

structure of this form is worked out in the Report with great care, and is illustrated by excellent figures depicting for the first time the anatomy of the genus as far as spirit specimens would admit of its demonstration.

The Report enters fully into the geographical and bathymetrical distribution of the species included in it. Of these the Cyclostomata attain the greatest depth, though only two of them extend to depths greater than 1000 fathoms; namely, *Crisia elongata*, which was obtained in the Australian region from a depth of 1450 fathoms, and *Idmonea marionensis*, which was brought up from a depth of 1600 fathoms in the region of Kerguelen Land. It is a fact, however, by no means without significance, as showing how little certain marine organisms of even complex structure are dependent on depth, that in the case of the last-mentioned species specimens have been obtained from depths varying from 50 fathoms downwards. The Ctenostomata and Pedicellinea are all from comparatively shallow water, none having been obtained from a depth greater than 150 fathoms.

No one could have been found better qualified than Mr. Busk to institute a comparison between recent and fossil Polyzoa. His work on the Polyzoa of the Crag is among the most important contributions we possess to the palæontology of this group, and gives a special value to his determination of the fossil relations of the species collected by the *Challenger*.

To the sub-order Cyclostomata belong the oldest fossil Polyzoa as yet known, and out of the thirty-three species of Cyclostomata obtained by the *Challenger* Mr. Busk has been able to identify fourteen as occurring also in a fossil state, thus proving the wide distribution in time of even specific forms of this group. No fossil species has as yet been identified with either the Ctenostomata or the Pedicellinea. The negative evidence, however, which is all that this statement expresses, proves but little, as these groups are destitute of structures which might be expected to continue recognizable in a fossil state. Barrois, indeed, contends that the larval stage of the Entoprocta (Pedicellinea) represents the primitive form from which the whole of the Polyzoa have descended. Of the Cheilostomata—the sub-order to which the former part of the Report is confined—no species has as yet been proved to belong to Palæozoic times, though this group is largely represented in Mesozoic and Tertiary strata.

The ten beautiful plates which illustrate this part of the Report contain figures of all the newly-described species of Cyclostomatous, Ctenostomatous, and Pedicellinean Polyzoa, and bear ample evidence to the conscientiousness and accuracy with which all the details of form are delineated.

The purely descriptive part of the Report is marked by all that judicious selection of characters, and succinctness yet definiteness of diagnosis, which add so much to the facility of comparison and to the practical value of any work having for its object the determination and description of specific forms. The number and variety of the species and generic types described and figured in this and the former part of the Report give to the whole a special value, not only as a record of the species collected,

but as a faithful and comprehensive picture of the external morphology of the important and interesting group of organisms to which it is devoted.

G. J. A.

#### OUR BOOK SHELF.

*Dynamics for Beginners.* By the Rev. J. B. Lock, M.A. Pp. 178. (London: Macmillan and Co., 1887.)

THIS book is an attempt to explain the elementary principles of dynamics in a manner suitable for school-work with boys of ordinary mathematical attainments. Accordingly it contains a great number of easy numerical examples, some worked out in illustration of the text, the others arranged in groups at frequent intervals. There is considerable freshness in these exercises, and they form altogether a very useful series.

The work is divided into four sections. The first treats exclusively of rectilinear dynamics, thus avoiding at the beginning of the subject all purely geometrical difficulties.

The second section introduces the notion of directed or vector quantities, and deals with the application of the parallelogram law to displacements, velocities, accelerations, and forces in succession.

Next we have a section on applications of the preceding to projectiles, oblique impact, circular motion, and relative motion, concluding with a short chapter on the hodograph.

The final section deals with energy, work, and power. These last three or four chapters read in connexion with the first section would form a suitable first course in many cases, involving no mathematics beyond a knowledge of simple equations in algebra.

The exposition throughout is remarkable for clearness and precision of statement. The definitions of terms seem particularly well worded. The names *velo* and *celo* have been adopted for the units of velocity and acceleration, and are used systematically in both text and examples; we hope these terms may win their way to general acceptance, for the language of the subject gains both in simplicity and directness by their introduction.

The debt of gratitude which many teachers and students already owe to Mr. Lock will be considerably increased by this new class-book on a difficult subject, wherein it appears to us that the skill and experience of the author are displayed with great advantage.

*Journals kept in Hyderabad, Kashmir, Sikkim, and Nepal.* By Sir Richard Temple, Bart., M.P. Edited, with Introductions, by his son, Richard Carnac Temple. With Maps and Illustrations. Two Vols. (London: W. H. Allen and Co., 1887.)

THE first journal contained in these volumes was written at Hyderabad during the year 1867, when the author was Political Resident at the Court of the Nizám. It is entirely political, and will interest only those who study somewhat minutely the course of recent Anglo-Indian history. The journals kept during visits to Kashmir, Sikkim, and Nepal appeal to a larger class of readers. They deal with the physical features of these countries, and to some extent with social customs and institutions. Most of the author's notes are too slight to be of much scientific importance; but all of them have the merit of being written in a clear and unpretending style, and the information contained in them is, so far as it goes, thoroughly trustworthy. The introductions which the editor has contributed to the book add very considerably to its value. They are careful essays, in which Capt. Temple has brought together a great many interesting and suggestive facts that are not readily accessible to ordinary readers.