

principles are here given a special emphasis by an author who has established a position of authority on the structure of rocks with special regard to road stone and aggregates, which forms one of the most important industrial applications of that knowledge.

Road-making to-day consists as to 99 per cent of various processes for the combination of road aggregates with a binding agent into a homogeneous structure. The binding agent and therefore the product respond to certain physical laws, but the value of the aggregate has to be appraised in terms of size, shape, toughness, proportions, texture and ability to amalgamate with binder, etc.

A fuller appreciation of these important and related factors is becoming increasingly more widely recognized, and the present volume is a most timely addition to the literature at a period when road policy and expenditure has attained a breadth and sweep never before exceeded. The subject has been carefully prepared, both in scope and treatment, by one who plainly embodies his own knowledge and practice, and the discussion and orderly presentation of the material at his disposal will make the volume of special use and acceptability to highway engineers.

The author has clearly set out a technique for the estimation and measurement of quality in these materials required to form the rock framework of modern road structures, whether assembled as concrete, asphalt, tarmacadam or just stone, and the structural considerations of rocks and the tests of their properties is well emphasized.

The work therefore merits the highest praise, that is to say, it will be of real service and guidance to all engineers responsible for expenditure on those works which have to be created to sustain the stress of modern road traffic.

R. G. H. CLEMENTS.

#### Heat for Advanced Students

By the late Edwin Edser. Revised edition by N. M. Bligh. Pp. x+487. (London: Macmillan and Co., Ltd., 1936.) 6s.

EDSER'S "Heat for Advanced Students" has been familiar to successive student generations in schools and colleges since it was first published in 1899. The essential character of the book is retained in this revised edition, prepared by Mr. N. M. Bligh after the death of Mr. Edwin Edser in 1932. The methods of the calculus have now been introduced, resulting in more concise treatment, and the term calorie, in conformity with present usage, replaces the therm previously used in the same sense. Recent developments of the subject have been described, and the chapter on radiation has been rewritten so that it now includes a simple introduction to the quantum theory. In its revised form, the book should make a fresh appeal to teachers and students.

#### Sacrifice to Attis:

a Study of Sex and Civilisation. By Dr. William A. Brend. Pp. v+350. (London: William Heinemann, Ltd., 1936.) 10s. 6d. net.

THE author directs attention to the menace of the falling birth-rate in Britain, and laments it. He refers to an article of his written in 1915 in which he says that "we may eventually see the Slav races increased relatively in such enormous proportion that they may come to dominate all Europe". Obviously the race of armament is of no matter; we must start a fierce race to have the highest birth-rate in Europe and so swamp the Slavs by sheer numbers! The author would include many of the psychoses and epilepsy as explainable on the grounds of repression and other psycho-analytic mechanisms. We would be interested to hear the results of treatment of these conditions on psycho-analytic lines. We have seen little good result in these psychoses. It is easy to advance theories but so difficult to convince scientifically minded people.

#### Essential Traits of Mental Life

By Truman L. Kelley. (Harvard Studies in Education, Vol. 26.) Pp. viii+145. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1935.) 11s. 6d. net.

PROF. KELLEY gives as the sub-title of the little book under notice, "the Purposes and Principles underlying the Selection and the Measurement of Independent Mental Factors, together with Computational Tables". He presents a new method of factorization which certainly appears simpler than that of Hotelling's method of analysis. He compares the work of Brown and Stephenson, of Tyner, of Godfrey Thomson, with Spearman. We cannot agree with the statement that "the line of argument . . . is so simple that the meaning of what is accomplished should be clear to the student familiar with the most elementary mathematics". The mathematics involved are by no means elementary. The author provides us with an analysis of the vocational groups in the United States.

#### An Elementary Survey of Modern Physics

By Prof. G. F. Hull. Pp. xxiv+457. (New York: The Macmillan Co., 1936.) 20s. net.

PROF. HULL has written a most interesting volume giving an account of modern physics suitable for an American college student in his second year. He has been successful in providing a book of an elementary character which may be recommended to other readers wishing for an up-to-date account of recent marvellous developments. It is not a 'popular' book in the sense that mathematical operations have been avoided altogether, but the mathematical difficulties have been reduced to a minimum. The properties of atoms, electrons and photons, and the relations between them are described in a stimulating way. Such subjects as cosmic rays and transmutation of the elements, and even such abstruse questions as the Schrödinger equation and the uncertainty principle are dealt with.