

Etheridge, jun., with those referring to Australasia. The important department of Physical Geology has been undertaken by Prof. Green, and those of Mineralogy and Petrology by Prof. Rudler; while the science of Palæontology has been equally well cared for—Mr. Miall taking the papers referring to the Vertebrata, Prof. Nicholson those relating to the Invertebrata, and Mr. Carruthers those on Fossil Plants. Besides the sub-editors, a number of other contributors have given their assistance in connection with this important work.

When we reflect on the immense body of literature on the different branches of the natural sciences which is yearly published, we shall find good reason to be satisfied with the approximately complete character already attained by this, the first volume of the "Geological Record." It is only necessary to refer to the yearly increasing activity of our great scientific societies, the continual formation of new local associations and field-clubs (whether connected with particular districts or with our Universities and public schools), most of which publish their own transactions, to show the difficulty of making a complete catalogue even of the scientific publications which appear yearly in the British Islands alone. But when we add to these the prolific publications of the different State surveys and the numerous scientific institutions of the United States and of our own colonies and dependencies; when we bear in mind the scientific activity exhibited by the French, German, and Italian speaking populations of Europe, and the books and journals written in languages, which of course few scientific men are able to read, such as the Russian, Danish, Dutch, Scandinavian, Hungarian, Bohemian, Serbian, &c.; and when we recollect that geological memoirs are published even in Japan and Tahiti!—we may have some idea of the magnitude and difficulty of the task with which the conductors of the "Geological Record" have to grapple.

In illustration of the energy which has been brought to bear upon this task, we may mention that the first volume of the "Geological Record" extends to nearly 400 pages; that the journals of which the contents, so far as they relate to geology, have been given in abstract, number nearly 200; and that the separate entries of books, memoirs, and maps exceed 2,000.

Henceforward, the yearly volumes of the "Geological Record" must find a place on the shelves of every scientific library; and in congratulating the editor on the manner in which he has surmounted the first and greatest difficulties of his arduous undertaking, we find only one cause for complaint. So far as the title-page shows, no arrangements have been made with agents residing abroad for the circulation of the work in America, the colonies, and on the Continent. We are persuaded, so very general is the use of the English language among the scientific men of all parts of the world, that so soon as this omission is remedied, the foreign circulation of the "Geological Record" will equal or even exceed that which it already has at home; while most valuable aid will be given in the preparation of the future volumes of the work by the secretaries of foreign societies and the editors of Continental and American journals sending copies of their publications, immediately that they appear, to the conductors of this important work of reference.

J. W. J.

### OUR BOOK SHELF

*Lessons on Rigid Dynamics.* By the Rev. G. Pirie, M.A. (London: Macmillan and Co., 1875.)

THIS work treats of the geometry of motion, D'Alembert's principle, reduction of the expressions for the effective forces, moments and products of inertia, energy, precessional motion, and certain differential equations which occur in treating of the subject of Rigid Dynamics. There is an excellent selection of exercises, many of which are worked out, and the answers are in many cases accompanied by useful hints. The book appears to us to be in every respect an admirable one, and to be a good introduction to the study of this difficult branch of natural philosophy. We agree with Mr. Pirie in thinking that much of the difficulty students find in this subject arises from the explanations which are given in the ordinary text-books being for the most part brief and often, in consequence, obscure. We believe the author's hope that his book may be useful not only to students of natural philosophy, but also to engineers, is likely to be realised. We cordially recommend the book.

*The Secret of the Circle, its Area Ascertained.* By Alick Carrick. (London: H. Sotheran and Co. Chiswick Press, 1876.)

ONE more contribution to the long list of works on the Circle, put forth with the usual assurance that now the question must be set at rest. "Dedicated with great deference to the different schools of learning and to the intelligence of the public generally in this and other countries, in the confident hope and full belief that the truth pointed out in these pages will soon be acknowledged." There is a prefatory notice taking us down to page 16 (there are 48 pages in the pamphlet), from which we learn that the author's name is an assumed one, and that he is now dead. "Introductory" takes us to page 39. "The Secret of the Circle, its Area Ascertained," occupies the rest of the book. The Rule given is, "Diameter  $\times$  radius  $\div$  four-sevenths" (*sic*), hence our friend  $\pi$  is equated to  $\frac{22}{7}$ . There are ten figures, some

pretty to look at, but there is a dearth of letters, and it is often hard to make out what parts are intended in the demonstration. There is much that is true and not new; for instance, that the inscribed dodecagon is equal to the inscribed square and half that square; what is new is not proved to be true. Thus to get the result, the circular segment bounded by the side of the dodecagon ought to be for his purpose  $\frac{1}{84}$  (radius)<sup>2</sup>, and this is not shown on

pp. 44, 45, for it is not proved there that Q contains the nine segments which it is said to contain. Hence we are led to say that the truth about the Circle is *not* to be found *here*.

*Australian Heroes.* By Charles H. Eden. (Society for Promoting Christian Knowledge).

MR. EDEN has written a very interesting book. As might be surmised from the title, he has brought into prominence the adventures of the explorers of Australia rather than the results of their explorations. Australia is unlike almost any other country which has been the field of exploration; its sameness, the dreary tameness of the bulk of the continent, the comparative paucity and low state of the aborigines, deprive an explorer's narrative of many of the points of interest to be met with in the case of other countries—Africa, for example, South America, or even the Arctic regions. Still this little book shows that during the comparatively brief period that Australia has been a field for exploration, there have been plenty of deeds of daring and determination and self-sacrifice in the cause of scientific knowledge, to render any skilfully