## REVIEWS

SCIENTIFIC PRINCIPLES OF PETROLEUM TECHNOLOGY. By Dr. L. Gurwitsch and H. Moore. Pp. xii + 571. London: Chapman & Hall, 1932. 30s.

The considerable success that Gurwitsch's original little manual achieved, led to numerous requests for an English translation. The first English edition, translated and revised by Harold Moore, appeared in 1926, and the work has become so well known that a further and revised edition has been found necessary. It was well recognized by the translator at the time that the scope of the original work was somewhat parochial and entirely failed to recognize the very considerable developments, both in the science and technology of petroleum, that had taken place in the United States and elsewhere.

In the new edition over 100 pages have been added and the result is not only the attainment of far better balance between European and American experience, but also a clearer exposition of the application of the chemical and physical characteristics of petroleum to the production and manufacture of the very many products derived from mineral oil. It is of course exceedingly difficult in the compass of 600 pages to give any adequate treatment to the great number of topics that the authors touch upon, but ample references are given throughout the literature and both the student and the practitioner will be able without difficulty to pursue further any question or problem that interests them.

The book is divided into four main divisions:

(1) The constituents of petroleum, including a reasonably complete account of the various types of hydrocarbon found in mineral oil and their chemical behaviour with respect to a variety of reactants, the oxygen, sulphur, nitrogen derivatives found associated with the hydrocarbons, the mineral components of petroleum, the elementary physics relating to petroleum, *e.g.*, specific gravity, viscosity, surface tension, optical, electrical, and thermal properties.

There is a short résumé of the colloidics of petroleum and the section is completed by a brief survey of the more important crudes of European, American, and Asiatic origin.

(2) The second section deals with manufacturing processes, attention is paid to modern high vacuum treatment, and a survey of the major cracking and hydrogenation processes follows.

(3) The third section is concerned with refining and more particularly with the conventional acid and soda treatment. A short summary of the various chemical and physical refining methods now in vogue is given.

(4) This division is concerned with a résumé of the chief technical products derived from petroleum.

So excellent is the general presentation that too much criticism would be invidious, but a few points arise that might assist Mr. Moore when the next edition is on the stocks:

Some of the characteristically personal experience of Gurwitsch with reference to the refining in eastern Europe should be curtailed, *e.g.*, pages 119 to 141 are given up to a dissertation on the naphthenic acids which is altogether disproportionate to its importance. The side dealing with manufacture might be considerably strengthened, short descriptions of more modern plants should be incorporated, and generally speaking more precision with regard to the technique of the operation manufacturing units would be of advantage. The brief summary of the technical products of petroleum is useful, but again could be very materially expanded and in this connexion it would be definitely advisable to add a chapter on Diesel oils, more particularly for high speed Diesel engines, a subject of far-reaching importance at the present time; altogether there is a lack of balance in this section.

The book is excellently produced and printed and it is hoped that a third edition, still further expanded, will be forthwith demanded. A. E. D.

GESCHICHTE DER MAGNETNADEL BIS ZUR ERFINDUNG DES KOMPASSES, GEGEN 1300 (QUELLEN UND STUDIEN ZUR GESCHICHTE DER NATURWISSENSCHAFTEN UND DER MEDIZIN, BAND 3, HEFT 1). By E. O. von Lippmann. Pp. 49. Berlin: J. Springer, 1932. 6.80 rm.

Though Prof. von Lippmann is best known as a learned historian of chemistry, and as author of an authoritative work on the history of sugar, this little book on the early history of the magnetized needle shows that his practised hand has equal skill in other departments of the annals of science. There are few subjects over which more uncertainty prevails than the date of the first use of the magnetized needle as a direction-finder, and though Prof. von Lippmann does not claim to have solved the problem, he arrives at certain useful conclusions and supports them by his accustomed array of documented facts. He regards as unproven the claim sometimes made that the Chinese used the magnetized needle in very remote times, and says that the beginning of the eleventh century A.D. is the earliest date that can be substantiated in this connexion. The ancient Indians, Greeks and Romans, and the Byzantines of the early middle ages, as well as the Arabs as late as the tenth century, were all ignorant of the use of the magnetized needle. Wherever it may have first originated, it was probably discovered independently in the north of Europe in early mediæval times—before A.D. 1000—and was made widely known by the far-reaching voyages and excursions of the Normans in the eleventh century. The name *calamita* for the needle is derived from the Greek *kalamos*, a reed; compass, on the other hand, comes from the late Latin *compaginare*, to join or unite.

Prof. von Lippmann's forty-nine pages are full of interest, and we fancy that many chemists will be glad to add this book to their historical shelf.

E. J. HOLMYARD

UNITED STATES CHEMICAL PATENTS INDEX, 1915—1924. By E. C. Worden, Ph.C., M.A. Vol. II. Index of subjects C, D, and E. Pp. 1190. New York: Chemical Catalog Co., 1932. $25.

This volume is as handsome and as conveniently arranged as the first volume which appeared three years ago. It includes the U.S. Patents for the decade 1915—1924 arranged in accordance with the subject matter: this volume includes the letters C, D, and E, and deals with 188,400 citations. It is difficult to think of any criticism of the volume or to suggest any improvement to it.