

electricity and magnetism, covers Maxwell's laws and the magneton, and is succeeded by light, where, unlike in the case of the other subjects, elementary matter is omitted, but which in twenty-seven pages manages to range from Newton's spectrum, over the wave and corpuscular theories, to the ether, the interferometer and the Michelson-Morley experiment. The final section, on the electrical structure of matter, and the new physics, is perhaps the most ambitious in its comprehensiveness, for here the ramifications of the quantum theory are enlarged upon, with the addition, among others, of paragraphs on the Zeeman and Compton effects, artificial transmutation, neutrons, cosmic rays and wave mechanics and its developments. A complete enumeration would, in fact cover almost every field of modern physical research. A detailed bibliography of works for subsequent reading is appended. Apart from some Wilson cloud-track photographs, and in particular, excellent ones in connexion with the most recent work on disintegration and the neutron, the book is illustrated only by

a sparse selection of conventional line diagrams.

It is undeniable that the authors have accomplished a remarkable undertaking. The text is thoroughly up-to-date, and readable in style, while the absence of heavy mathematics must commend the book to a wide circle. On the other hand, of course, the immense range attempted has necessarily restricted to a minimum the information on any given topic. The difficulty is to estimate the probable effect of a study of a work of this class on any particular type of reader. The person who wanted to know "a little about everything" would undoubtedly feel he was ideally served; the lay reader would probably be unequal to the task of orientating his mind to get a true perspective of modern science, although he could not fail to gain much useful information; the general scientific man might feel that he had been provided with a readily digestible refresher course, and the expert that the complex picture of contemporary science had been considerably clarified.

N. M. BUGH.

Short Reviews

Handbuch der Biochemie des Menschen und der Tiere. Herausgegeben von Prof. Dr. Carl Oppenheimer, Zweite Auflage. Ergänzungswerk. Band 1, Halbband 1. Pp. xv + 598. Band 1, Halbband 2. Pp. xv + 601-1154. (Jena: Gustav Fischer, 1933.) 74 gold marks.

THESE volumes are of the kind that fill the user with awe-inspired gratitude and the reviewer with awe-inspired terror. That is to say, they are compilations exemplifying to the highest degree German thoroughness in surveying and abstracting literature.

The two volumes before us actually constitute two half volumes of a single volume; they run to 1154 pages altogether, of which the last 24 are devoted to a subject index. The double volume constitutes a supplementary volume to volumes 1, 2 and 3 of the second edition of the "Handbuch", published some eight to ten years ago. Presumably volumes 4-10 of the "Handbuch" will require at least another two supplementary double volumes also.

Even those who have some conception of the rapid strides made in biochemistry during the last decade must be astonished at the extent of the work done, as indicated by the scope of these supplementary volumes. A list of those who have collaborated in their production with Dr. Carl Oppenheimer, the editor, is sufficient guarantee of their adequacy in carrying out his ambitious purpose, which is to bring the original "Handbuch" so far as possible up to date at the end of 1932.

The names of Profs. Abderhalden, Baudisch, Butenandt, Hoppe-Seyler, Krebs, Pringsheim, to take a half-dozen at random, make further recommendation supererogatory. It should be sufficient to say that the three original volumes of the work, to which these two volumes are supplementary, cover the building materials of animal tissues, the biochemistry of the cell, and the field of general immunological chemistry. This supplementary volume is indispensable to those who possess the main work, and will also be of great value to those who are not so lucky.

A. L. B.

The Romance of Research. By L. V. Redman and A. V. H. Mory. (A Century of Progress Series.) Pp. x + 149. (Baltimore, Md.: The Williams and Wilkins Co.; London: Baillière, Tindall and Cox, 1933.) 5s.

THIS book depicts, in concise yet lucid and felicitous terms, "the viewpoint of research and something of its methods, its developments, and its achievements". The man of science and the technologist, no less than the thinking layman, will find much that will interest them; but to no one will it make a stronger appeal than the research student, especially the young investigator who is on the threshold of an industrial career.

Notwithstanding the small compass of the book, the authors have succeeded in presenting a delightful sketch of the progress of research in many branches of biological and physical science, in showing how the community has benefited from