evidently wishes to induce vital statisticians to examine them, for he says:

"The supposition that rates, based on the registration of individuals, possess the precision which would be appropriate if all the individuals could be regarded as independent in their sociological reactions, is clearly inappropriate when we are interested in the effects on these reactions of economic or legislative causes, or other agencies derived from social organisation, liable to affect large numbers of individuals in a similar manner. The effective samples available for administrative decisions, even though based ultimately on millions of individual persons, are often much smaller than those available in biological experimentation and, for this reason, require even more than the latter, the accurate methods by which small samples may be interpreted."

J. O. I.

A Pioneer in Illumination

Auer von Welsbach

Von Dr. Franz Sedlacek. (Österreichisches Forschungsinstitut für Geschichte der Technik in Wien: Blätter für Geschichte der Technik, Heft 2.) Pp. viii+85. (Wien: Julius Springer, 1934.) 3.60 gold marks.

ALL interested in the advance, during the last fifty years, of the industry of illumination, will read with pleasure this short biography of Auer von Welsbach, the well-known pioneer in this field, issued by the "Austrian Institute for Research on the History of Technology". The development of the three important discoveries of Auer, the 'Welsbach mantle' for gas light, the osmium wire electric lamp, and the cerium-iron-alloy gas-lighter, is ably traced, and includes valuable chapters on the historical background.

Comparatively little space is devoted to the personality of Auer, but sufficient to give an impression of his originality. That so few people had an opportunity of meeting him—the author does not seem to have been amongst them—was largely due to Auer's deafness, which induced him to spend his later years almost exclusively at his home in Caranthia; here, amidst the forests of the Alps, in a well-equipped laboratory, he devoted his time literally up to the last days of his life to the study of the rare earths, a field in which his scientific achievements were not less outstanding than his practical discoveries in the technique of illumination. It is sufficient to mention here his separation of didymium into praseodymium (element 59) and neodymium (element 60), and his discovery of cassiopeium (element 71), two years before the same element was called lutecium. Science is indebted to him also for the generosity with which he put the rarest of the rare earths, prepared by him in painstaking crystallisations lasting over years, at the disposal of other workers. Even nowadays, six years after his death, the superior purity of his material as compared with rare earths from other sources has proved to be a decisive factor in studies on the effects of neutron bombardment (NATURE, 136, 102 and 103; 1935).

The author mentions that in England and in the United States the name 'Welsbach' is preferred to 'Auer' on account of the difficulty of pronouncing the latter. But surely only the orthography and not the sound proves the stumbling block, for the simple English word 'hour' is pronounced in precisely identical fashion. (Actually it is much more difficult for Englishmen to say 'Welsbach' correctly.) After all, Auer is the family name, von Welsbach only a titular territorial distinction, used in Austria as a formal address in combination with Auer (cf. Rutherford of Nelson), but never as an independent name.

F. A. P.

Antoine Lavoisier: the Father of Modern Chemistry

By Dr. Douglas McKie. Pp. 303+3 plates. (London: Victor Gollancz, Ltd., 1935.) 10*s*. 6*d*. net.

DR. MCKIE has put together the already known chief data of Lavoisier's life and researches, and has duly taken advantage of the recent additions to our understanding which are due to the late Dr. A. N. Meldrum. It is very convenient to have so much material brought systematically into one volume, and Dr. McKie's framework and running comments are serviceable and judicious. He expands interestingly some of the less familiar investigations. His many quotations from the source-books are well balanced; they are translations into English, which is probably an advantage here, as it will ensure that the reader and the author are considering identical data; and the references are given. Trouble is taken to display for the uninitiated a background of chemistry as Lavoisier found it, and to portray concurrent advances.

I. M.