Elementary Structural Analysis and Design

Steel, Timber and Reinforced Concrete. By Dr. Linton E. Grinter. Pp. xiii+383. (New York: The Macmillan Company, 1942.) 18*s*. net.

THEORY of structures is, by general consent, a necessary subject in the curriculum of the engineering student; there is, however, considerable divergence of opinion as to the extent to which it should be supplemented by the study of design. The reason is clear: successful design calls for far more than the student can acquire within the university. There is, however, real value in giving him some training in the technique of design, and Dr. Grinter is to be congratulated on the admirable way he has presented this difficult subject.

Only the simplest basic theory is used; for example, redundant structures are reduced to statically soluble cases by suitable simplifications, and the actual numerical calculations are, therefore, easy. One of the most attractive features is the series of design sheets which so fully illustrate the book and which teach the student, by example, the importance of a logical and neat lay-out of calculations. The contents include excellent chapters on welded construction and on construction in timber, in addition to the more usual subjects.

The author naturally deals with American practice, and in a few instances the British student will observe differences; for example, a reversal of the conventional signs for bending moments and shearing forces and the fact that the Perry-Robertson strut formula, so widely used in Britain, is replaced by the secant formula. These and differences in detail design, however, add to the interest.

The book is clearly and attractively written and can be thoroughly recommended to any student as complementary to his study of theoretical structures. He is difficult to please if he does not read it with enjoyment as well as benefit.

A. J. S. PIPPARD.

An Introduction to the Modern Theory of Valency

By Dr. J. C. Speakman. Second edition. Pp. 159. (London: Edward Arnold and Co., 1943.) 5*s*. 6*d*. net.

IN this book the author conducts his readers carefully and pleasantly through the complex maze of valency problems. Particularly valuable, in the reviewer's opinion, is the discussion of polar and non-polar compounds in Chapter 9 in terms of characteristic properties like dielectric constants, association and so forth. A very fair and reasonable balance is held between the views of the leading authorities, and thus the student is encouraged to use his analytic and critical faculties as his own knowledge progresses.

So far so good. But the fact has to be faced sooner or later (and that it is not faced here and now is by no means Dr. Speakman's fault) that a real comprehension of the *modern theory* of valency demands mathematical ability and equipment of an order probably altogether different from that envisaged in the average physico-chemical laboratory. It is thus just worth pondering whether 'descriptive' books on the subject are wholly justified these days. If they are, the present one is an excellent example of what can be done. On the other hand, there seems a certain awareness in these pages that all is not plain sailing: maybe a mathematical appendix to help bridge the gap and point out the heights beyond might remove some heart-searchings on this score.

F. IAN G. RAWLINS.

School Physics

By T. M. Yarwood. Part 1. Pp. xii+366. (London: Macmillan and Co., Ltd., 1943.) 5*s*.

THIS book contains the work for the first two years of a four-year concentric course in physics up to School Certificate standard. The remaining two years' work is to be dealt with in a second volume.

Although there are many books already available which fulfil the same purpose, this one will have a good reception. There is nothing new in the presentation of the principles; its difference lies in the many descriptions of modern appliances and the references to the applications of physics in everyday life. Many of these are too complicated for the younger boy but, as the author points out, much can be omitted from the first reading and left until the School Certificate year, when both Parts I and II should be used.

The book is attractive. It is well set out and has an abundance of good diagrams. The modern applications will appeal to the boy and, what is of paramount importance, attract him to read the book out-of-school. There are many references to aeronautics, and war-time publication is marked by the inclusion of descriptions of modern creations such as the barrage balloon.

The style is good, but a boy of eleven may find the language a little too difficult. The examples, which are collected at the back, are not very numerous but nevertheless sufficient. It is disappointing that the few extra topics required for the physics section of the General Science syllabus are not included, for, with such additions, the book would have the much wider appeal it justly deserves.

On Pseudohypertrophic and Allied Types of Progressive Muscular Dystrophy

By Julia Bell. (Being Part 4 of Vol. 4, "Nervous Diseases and Muscular Dystrophies", of "The Treasury of Human Inheritance".) Pp. iv+283–342+plates 33–44. (Cambridge: At the University Press, 1943.) 12*s*. 6*d*. net.

DR. JULIA BELL has contributed a useful monograph on muscular dystrophy in man to "The Treasury of Human Inheritance" series. Clinical and genetical data from more than 1,300 individuals exhibiting this distressing abnormality are analysed in regard to mode of inheritance, prognosis, symptoms, fertility and time of onset. She divides the clinical types into three groups but points out that intergrading may occur. Each group on the whole persists in one family and is partly related to one of three genes which behave as dominant, recessive or sex-linked respectively. Several problems relating to development and transmission of the abnormality are discussed.

Dr. Bell points out that if 140 individuals had abstained from parenthood, there would have been a reduction of 468 dystrophic and 1,195 apparently normal individuals. Of these the members of the dominant gene group live long and may produce a proportionately large number of dystrophic and normal non-carrier individuals, while the affected members of the sex-linked group have a short life and will not affect the future generations to any great extent. The publication of such analytical resumes as this by Dr. Bell is of great value to science and medicine.

F. W. SANSOME.