

presented to us in form so much like that in which they must have existed in his original note-books. The result is, that while the volume will be an invaluable handbook to every naturalist or archeologist visiting Malta, it will not prove very attractive in the general reader. As a guide to the natural history and pre-historic archeology of the Maltese Islands, it leaves little to be desired. The geology of the islands is fully described, and is illustrated by an excellent coloured map. The best localities for fossils are indicated, and there is a full account of the various and wonderful deposits which yielded to Captain Smeath and the author those wonderful relics of a by-gone age—the pigmy elephants, the hippopotamus, the great extinct oxen and fresh-water turtles, and the great dinosaurs. This assemblage of animals points unmistakably to the connection of what is now Malta with Africa, and indicates the existence of great rivers, marshy plains, and a luxuriant vegetation where there is now only bare rock, stunted shrubs, and burnt-up heath. These fossil elephants were determined by Dr. Falconer and Professor Huxley, from the remains sent home by Mr. Adams. The largest of these would have stood three feet high, for next under a foot, while the smallest was not more than a foot 4 inches to a foot 1. Yet these were undoubtedly adult animals, sufficient materials having been found in trace all the stages of growth of some of them. We have here a very striking exception to the rule of extinct being larger than existing species. There seems however to be still a little doubt about the specific distinctness of these three forms, for we are told that, "in every situation in which more than one individual was discovered, teeth and bones of the two larger species were found lying side by side, and, what is also of importance, and should be well borne in mind, there are several general characters as regards the *cranium* of the modern animals of all the Maltese elephant fossils." The dinosaurs was as much a giant as the elephants were dwarf, being as large as a squirrel; while the oxen and turtles were larger than any existing species.

We have also a very full account of the aspects of Malta at different seasons of the year, of the character of the vegetation, and of the birds (most of which are migratory), and of the few indigenous reptiles and mammals; while a complete list in glean of the insects, the birds, and the fishes, which have been just discovered. An interesting chapter is devoted to the great prehistoric megalithic temple at Hagar-Kim, with its strange pictorial ornamentation and carvings, and in the various churches, towers, rock-tombs, and other antiquities of the islands.

That part of the work which treats of the Nile is of much less interest, consisting of notes on such objects of natural history as were observed during a three months' tour, with the determination of some of the species represented in the Egyptian sculptures.

ALFRED R. WALLACE.

Flora of North China, Manchuria, and Eastern Mongolia; with some Account of Corea. By the Rev. Alexander Williams, B.A., Agent of the National Bible Society of Scotland. With Illustrations and two Maps. Tweedie. London: Smith, Elder, and Co., 1875.

MR. WILLIAMS travelled over an immense deal of ground, some of it quite new, and from his thorough knowledge of the Chinese language had great facilities in obtaining information. Yet for want of knowing how to ask and arrange his materials, and from a deficiency of literary taste and judgment, his book, though abounding in facts and containing much solid information, is very heavy reading. The best part of the work consists of a kind of prolix

account of Northern China, bristling with statistics and unappreciated details. Afterwards we have the journal of travels, crowded with the unimportant daily occurrences of such journeys, but entirely wanting in all those picturesque details and vivid pictures of Chinese life and character which gave such a charm to the pages of the *Alph. Hux.*

Our author has a high opinion of the Chinese nation, which he believes is destined to dominate the whole of Eastern Asia; and he altogether denies that they are less inclined than Europeans to advance and improve. Many of his readers will be surprised to learn what cordial work the English and American Protestant missionaries have done in making the Chinese acquainted with modern science and literature, by translating such works as *Euclid*, *Newton's Principia*, *Lacroix's Analytical Geometry and Differential*, *Ward's Natural History*, *Herschell's Astronomy*, *Whewell's Metaphysics*, *Whiston's Astronomical Lectures*, and others on almost every branch of modern science and European knowledge. And these works are so appreciated, and are in such demand, that the greater portion of them have been reprinted by Chinese of rank and position. Fire-engines, lithotomy, and vaccination have also been adopted in China; and the government have employed translators of works on engineering, metallurgy, chemistry, electricity, and all the arts connected with the manufacture of warlike implements.

Mr. Williamson has evidently been much influenced by long associations with an almost exclusively mercantile and naval European community, or he would hardly express the opinion (and support it on high moral grounds) that it is our duty to force a trade with Corea, even at the expense of a war. Notwithstanding the many defects of the book, the patient reader will find much curious information on the history, literature, and antiquities of China, and will obtain some notion of Chinese life, and of the scenery and antiquities of the northern provinces.

A. R. WALLACE.

Scientific Notes.

Physiology.

Velocity of Light.—Dr. J. J. Miller, physical assistant to Prof. Lasker, who in 1870 communicated to the Royal Society of Science an account of a new method of determining and measuring the increase of velocity of transmission of sparks, caused by an increase in their intensity, viz. by means of a modification of Wolff's spectroscopic figure in glass tubes, has lately been investigating the same phenomena in the case of light, and has come to similar conclusions, which he gives in the following abstract from the *Illustrated* of Feb. 11. The light used was that of a vapour ignited in a burner's burner. The light was split up by means of a prism, the spectrum obtained from which was allowed to fall upon a vertical screen. On the screen was a slit through which a single spectral line was allowed to pass. A real image of this line was cast, by means of a lens on the impregnation film of a small reflecting prism, which was placed in the focus of a cylindrical lens, through which lay an intermediate apparatus for measuring the actual range between this apparatus and the collimator lens, which gradually varied in length. In the first series of experiments made, a band of a sodium, lithium, or thallium salt was first held on the outside of the burner's flame, and then pushed into it, an increase of intensity in the light being thus obtained. It was found that when the band was pushed into the flame a movement of the Newton's ring was obtained, which showed an increase in the wave length of the light in question. This movement was partly due to a small increase in the mean refrangibility caused by an increase of the quantity of ignited vapour observed. Dr. Miller has found that when the amount of vapour is increased that there is a corresponding decrease and even two rays that have indistinguishable wave lengths have been separated in the case of the sodium, lithium, and thallium lines. Prof. Cotton has since succeeded in making the same observation in the case of the sodium line with a simple refracting spectrometer. These results are in agreement with the observations