

much less important. Hence the grander phases of *ocean circulation* (except in so far as they depend on winds, and therefore on *atmospheric circulation*) are much more dependent upon polar cold than upon tropical heat. On the other hand, those of atmospheric circulation depend more upon tropical heat than on polar cold. For the great temperature effects are produced mainly at the upper surface of the ocean, and at the lower surface of the atmosphere. Hence, if there were no great modifying causes, we should expect to find (on the whole) the lower water, as well as the lower air, coming from both sides towards the equator, and the upper currents of each flowing to the poles."

Chapter XXI. is entitled "Elements of Thermodynamics." The subject is nevertheless treated in a very complete manner, and is evidently regarded by our author as something in the shape of a *header*. We gather this from the very characteristic invitation to take the leap which is addressed to the student in Art. 381. We shall not, however, repeat the invitation, but rather leave the reader to find it out for himself and then—take the leap.

Let us conclude with one more quotation:—

"We have merely to think of the ideas which we try to express by such words as Time, Space, and Matter, to see that, however far discovery may be pushed, our little 'clearing' can never form more than an infinitesimal fraction of the 'boundless prairie.' No part of this, however, can strictly be called inaccessible to unaided human reason, if time and patience fail not. But far beyond in one sense, though in another sense ever intimately present with us, are the higher mysteries of the true Metaphysic, of which our senses and our reason, unaided, are alike unable to gain us any information."

While cordially indorsing these views, the writer of this notice would remark how admirably fitted is such a science as Physics for the discipline of the human mind. It possesses that boundlessness which is the *ultimate* characteristic of all true knowledge, and this is so obvious that few are bold enough to represent our "little Physical clearing" as bounded by an "impenetrable wall" or by the "abyss."

The scientific incendiary (to change the metaphor somewhat) prefers to confine himself to regions where there is a large collection of inflammable materials, until at length his attempts are brought to an end by the copious stream of cold water with which the physicist is able to deluge the scene of his exploits.

BALFOUR STEWART

OUR BOOK SHELF

Beiträge zur Kenntniss der Liassischen Brachiopodenjauna von Südtirol und Venetien. Von Hyppolyt Haas, Dr. Phil., Privat-docent an der Universität Kiel. Mit 4 lithographirten tafeln. 4to. (Kiel: Lipsius und Tischer, 1884.)

THIS is one of the numerous works which have been published during the last half century on the fossil forms of Brachiopoda, that most ancient, abundant, and anomalous class of the Invertebrata. Dr. Davidson has devoted the greater part of a tolerably long life to the study of this exceedingly interesting group; and the volume of the Palaeontographical Society's publications for the present year will complete and close his valuable labours on the fossil Brachiopoda of Great Britain. He has kindly furnished me with the following critical notice of Dr. Haas's work, the title of which is above given:—

"Dr. Haas describes in his memoir some 40 species of

Liassic Brachiopoda, and of which number 12 are new. In four admirably drawn quarto plates he gives figures of 32 species. The Liassic Brachiopoda from South Tyrol and Venetia are very remarkable, and have in part been described and beautifully illustrated by Gemmellaro, Böckh, Uhlig, Meneghini, Canavari, Opper, Zittel, and Schmid; *Waldheimia perforata*, Picette, and *Spiriferina rostrata*, Schl., being the only species out of the number that occur in the Liassic rocks of Great Britain. Dr. Haas's work adds much to our knowledge with respect to the Liassic Brachiopoda, and his descriptions have been carefully drawn up. In 1881 and 1882 Dr. H. Haas and Dr. Camille Petri published a very important work, entitled 'Die Brachiopoden der Juraformation von Elsass-Lothringen,' accompanied by 18 beautifully drawn quarto plates. In this work the authors describe some 92 species from the Lias and Inferior Oolite, and of which a large proportion occur likewise in our British rocks. It is to be hoped that Dr. Haas will continue his valuable researches among the Brachiopoda."

"Non meus hic sermo!"

J. GWYN JEFFREYS

Tricycles of the Year 1884. By H. H. Griffin. (London: L. Upcott Gill, 1884.)

WHATEVER improvement in health and strength may have resulted from the now prevalent exercise of cycling, there seems to be a mental improvement, for a knowledge of the science of mechanics is more widely spread, or at any rate there is a more general desire to understand this science in so far as its application to the bicycle and tricycle is concerned. For this reason such a book as Mr. Griffin's "Tricycles of the Year" is likely to be of value, for in it he describes in simple language most of the tricycles which can now be obtained, giving particulars of dimensions and weight, and other information which a cyclist may require.

It is a pity that many well-known machines are not so much as mentioned, among which are the "Rudge," the "Cheylesmore," and the direct-action machines. Is it that there has been no improvement in any of these since last year? If so, why should the "Oarsman" be omitted or some others be described at length?

The good qualities and advantages of each machine are set forth plainly enough, while the defects are left to be discovered by riders. The author has no doubt acted wisely here; it would be next to impossible in dealing with such a multitude of often similar machines to make comparisons which cyclists who hold opposite opinions would not consider unfair.

The action of parts that are peculiar to any machine is carefully described, figures being inserted where necessary to make the text more comprehensible. The general appearance which many tricycles present is shown by a series of woodcuts.

Bicycles are not discussed, as they form the subject of a corresponding work. C. V. B.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

Chalk and the "Origin and Distribution of Deep-Sea Deposits"

I LOOKED forward with great interest to the conclusion of Messrs. Murray and Renard's "Origin and Distribution of Deep-Sea Deposits," hoping that some useful comparisons would