portrayed with the arrows of a hunter in their sides, formed part of a ritual, and were meant to ensure a successful hunt." The incised sketches on bones found in the earth of the floor of the caves were probably in some cases the preliminary studies for the work on the walls and roof.

The volume is illustrated by forty-seven plates, of which we reproduce one (Fig. 1) showing a selection of incised drawings from the caves of Dordogne and Cantabria. All these plates are well described, but they would have proved more useful if they had been referred to in the text. In this and other respects, indeed, the editing of the volume leaves much to be desired, but the work is a unique addition to the literature of prehistoric archæology, and cannot fail soon to reach a second edition, which will afford an opportunity for some useful revision. A. S. W.

## The Science of Ancient Greece.

*The Legacy of Greece.* Edited by R. W. Livingstone. Pp. xii+424. (Oxford: Clarendon Press, 1921.) 7*s*. 6*d*. net.

THIS book redresses in a remarkable way the injustice done to Ancient Greece in most popular works on the subject. Reference to any short history now in use, such as Bury's, or even to such a fine work as "Hellenica" of the last generation, will show that the author finds "the legacy of Greece" in the city-founding activities of the Greeks, and, above all, in the internecine conflicts of the cities in their prime, with some short reference to the Periclean ideal and the philosophic differences of Plato and Aristotle. There is little about literature, less about art, and nothing at all about science. Mr. Livingstone, in planning this volume, has deliberately and rightly set himself to correct this and to put the really substantive achievement of the Greeks in the realm of thought in its due place. The result is that a good third of the book is given to science, and if we include Prof. Burnet's article on Philosophy, which shows its connection with science, we get a larger proportion still. It is most welcome evidence of a change of mind in the university which stands more than any other among us for Greek studies.

The effect is amazing to those accustomed to the old and mainly political outlook, and it will be very wholesome. We see that in every branch of science, in biology and medicine as much as in mathematics, the Greeks laid the foundations on which mankind has built ever since. Sir T. L. Heath well brings this out in his article on Mathematics and Astronomy, which is a complete review of the Greek work from Thales to Diophantus; while Dr. Singer is equally full on Biology and Medicine. The reader will probably share one impression which was borne in strongly on the present reviewer. The writers who describe the newly admitted branches of the legacy of Greece are so full of their subjects, and so eager to display their richness and wonders, that their essays suffer somewhat in comparison with those which deal more allusively with the more familiar topics. Hence the most readable papers, which leave the clearest impression, are Prof. Burnet's on Philosophy, Mr. Livingstone's on Literature, and Mr. Percy Gardiner's on "The Lamps of Greek Art." These are altogether admirable; the leading features are emphasised, and no attempt is made to be exhaustive.

But the fault—if it be a fault—in the essays on science is entirely in the right direction. We have here for the first time in a compendious form the main steps of the Greek construction in mathematics, astronomy, biology, and medicine, and the book is well worth buying for this part of it alone. A charming essay by Prof. D'Arcy Thompson on the Science of Aristotle adds to the attractiveness of the volume, but somewhat disturbs the balance of Dr. Singer's excellent articles on biology and medicine as a whole.

The supreme merit of the book is that it puts in unmistakable prominence the intellectual quality of the Greek mind in its prime, its desire to know, and its power of arranging the material it acquired in that connected form which we call scientific. This is equally salient on the mathematical and the biological side. Sir T. L. Heath shows us how the Greek philosophers had quite early hit on the fundamental equations in geometry; within the seven hundred years of their flourishing they had founded trigonometry through the necessities of their astronomy, anticipated the integral calculus by their method of exhaustions, and laid the basis of algebra in the first generalised notation of Diophantus. In the sciences of life Aristotle had given the first rational classification of living things and an incomparable mass of faithful and detailed description; while the sound principles of Hippocrates in the fifth century in tracing health and illness to natural causes were far in advance of medical theory and practice until the revival of science a thousand years later. It is by these achievements, more than by any other, that the Greeks still rule us from their tombs, and we are deeply grateful to Mr. Livingstone and his coadjutors for putting them in such a clear light without ignoring the due proportion of political theory, art, and psychological philosophy. The well-chosen illustrations add greatly to the value of the volume. F. S. MARVIN.