

### Introduction to Chemical Engineering Thermodynamics

By Prof. J. M. Smith. (McGraw-Hill Chemical Engineering Series.) Pp. x+386. (New York and London: McGraw-Hill Book Co., Inc., 1949.) 34s.

THIS is primarily a book for senior undergraduate students with a knowledge of physics, physical chemistry and elementary calculus; but many older members of the profession will find much that is of interest and value among its pages. It explains with care and at some length, sometimes perhaps at too great length, the fundamental principles of thermodynamics and the way in which they are applied. Lest it be thought that the title "Chemical Engineering Thermodynamics" refers to some new branch of the subject, the author indicates in the preface that all that is meant is that those branches of thermodynamics which are of special interest to chemical engineers are more fully dealt with and that examples are chosen from cases which are met with in chemical engineering practice. A valuable feature is the large number of worked-out chemical engineering problems which illustrate, better than any explanation, how the many formulæ can be used in their solution.

The main subjects dealt with are: the First Law and its application to flow processes, pressure-volume-temperature relationships for ideal and real gases, thermochemistry, temperature scales, entropy, the thermodynamic properties of fluids, nozzles, the production of work from heat, compressors and refrigerators, phase equilibria and reaction equilibria.

Of the paper and printing, including many complicated formulæ and diagrams, it is perhaps sufficient to say that they are fully up to the high standard of this series of publications. The volume should find a place in the library of every chemical engineer. H. E. WATSON

### A Concise History of Mathematics

By Prof. Dirk J. Struik. Vol. 1: The Beginnings—The Beginnings in Western Europe. Pp. xviii+124. Vol. 2: The Seventeenth Century—The Nineteenth Century. Pp. vi+125-300. (New York: Dover Publications, Inc., 1948.) 2 vols., 3 dollars.

THE author embarks on an arduous mission when he sets himself the task of compiling a concise history of mathematics which not only presents the leading ideas in the development of mathematical thought, from the earliest deductions of prehistory until the beginning of the present century—and refers to all the outstanding mathematicians and many of the lesser men as it does so—but also indicates the social settings in which the subject has developed. Dr. D. J. Struik has done more than this. In addition to fulfilling this task, he has supplied a large number of references and has found space within his two small volumes, which contain only 299 pages of text matter between them, to incorporate drawings, portraits and reproductions of specimen pages from original documents.

After a short chapter on the development of the number concept, the first volume discusses the facts which are known about the early mathematical achievements associated with Egypt, Babylonia, China, India and Arabia. A full account is given of Greek influence on mathematical ideas, and the volume concludes with a chapter on the early progress of mathematics in Western Europe, which led to the discovery of logarithms at the beginning of the seventeenth century. The second volume continues the story by devoting each of its three chapters to a separate century.

Recently discovered historical material, which cannot readily be found in larger standard works, may be found in each volume. The author's ability as a first-class historian as well as an able mathematician has enabled him to produce a work which is unquestionably one of the best of the many short accounts of the history of the subject that have been produced in recent years. The use of variations of proper names that differ from those usually accepted at the present day—such as Cardano and Neper for Cardan and Napier—is presumably based on a considered assessment of available data. The reviewer admits the difficulties involved when contemporary documents vary and the owner is inconsistent in his own references to himself, but he feels that a strong case could be presented for accepting the normal orthography of the present day in all cases where historical inquiry tends to become a matter of personal choice.

### Information Services

Their Organisation and Administration. By R. L. Collison. Pp. viii+81. (London: James Clarke and Co., Ltd., 1950.) 6s. net.

THE necessity for speed, probably the most significant obligation that this present century has imposed upon research, is more than anything else responsible for the growth of a systematic and scientific approach to information work. As the head of the Westminster Central Reference Library, Mr. R. L. Collison is in as good a position as anyone to grasp the full implications of this fact, and the note of urgency, strengthened by insistence on the need for quality, pervades his slight but eminently practical introduction to the problems of organizing an efficient information service.

As methodical as the service which he envisages, Mr. Collison mobilizes his staff and equipment, books and records with a facility that may leave the novice unconvinced of the complexity of his job. Yet he has laid a foundation on which a beginner may safely build—and it is, unfortunately, on the raw beginner that this, as yet largely unrecognized, service so often falls. With notable exceptions, British industry has yet to learn that information services have a part to play in national recovery out of all proportion to the cost of running them. Mr. Collison will not convert industry. But he should save the converted time and trouble—and that twentieth-century consumer of energies, frustration.

### The Spider

By John Crompton. Pp. 254. (London and Glasgow: Wm. Collins, Sons and Co., Ltd., 1950.) 10s. 6d. net.

MR. J. CROMPTON does not claim a close acquaintance with spiders themselves, but he has read the books of McCook, Fabre and Bristowe. From these and others, always with due acknowledgment, he has compiled a second-hand account of spiders' habits, in a wholly anthropomorphic vein; for example, "The proprietress of the web gives him a calm scrutiny and two thoughts occur to her". With the addition of much irrelevant anecdote, this book conveys a reasonably accurate picture of the life of the spider, marred only by uncritical acceptance by the author of all that his chosen authorities have written. It is, moreover, written in a facetious style which some readers will find intolerable; it may, however, persuade some of them to study spiders, not books, more carefully.

T. H. SAVORY