BOOK REVIEW

FRACTIONNEMENTS PAR SOLVENTS, by Maurice Vigneron 1st edition, pp. 152 *(including* 61 *figures and* 6 *coloured plates). Vigot Freres, Paris,* 1954.

This book is of particular interest to those concerned with the large scale extraction and purification of pharmaceutical materials. In the words of Professor Charronat in the preface, it illustrates that " . . . le génie pharmaceutique, au sens récent du term, s'étend sur un vaste domaine scientifique." The work consists of three principal sections dealing with (i) industrial extraction of solids by solvents (ii) liquid-liquid extractions (iii) chromatographic fractionation. In each section an outline of theory is given but the book is primarily intended for the practical man. It is well illustrated with diagrams and photographs of industrial equipment in which the techniques described can be carried out. Most of the examples given are of a pharmaceutical nature and over 340 references to the literature are listed. In the first section, preliminary treatments of solid materials and choice of solvent to give optimum extraction, are discussed; there is an account of the elementary theory of liquid-solid extraction by simple and by multiple contacts; an outline is given of the counter-current method of extraction with numerous diagrams of industrial plant. The second section contains an elementary explanation of the theory of liquid-liquid extraction; counter-current, centrifugal and Craig methods of extraction are described, and the "theoretical plate" method of assessing extraction efficiency is explained. The third section deals with adsorption, partition, paper and ion exchange chromatography. The elementary theory of each method is presented and the relation between chromatographic bands and the maxima obtained in the Craig extractor, is stressed. This section is illustrated with coloured plates of chromatograms and with diagrams and flow sheets of industrial chromatographic plant. Some criticism can be made of the introduction to ion exchange. The treatment of ion exchangers in terms of their "solubilities" is not the most explicit theory for correlating their properties (p. 127); the general statement on p. 128 that the capacity of exchangers varies with *p*H, is not true for the strong anion and cation exchange resins; the author has not been selective in his lists of commercially available resins, they contain without distinction, modern, chemically simple exchangers and some of the older, more complex and generally less efficient, materials.

There are a few minor typographical errors in the text. For example, in the last equation on p. 58 a negative sign in the exponential has been omitted; two numbers have been misprinted in Table 13, p. 74; on p. 96 "l'absorbent" is twice used where "l'adsorbent" is intended; on p. 116 "cyanocobalamine"is an obvious misprint.

Considered as a whole, this is a valuable book, since it combines full descriptions of classical extraction methods with accounts of the newer chromatographic techniques. An English translation would be useful for students of Pharmacy.

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