

ROBERTS-AUSTEN.

Roberts-Austen: a Record of his Work. Being a Selection of the Addresses and Metallurgical Papers, together with an Account of the Researches of Sir William Chandler Roberts-Austen. Compiled and edited by S. W. Smith. Pp. xii+382. (London: C. Griffin and Co., Ltd., 1914.) Price 21s. net.

IT is pleasant to see that one of Roberts-Austen's former assistants has been willing to devote himself to the preparation of this record of the work of the most distinguished metallurgical chemist of his day. It is pleasant, too, to find that the handsome volume which is the result of Mr. Smith's labour of love is a memorial in every way worthy of his old professor's fame. In well-chosen, felicitous language, Mr. Smith traces Sir William's career from his student days at the Royal School of Mines to his death at the age of fifty-nine, when he was still actively engaged in many directions. For the most part, however, the biographer leaves him to speak for himself.

A large part of the book is taken up with a reprint of lectures and addresses delivered to his students, to the British Association, to the Society of Arts at the Royal Institution, and as president of the Iron and Steel Institute. These addresses are the best expression of Roberts-Austen's personality. They reveal how very much "worth while" he found metallurgy to be. They show the enthusiasm with which he sought to open out ways for the escape of what he felt to be "imprisoned splendour." The papers giving the results of Roberts-Austen's own experimental researches have been usefully summarised by Mr. Smith, who has made their spirit live without encumbering his pages with details. No work has been entirely omitted. The record is complete.

Roberts-Austen's life was largely given to the Mint. As the assayer for more than thirty years, he was responsible for the accuracy of the composition of more than 150,000,000*l.* of gold and 31,000,000*l.* of silver coins. In his hands the scientific reputation of the Mint was maintained at a high level. He was also for many of these years the professor of metallurgy at the Royal School of Mines. His numerous researches on the properties of metals and alloys were so important as to obtain immediate recognition from the scientific world. His work on government committees was almost unceasing. If, however, an opinion may be expressed by one of his admirers, it is that he will be best remembered for the impetus which he gave to the scientific study of metals at a time when it was beginning to be understood that empiricism must give place to system even in metallurgy. If the metallurgical

industries are paying more and more attention to the need of applying scientific principles in their practice, the movement is largely due to Roberts-Austen's initiative and enthusiasm.

T. K. ROSE.

NEW BOOKS ON CHEMISTRY.

- (1) *Outlines of Theoretical Chemistry.* By Prof. F. H. Getman. Pp. xi+467. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1913.) Price 15s. net.
- (2) *A New Era in Chemistry.* By H. C. Jones. Pp. xii+326. (London: Constable and Co., Ltd., 1913.) Price 8s. 6d. net.
- (3) *The Progress of Scientific Chemistry in our own Times, with Biographical Notices.* By Sir William A. Tilden. Second edition. Pp. xii+366. (London: Longmans, Green and Co., 1913.) Price 7s. 6d. net.

(1) **A**S an introduction to the study of physical chemistry Prof. Getman's "Outlines" may be warmly recommended. It follows the usual order and arrangement of such subjects, dealing mainly with the physical properties of substances. It is carefully and clearly written, and most of the subjects are treated in a sufficiently simple fashion to enable a student who has completed an elementary course on chemistry to understand them without difficulty. The only question which has arisen in reading the book is whether the very brief and necessarily superficial accounts which are given of some of the topics are worth the space devoted to them. It is not merely that the account is incomplete; it has no beginning, and leads nowhere. It conveys as much information as a worn strip of ground to the lost traveller who is doubtful whether it is a pathway or not. We refer more particularly to the discussion of the properties of liquids, such as molecular volume, refraction, magnetic rotation, and so forth. The reply might, of course, be made that it is better for a student to know of the existence of such properties, even if they tell him little or nothing, than to remain entirely ignorant of them; but in a small book like this (which, by the way, seems very expensive for its size) we are of opinion that the space might be better utilised. One excellent feature of the volume is the set of problems introduced at the end of each chapter.

(2) The title of Mr. H. C. Jones's book, "A New Era in Chemistry," seemed to promise attractive reading; but we must confess that the promise has not been fulfilled. The book, which covers a period from 1887 to the present time, is partly historical, partly explanatory, and partly philosophical. The year 1887 is selected as mark-