

The treatment in the second work, "Properties of Metals at Elevated Temperatures", differs considerably, in that almost half of the book is devoted to a more-or-less fundamental discussion of plastic deformation in general, both in single and polycrystalline material. A not inconsiderable proportion of this is concerned with room-temperature properties and behaviour, although the effects of higher temperatures do come in for consideration. This section provides an admirable introduction to the mechanical properties of metals, but appears, in places at any rate, to have no very direct connexion with the real subject of the book. Following this introduction is a chapter on high-temperature tests and the equipment employed, after which are discussed the effects of chemical composition on creep behaviour, of manufacturing variables, varying temperature and load, scaling and microstructural changes at high temperatures—the latter particularly dealing with the stainless steels—and a final chapter on design for service at elevated temperatures. A most useful series of nearly five hundred references to original work is given, and an appendix deals with "super-alloys", that is, materials with the highest (as yet) available strength at elevated temperatures. A very great deal of work has gone into the preparation of this most useful account, which has the added advantage that it provides a satisfactory summary of work done throughout the world, and not only in the United States.

Both these volumes can be recommended to the attention of all metallurgists and engineers who are concerned with the mechanical behaviour of materials at temperatures either below or above the normal.

F. C. THOMPSON

## ELECTRONIC DEVICES

### Voltage Stabilizers

By F. A. Benson. Pp. 125. (London: Electronic Engineering, 1950.) 12s. 6d.

### The Industrial Applications of Gasfilled Triodes (Thyratrons)

By R. C. Walker. Pp. xi+325. (London: Chapman and Hall, Ltd., 1950.) 40s. net.

THE use of electronic devices in instruments and machinery of all kinds is becoming ever more widespread, both in industry and in the laboratory. Such apparatus is often designed by those who have only a very general training in electronics, and there is thus a great need for monographs on specialized applications to which one can turn for a more detailed description than can be found in general text-books, all the more so since the published literature covers a wide range of scientific and technical journals. Such monographs fall naturally into two classes: those which describe the different types of circuits devised to perform similar functions, and those which describe the different applications of a given circuit element.

"Voltage Stabilizers", which is based on the author's recent series of articles in *Electronic Engineering*, falls into the first of these two classes. In addition to dealing with the conventional types of a.c. and d.c. stabilizing circuits embodying saturated-core transformers, glow tubes and hard-valve circuits, some of the newer and less orthodox non-linear circuit-elements are briefly treated. I found the chapter on glow-discharge tubes particularly valuable, since a large amount of data on the stability of different British and American tube-types is collected here.

"The Industrial Applications of Gasfilled Triodes" is the latest of Walker's monographs and deals with the many different applications, not only of thyratrons but also of other grid-controlled gas-filled tubes. Like the author's two previous volumes, it should prove useful in suggesting ways in which problems of automatic control and measurements can be solved. It is a pity that the relatively high price may keep this book away from many laboratory bookshelves.

An important feature of monographs is necessarily an extensive bibliography, and both books are well served in this respect, although in "Voltage Stabilizers" one would have appreciated a classification of the references given at the end of the book.

U. W. ARNDT

## PASTEUR

### Louis Pasteur, Free Lance of Science

By René J. Dubos. Pp. vii+418. (London: Victor Gollancz, Ltd., 1951.) 18s. net.

DR. RENÉ DUBOS is already well known to scientific men as the author of two valuable books, namely, "The Bacterial Cell" and "Bacterial and Mycotic Infections in Man". He has now written a book which has a much wider appeal and will be enjoyed by all who are interested in biological science and its development. No new information about Pasteur or his work has recently come to light; but it is interesting to have a book about a great man of science, written after a considerable period of time has elapsed since his death, so that his influence upon progress can be critically examined.

Dr. Dubos is a Frenchman who is engaged in bacteriological research, and is especially well fitted to write about Pasteur's life and work. There is a vitality and enthusiasm in the presentation which suggests that as he studied the information existing about Pasteur, he was caught by the brilliance and importance of Pasteur's achievements, and could not rest until he had set down the whole story as he saw it and as he thought it should be told. It is not a simple biography, for it deals with the historical background which made Pasteur's discoveries possible, and with the philosophical implications of Pasteur's pronouncements. It is the work of a critical man of science who wishes to appraise correctly the scientific value of a man's work, and to try to discover whether his successes were due to the times as much as to the man, and if more to the man, to what especial characteristics.

This approach has resulted in a very interesting book which will not only be appreciated by scientific men, but also by the growing number of individuals who are to-day interested in scientific discovery, in how it comes about, and how it affects the life of the community.

The broad outlines of Pasteur's life and work are probably known to many, and the use of words such as 'vaccines' and 'pasteurization' keeps him always in mind. The historical background of the times in which he worked, and the intensity of purpose, hard work and self-denial which he had to exercise in order to overcome the many difficulties and to achieve success, may well be forgotten. All is clearly set down, and the greatness of Pasteur is vividly brought home to the reader.

It is a book which can be read and re-read with enjoyment and profit.