OPEN TUBULAR COLUMNS IN GAS CHROMATOGRAPHY, L. S. Ettre (Plenum Press, 164 pp., 1965, $4.95).

Although many references to open tubular columns, commonly known as capillary columns, appear in the literature, this is the first comprehensive text on the subject. It is presented in six sections. The first is a detailed introduction describing the nomenclature, terms and definitions employed in this area of gas chromatography. Section two, on theory and practice, covers the basic Golay equation and its relation to such practical aspects as column efficiency and liquid-film thickness. Although comparisons between open tubular columns and packed columns are made throughout the book, a more concentrated comparison, based on both theoretical and practical considerations, is made in this section. Column permeability, performance, sample capacity, and influence of temperature are discussed. The third section covers the preparation of open tubular columns, and presents in detail the type of tubing to use, methods of coating, testing, increasing inside surface area, and a discussion on adsorption type open tubular columns. Section four describes the requirements of the other elements of the gas chromatographic system when employing the open tubular column. The author discusses the sample introduction system, the pneumatic system, the heating of the column, and the detection and recording systems. The fifth and sixth sections consist of a bibliography with 286 listings and a supplement describing two methods of calculating the air peak which does not appear when ionization detectors are employed. Mathematical expressions are widely used, but complex treatments are avoided. There are practical examples in the form of well documented chromatograms to support the conclusions drawn.

The text was found to be essentially free of typographical errors and generally well written. This book should be most useful to the experienced gas chromatographer with a knowledge of basic theory and an understanding of instrument design, and specifically to the oil and fat chromatographer since open tubular columns have been successfully applied to some difficult problems in this area of analysis.

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EMULSIONS: THEORY AND PRACTICE, 2nd Edition, ACS Monograph No. 162, Paul Becher (Reinhold Publishing Corp., 440 pp., 1965, $22).

This book is essentially a major revision of the first edition which was published in 1957. The plan of its text parallels that of the earlier edition and remains almost unchanged. Major developments since 1957 have made necessary extensive revision of the subject material. Therefore, approximately one third of the text matter is new and about one half of the remainder has been rewritten and, to a degree, rearranged. One major change has been the omission of the appendix which lists commercially available emulsifiers. Difficulties involved in keeping such a listing current, and its rapid obsolescence once it appears, apparently have dictated this decision.

The table of contents presents an exceedingly poor outline of the material it precedes and, consequently, is virtually useless. The index is quite adequate. Subject headings are in heavy type. All figures and illustrations are carefully drawn. They exhibit excellent stylistic consistency and complement a text which is written in a simple and lucid style.

The brief introduction in Chapter 1 is devoted to the definitions and terminology used in emulsion technology. Chapter 2 contains a fairly complete, but brief, discussion of the theoretical aspects of surface chemistry which are pertinent to the topic of emulsions. Chapter 3 describes the various physical properties of emulsions as a function of composition. Chapters 4 and 5 present the theories of emulsion stability and discuss such manifestations of emulsion instability as inversion, creaming, and complete demulsification. Chapter 6 contains a discussion of emulsifier chemistry. Emulsifier classification and efficiency as functions of composition are discussed. Chapter 7 deals with the techniques of emulsification and describes various types of emulsification equipment. Chapter 8 presents numerous examples of emulsion types, e.g., such practical formulations as cosmetics, pharmaceuticals, polishes, paints, foods, etc. Chapter 9 deals with the commercial aspects of demulsification and discusses the general methods for breaking W/O and O/W emulsions. Chapter 10, which concludes the text, describes in detail a number of fairly standardized measurements or tests which are usefully employed in the evaluation of emulsions and emulsifiers.

Many readers of this Journal, particularly those engaged in emulsion research and development, will find this book a noteworthy and welcome addition to existing literature. Dr. Becher has attempted to treat, in considerable depth, both the theoretical and practical aspects of a complex subject. The result is the most up-to-date work available in this field, and certainly the most complete. The first edition of this volume has been considered an authoritative source of reference material by many workers in widely diversified fields. In this respect, the new, up-dated second edition should prove even more useful.

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