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### A review of “Chromatography. Fundamentals & Applications of Chromatographic and Electrophoretic Methods, E. Heftmann, Editor, in two parts, Elsevier, Amsterdam, 952 pp.”

Robert L. Grob<sup>a</sup>

<sup>a</sup> Anal. Chem. Villanova University Villanova, PA, USA

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BOOK REVIEW

CHROMATOGRAPHY. FUNDAMENTALS & APPLICATIONS OF CHROMATOGRAPHIC AND ELECTROPHORETIC METHODS, E. Heftmann, Editor, in two parts, Elsevier, Amsterdam, 952 pp.

This two-volume set of books represents the fourth edition of a classic reference in the field of chromatography. Many discoveries, changes in ancillary equipment, and broader theoretical understandings have emerged since the appearance of the first edition in 1961. This present edition is a unified collection of chapters written by many experts in the field of chromatography.

Part A contains nine chapters pertaining to the fundamentals and techniques of chromatography and electrophoresis. The first two chapters focus on "survey of chromatography and electrophoresis" and "history of chromatography and electrophoresis." Both chapters have been written by the editor (E. Heftmann) and are concise and well-written as were the corresponding chapters in the previous editions.

Chapter three is the outstanding chapter in this part; theory of chromatography by Horvath and Melander. This chapter is well written; typical of what one would expect of the authors. The reviewer recommends this chapter to all readers, especially those beginning in this very important area of analytical chemistry.

Chapter four unfortunately falls short of the expectations of this reviewer. Column chromatography is an ever expanding realm of chromatography and it is disappointing to find such a meager representation of this technique. The list of references (twenty-four) speaks either for the prejudices of the author or his deliberate omissions as to the vast number of pertinent references available in this area. The reviewer finds it difficult to reason why the classic reference, "Introduction to Modern Liquid Chromatography," by Snyder and Kirkland was missing from the references. The addition of the word LIQUID to the chapter title would assist neophytes to the area of chromatography and give these readers immediate notice that the chapter is concerned with classical liquid column chromatography and HPLC. This chapter would be of little help to the reader wishing current theories and topics in modern liquid chromatography.

Chapter five (planar chromatography) provides an interesting historical discussion of these techniques and sufficient

information to permit the beginner to get started in this area. This is an area of chromatography which is not utilized as much as it should; especially with the present work being done in HPLC.

Chapter six (gas chromatography) overlaps with chapter three and lacks more pertinent information on the present practice of gas chromatography (GC). More discussion should have been given to capillary columns because of the lack of understanding of many new people to the technique of GC on the merits of packed columns versus capillary columns. The section on qualitative and quantitative analysis surely could have been expanded in place of the theoretical discussion.

Chapter seven (ion exchange) is a very readable chapter which summarizes the present state of the technique. The chapter is written with enough theoretical discussion to point out the uniqueness of this technique compared to other chromatographic techniques. The section on ion chromatography is an added plus to this chapter.

Chapters eight and nine (gel chromatography and electrophoresis) are heavy in theoretical discussion and too light in practical applications (i.e., experimental discussions). The practical aspects would have added more usefulness to these chapters especially in the light of Part B of this two-volume set.

Part B deals with various applications of chromatographic techniques to a variety of sample types. The sample types covered (in order of chapters) are: amino acids and oligopeptides, proteins, lipids, terpenoids, steroids, carbohydrates, pharmaceuticals, antibiotics, nucleic acids, porphyrins, phenolic compounds, pesticides, inorganic compounds, non-hydrocarbon gases, and hydrocarbons. Each of these chapters varies from fair to good in coverage of the particular sample type. They do, however, suffer from the same problem that most multi-authored books (including the reviewer's) have, i.e., the references cannot be more recent than a year of publication. This does not detract from the usefulness of the book. A prejudice of the reviewer would be that a chapter discussing environmental samples, in general, would be an excellent addition to Part B.

Lastly and very important, who should have this set of reference books in their library? Obviously, university and industrial research laboratories should have these on the shelf. It would be very nice if individuals could also have them in their personal libraries. However, the cost of this two-volume set is prohibitive; over 200 dollars (US).

Robert L. Grob  
Professor of Anal. Chem.  
Villanova University  
Villanova, PA, 19085, USA.