrogen light and the lantern. The book is illustrated with several well-executed woodcuts. A translation of it would be very useful to those engaged in this kind of work.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

Oysters of the Chalk, and the Theory of Development

THE interesting notice, in your last number, of M. Coquand's "Oysters of the Chalk," draws inferences unfavourable to the Theory of Development or Evolution which scarcely seem warranted by the facts. It need not be "difficult to imagine the creature as existing under such conditions, that one species, while engaged in 'the struggle for existence,' should starve out and extinguish another;" for however widely we may find a fossil species dispersed, it is not probable that it occupied the whole of its territory at one and the same time, and in the limited area occupied immediately before its extinction, new varieties may have prevailed over and displaced the old by some slightly superior adaptation to the food-supply of the region. The extinction of any particular species may in some instances have been due to the extinction, or loss by other means, of its own appropriate food. Again, it is not necessary to suppose that the hinge, or the internal or external structure of the shell of an oyster, has been altered by what may be called the direct action of "Natural Selection," since by the well-established principle of "correlation" the variation in one part of an organism is nearly or quite certain to produce variations in other parts. "If any such change did occur," it is argued, "it must have been *per saltum*, since with these mollusks, numerous as they are, there are no forms that can fairly be recognised as transitional." But this appeal to the evidence of facts is somewhat premature. The immense difference pointed out between the geological records of England and France in regard to these very oysters of the chalk, leaves it perfectly open for us to suppose that even the comparatively full French record is itself exceedingly imperfect, and that the transitional forms have either not been preserved, or remain yet to be discovered. Mr. Darwin gives reasons for believing that when variation once begins it continues with some vigour; hence, between two settled widespread species connected genealogically together we might expect a large number of transitional varieties, each represented by only a few individuals, so that the whole number of these transitional forms might well be lost to the geological record.

Finally, the objection from the scarcity of oysters at the present day, compared with the great abundance of species in the past, does not really touch the theory of development, which is concerned to explain how species come into existence, not how they go out of it. That varieties, species, genera, have been superseded or extinguished, within longer or shorter periods, is a fact admitted on all hands. The general principle of natural selection will account for this in the rough, maintaining as it does, that fresh varieties, species, and genera better adapted to the surrounding circumstances have arisen, and by their superior adaptation, unavoidably ousted the older forms. Digging down into the records of history we find a time when the Romans were supreme in the civilised world; no two consecutive years of the interval present any remarkable divergence of the prevailing conditions, yet now we may say of that Roman supremacy in the civilised world, that, "like the Mastodon, it is a thing of the past." May it not be that both in races of men and every other race of creatures, there is a certain store of vitality and vigour, capable of very extensive and long-continued development, but capable also of exhaustion?

Torquay, May 14

THOMAS R. R. STEBBING

Euclid as a Text-book

THERE are many engaged in the work of education in this country, besides those who have come prominently forward in the matter, who feel strongly that Geometry as now taught falls far short of being that powerful means of education in the highest sense which it might easily be made. They find themselves, in the majority of cases, compelled to use in their classes a text-book which should long ago have become obsolete.

We have lately had instances in abundance of the power of combined action. If the leaders of the agitation for the reform of our geometrical teaching would organise an Anti-Euclid Association, I feel sure they would meet with considerable and daily-increasing support.

We of the rank and file do not feel strong enough to act alone,