SCIENTIFIC BOOKS

HYDRAULICS

Hydraulics. By GEORGE E. RUSSELL. 5th edition. 468 pp. New York: Henry Holt and Company. 1942.

THIS book is the fifth in descent from a first edition published in 1909. Originally intended to serve as a short elementary text for classroom use, it has grown, through successive editions and two rewritings in large part, to the much more ambitious treatment represented by the present edition. The treatment is presented under fifteen chapters, of which ten deal with the more immediate aspects of the properties and behavior of liquids both at rest and in motion in channels with solid boundaries. The remaining five chapters deal with hydraulic machinery, implying the joint movement of liquids (water usually) and solid boundaries; and involving transfers of energy between the two members of the combination—typically, turbines and pumps.

Although the text is mainly devoted to hydraulics in its literal sense, treatment covering other liquids with high viscosity, such as petroleum oils, and also compressible fluids—gases and vapors—is given to an extent sufficient to enable the student to solve the simpler problems involving such fluids, and also to grasp the essential identity of the basic principles of fluid mechanics in its broader aspects. The five chapters on hydraulic machinery are intended to bring the book into step with modern practice.

The treatment in the first ten chapters is clear, well presented and does not call for mathematical preparation, beyond the simplest applications of the calculus. This self-imposed limitation is something of a handicap in the treatment of certain of the topics, but the treatment thus simplified facilitates the introduction of the student to the subject at an earlier date than under a condition of more rigorous and general treatment.

The chapters on hydraulic machinery present a well-organized elementary treatment of the principles involved, both geometrical and dynamic, with numerous illustrations drawn from recent practice in this field.

The text is well illustrated with 248 figures in the text, of which a number, especially in the chapter on hydraulic machinery, are half tones. There are also some 31 tables giving values of coefficients, etc., together with tables of natural trigonometric functions in the appendix. Most of the chapters are followed by an extended collection of problems illustrative of the subject-matter of the chapter, and aggregating 302 for the book as a whole. There are likewise appended to the subject-matter of the various chapters 76 classified bibliographic references. An appendix gives a brief and elementary discussion of the free vortex, and an explanation of the English and Metric systems of measurement.

The topics chosen for treatment are well selected, the arrangement appears logical, the treatment is clear and sound, and altogether the book should be welcomed as a definite contribution to the field of textbook literature of this subject-matter.

W. F. DURAND

HUMAN REPRODUCTION

The Hormones in Human Reproduction. By GEORGE W. CORNER, Director, Department of Embryology, Carnegie Institution of Washington, Baltimore. 265 pp. 24 plates. 32 figs. Princeton: Princeton University Press. 1942. $2.75.

IN 1942 Dr. Corner delivered the Vanuxem Lectures at Princeton. These lectures, delivered to a general audience, covered the very complex and fascinating assignment of hormones of reproduction. In this volume the author has added much to the material he presented in these lectures. The result is a masterpiece. The subject-matter is presented systematically and accurately and yet so simply and clearly that the reader can not help but be infected by the author's youthful enthusiasm. Even those of us who are intimately engaged in various aspects of the field of internal secretions are carried away with enthusiasm over Dr. Corner's skilful narrative of a detective story involving the innumerable facts accumulated during the past century by many inquisitive scientists. From it we can no doubt all learn how to present involved scientific material in an interesting and convincing style to the layman, but many of us will no doubt discover some, to us, new facts as well.

The subject-matter is developed from the historical, developmental and, in part, comparative scientific point of view beginning with the simplest form, but always in simple terms and with excellent photographic and diagrammatic illustrations of the underlying anatomy. In spite of the elementary and simple presentation the reader is not left with the impression that the remarkable control of the cyclic nature of the processes of reproduction in the female have been completely explained.

The historical background for the isolation of estrogens, progesterone and androgens is given in each case, but naturally, the author writes most feelingly in presenting the development of the scientific methods and results obtained in the isolation of the corpus luteum hormone. He frankly admits that he could not "write this chapter in cool detachment" because of his intimate contact with the work. This chapter