

The Brittle Fracture of Steel

By Dr. W. D. Biggs. Pp. xxvi+420. (London: Macdonald and Evans, Ltd., 1960.) 70s. net.

IN this book the author gives a very thorough account of all the factors related to the brittle fracture of structural steel. Thus he details a vast amount of accumulated knowledge on deformation and fracture, and discusses service and design aspects as well as methods of testing and the effect of metallurgical variables on behaviour. In addition, he deals with the relation between welding and brittle fracture, and the significance of residual stresses. Although cast irons are briefly mentioned, the coverage on steel does not extend to alloy steels as such.

The text is authoritative and comprehensive. However, as a result of the wide treatment the book does not readily yield a concise overall picture. The diffuseness is increased by the fact that in places the style is rather involved. This tendency is most noticeable when the author is generalizing rather than when he is giving specific information. There is indeed a useful summary chapter of fourteen pages, but it would have been better if this had been subtitled and set down in a crisper style.

In conclusion, it must be emphasized that this is a sound and informed book providing a thorough development of the subject-matter, and in this respect it deserves recognition as a valuable reference work. Regarding the style, the remarks here of course merely indicate my own reaction. Nevertheless, it does seem that the book would have been much easier to assimilate had the author cut through the subject in a more incisive manner.

A. R. BAILEY

Proceedings of the Fourth International Conference on Ionization Phenomena in Gases

Uppsala, 17-21 August, 1959. Edited by N. Robert Nilsson. (Series in Physics.) Vol. 1: Pp. xii+552. Vol. 2: Pp. viii+553-1210. (Amsterdam: North-Holland Publishing Company, 1960.) £12 6s. 0d. the two volumes.

THESE two volumes contain the majority of the 250 papers which were read at the conference by scientists actively engaged in the field of ionization physics in twenty-one countries throughout the world. The papers, by far the greater number of which are in English, cover a very wide range of topics, but they have been conveniently grouped so that Volume 1 contains those concerned with fundamental ionization processes and various types of gas discharges, and Volume 2 those dealing with various aspects of plasma physics. (More detailed information about the topics discussed under these general headings was given in a recent report on the conference¹.) It would have been helpful to the reader if the review papers, given to the plenary sessions of the conference, could have been distinguished in some way from the more detailed papers read to the four parallel sessions into which the conference was divided for much of the time. It is also a pity that the often lively and informative discussion of the papers had to be omitted for reasons of space. These, however, are minor criticisms, and both the editor and publishers are to be congratulated on providing such a very well-produced record of this important and extremely well-organized conference. All those with an interest in this field

of work will wish to have ready access to these volumes in their departmental library, even if the inevitably high price precludes them from owning their own personal copies.

J. DUTTON

¹ Dutton, J., Harecombe, D., and Jones, E., *Nature*, **184**, 1353 (1959).

Determination of the Mechanical and Technological Properties of Metals

By B. M. Gliner. Translated from the Russian. 2nd edition. Translation Editor: E. Bishop. Pp. ix+160. (London and New York: Pergamon Press, 1960.) 50s. net.

THIS book gives a useful résumé of Russian mechanical testing methods. On the assumption that it contains a reasonably modern exposition (no date is given in the translated preface) of the varied techniques, it reveals no startling divergences from Western practice, although there are two unusual features that are mentioned.

One of these features is the use of ring and splitting test pieces, for testing under short-time transverse tension, at room temperature, and transverse creep tension, at elevated temperature, respectively. It is not made clear why, or on what scale, such test pieces are used, or what information, other than an empirical guide to design, is gained from the tests.

The other unusual feature is the use of a triangular pyramid indenter for micro-hardness testing. It is difficult to see what particular advantage is gained by this form of indenter, other than to average out directionality effects in the material.

A statement is made (on page 14) that load measurement is most accurately achieved by means of a pendulum lever mechanism. This will certainly be questioned by Western manufacturers unless it is taken as a reflexion on Russian machine construction methods.

There are one or two minor errors to be found; for example, Fig. 61(b) is incorrect.

If the translation were less literal then the book would be easier to read. For example, on p. 16, "jockey" would read better than "trolley", on p. 17, "drum" would be better than "box", and "I-section" would be better than "Type 1", and on p. 93, "disk" is preferable to "shaft".

JAMES G. TWEEDDALE

Practical Heredity with *Drosophila*

By Dr. Gordon Haskell. Pp. xii+124. (Edinburgh and London: Oliver and Boyd, Ltd., 1961.) 10s. 6d. net.

IT is surprising that this useful little book has not been written before. Elementary practical genetics is studied in many schools and colleges, and, because of inexperience of the manipulators, many breeding errors occur which could have been avoided. Haskell's book provides valuable hints on the means of obtaining and rearing pure stocks of *Drosophila*, the apparatus required to do this and the right ways to use it, the selection of suitable mutants to demonstrate genetic principles, statistical tests for evaluation, the cytology of *Drosophila* and an introduction to biometrical investigation. Many workers using *Drosophila* who have tried in vain to mate already pregnant females will be glad of all the practical help which Haskell has compressed into quite a short space.

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