may be very early indeed. A brief mention of them would have been welcome.

The book is very interesting, deals with a little-known but important area, and the author is to be congratulated upon having tackled his subject in a systematic and scientific manner.

M. C. BURKITT.

Our Bookshelf.

The Whitworth Book. Prepared by the Whitworth Society (an Association of Whitworth Scholars, Exhibitioners, and Prizemen). Honorary Editor, Prof. David Allan Low. Pp. vii + 316. (London: Longmans, Green and Co., Ltd., 1926.) 10*s.* 6*d.* net.

THE career of Sir Joseph Whitworth, one of the greatest engineers of his time, is especially interesting, since he was the first man to grapple successfully with the problem of obtaining precision of workmanship and the standardisation of screw threads.

It is difficult to realise now that, when he began work rather more than one hundred years ago, it was exceptional to find men able to make parts of machines to an accuracy of one thirty-second of an inch. His epoch-making discovery of a method of making a true plane by a process of scraping and comparing three plates together made it at once possible for engineers to produce work of the utmost precision. This was followed by the manufacture of very accurate screws and the construction of workshop machines to measure lengths to one ten-thousandth of an inch. Indeed, Whitworth was successful in constructing a machine capable of detecting a difference of one millionth of an inch. His surface plates, gauges, and measuring machines soon became established in all engineering workshops and revolutionised their practice, while his machine tools were admittedly unsurpassed.

Although others had attempted the standardisation of screw threads, no one had been able to effect this until Whitworth took the matter in hand and, by adopting the best features of existing systems, brought about an agreement which has received world-wide recognition. In his later years Whitworth was equally successful in improving the manufacture of rifles, large calibre guns, and fluid-compressed steel.

Whitworth's practical mind also realised the necessity to the engineering industry of a continuous supply of young engineers who, in addition to workshop experience, were thoroughly conversant with applied science. Having acquired a large fortune in his manufacturing career, he was able to put his ideas into practice by setting aside £3000 a year for scholarships, and at his death £100,000 was handed over to the State to carry on the scheme associated with his name.

The Whitworth Book is the "Who's Who" of about one thousand Whitworth Scholars appointed under this munificent scheme: Its pages show how vast an effect this scheme has had on modern engineering in every direction of activity. Probably no engineering work of this great man has been more successful than this final one. The Whitworth Society, and especially the honorary editor, are to be congratulated on having produced a very interesting work of permanent value.

E. G. C.

History of the Sciences in Greco-Roman Antiquity. By Prof. Arnold Reymond. Translated by Ruth Gheury de Bray. Pp. x + 245. (London: Methuen and Co., Ltd., 1927.) 7*s.* 6*d.* net.

PROF. REYMOND begins his volume—the outcome of lectures before both science and arts students at Neuchâtel—by outlining the scientific attainments of the Egyptians and Chaldeans prior to the epoch with which he is mainly concerned. He divides the rest of the book into two parts.

Part I. gives a historical and biographical survey of the development of the sciences during the Hellenic (650–300 B.C.), Alexandrian (300 B.C.–A.D. 100), and Roman (A.D. 100–600) periods. Part II. deals with the principles and methods, and traces the development and characteristics of Greek mathematics and mechanics. The works of Euclid and Archimedes are ably discussed, especially from the point of view of their indebtedness to predecessors.

Whilst these sciences were well developed, others remained almost neglected. Chemical knowledge was practically confined to the preparation of a few salts, extraction of minerals, mixing of paints and concocting drugs. Medicine and surgery were, however, systematically practised and reached a high degree of perfection, as indicated by the comprehensive set of instruments discovered at Pompeii. Aristotle had established a scientific basis for natural history, introducing a classification founded largely on his own observations. His pupil, Theophrastus, catalogued more than 500 plants.

It may be noted how Greek science, first centred at Athens, finally flourished on the periphery of the Hellenic world, especially under the Ptolemies at Alexandria.

Prof. Reymond has dealt with every phase of the teachings of the different schools of the sciences in Greco-Roman antiquity, and students of the history of science will be grateful for this translation of his work. J. G. F. DRUCE.

Citrus Growing in South Africa. By R. A. Davis. Pp. 309. (Cape Town and Johannesburg: The Specialty Press of South Africa, Ltd.; London: L. Reeve and Co., Ltd.) 25*s.* net.

THIS work begins with a brief foreword by the author, in the course of which he suggests that the time appears to be favourable for the publication of such information as the book contains, because, he avers, "Citrus and, especially, Orange growing is 'booming,' and there are many thousands of new-comers to South Africa who are bent on Citrus culture as a means of livelihood." The introduction of citrus fruits into South Africa is