

## Compression Ignition Engines

### (1) High Speed Diesel Engines :

with Special Reference to Automobile and Aircraft Types ; an Elementary Textbook for Engineers, Students and Operators. By Arthur W. Judge. Second edition, revised and enlarged. Pp. xi + 347 + 41 plates. 15s. net.

### (2) Maintenance of High Speed Diesel Engines :

a Practical Handbook for Diesel Engine Fleet Owners, Maintenance Engineers, Operators, Drivers and Mechanics. By Arthur W. Judge. Pp. vi + 192 + 32 plates. 10s. 6d. net.

(London : Chapman and Hall, Ltd., 1935-36.)

(1) **T**HAT a second edition of this book should be called for within two years is a tribute alike to the widespread interest in the subject and to the manner in which Mr. Judge has dealt with it. No doubt most of its readers are interested principally in the application of the compression ignition engine to road vehicles and in a lesser degree to the more difficult field of air transport.

The rate of growth of road usage has been remarkable, as the London streets alone bear witness ; but the prospect of there being produced an attractive engine for aircraft operation is still one of 'Jam to-morrow' rather than of anything more immediate. Reliability for road usage has been achieved ; but the pursuit of this elusive quality for engines with the lighter scantlings necessary for aircraft has proved arduous. So far, the undoubted merit of freedom from the worse forms of fire risk has been balanced, and rather more than balanced, by the disadvantages of greater weight and less dependability. Indeed, reasonable

freedom from forced landings is an essential to any air service which depends on the patronage of the public ; whilst for military use the petrol engine gains greatly in any comparison by its lighter weight.

One of the virtues of the compression ignition engine is always held to be the freedom it gives from all the complications attendant on the electric ignition system but, as Mr. Judge's pages bear witness, the alternative complications of fuel pump and fuel piping show that there is little to be gained by this exchange.

In the large-scale use for motor transport, there has been shown to be a large saving in fuel costs, and, in Mr. Judge's view, even the present fuel tax will not cause this to disappear. The general utility of the engine in this field, where high crank-shaft speeds are essential, has been won in no small measure by attention to the production of turbulence in the air close to the fuel inlets. The bearing, on this factor, of ingenuity in cylinder head design is fully brought out by the author.

The book is very practical, and it will find many engineers who will value its possession as a really up-to-date guide on a subject which such a vast number of them have to deal with in their daily work. It is true that it is a compilation of work done by others rather than an exposition by a master, but the latter it does not profess to be.

(2) Mr. Judge's second volume relates solely to care and maintenance, and does not call for special remark. It appears to be a thorough compendium of useful experience and practical hints. It will no doubt find its circle of readers.

### Down to Earth :

an Introduction to Geology. By Carey Croneis and William C. Krumbein. Pp. xviii + 501 + 64 plates. (Chicago : University of Chicago Press ; London : Cambridge University Press, 1936.) 17s. 6d. net.

It is unusual, in Great Britain at all events, to find a book of elementary science enlivened with facetious illustrations. Such, however, is the case in "Down to Earth", a volume of nearly five hundred pages by Croneis and Krumbein, published by the University of Chicago Press. There is a large number of figures of which one may be cited as a sample of many. It is entitled "Earth has not yet answered the question of her origin" and Earth is represented as a girl in a straw hat, short skirt and apron scratching her head, and is being pointed at by three stars in

top hats and walking sticks. In addition to the many figures there are sixty-three plates which at first sight look as if they had been taken from some weekly illustrated magazine. Yet the book is a very good one. The plates, each one made up of several good photographs on occasions diagrams, convey a great deal of sound information on various aspects of geology, palaeontology and their applications to modern life. Not all the text figures are humorous ; many are the more usual form of diagrammatic illustration, portraits or reproductions of historical medieval text figures. The text is good and conveys a great deal of information. A school boy or girl might perhaps be attracted by the lighter aspects of the volume to absorb the more solid parts, which in fact form the larger part of the work.