Chromatographic Techniques. Clinical and Biochemical Applications. Edited by IVOR SMITH, B.Sc., Ph.D., F.R.I.C., Lecturer in Chemistry and Biochemistry, Courtauld Institute, Middlesex Hospital, London; Postgraduate Lecturer in Chromatographic Methods, Technical College, Acton, London. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1958. xiii + 309 pp. 14.5 × 22 cm. Price, $6.75.

In the editor's own words, "The purpose of this work is therefore to bring together in concise form tried and tested methods and techniques which have been used by chemists to solve some of their problems." This objective has been attained concisely in a book of some 300 pages, which are devoted almost entirely to chromatography on paper. Various workers have collaborated with the editor to describe techniques which are in use in their laboratories, so that the techniques, as described, are more authoritative than if they were merely abstracted from the now voluminous literature of paper chromatography.

A brief description of the fundamentals of paper chromatography refers to sources from which more detail may be obtained. There then follows a description of a "universal apparatus for ascending and descending chromatography," which is regarded as perfectly adequate for almost all paper chromatographic operations. This is said to be simple and reasonable enough so that it is "within the reach of the family doctor." Even so, however, it is somewhat doubtful whether enough attention has been paid to warning those interested in the use of these techniques that for precision, rigorous control (including temperature control) is desirable, for there are many pitfalls for the unwary in the application of these extremely valuable techniques in applied biochemistry.

Next a critical discussion of the preparation of biological samples for chromatography treats the extraction of samples from biological material, electrolytic de-salting, ion exchange de-salting, electrodialysis, absorption dialysis, and ultrafiltration, with recommendations for the minimum equipment needed for these auxiliary techniques.

The remainder of the book treats, chapter by chapter, the specific applications of paper chromatography to twelve important classes of organic compounds, which are of biological interest, and there is sufficient attention to descriptive biochemistry of these substances to show the importance of the compounds so treated. Where applicable, that is in the cases of amino acids, amines and related compounds, sugars, phenolic acids and steroids, a discussion and extensive bibliography of their clinical implications is appended to the analytical material. There is even a section on forensic applications.

The book concludes with a chapter outlining methods for characterizing, in a preliminary way, small amounts of new or unidentified organic compounds of biological origin, and a chapter describing simple experiments for students who wish to apply the material furnished in the text to laboratory exercises.

The index is conveniently divided into a general index, and a separate index to the more than 500 organic compounds which are mentioned in the very useful tables of analytical data. A special feature of the book is the large amount of useful data and summarized information that it contains, particularly with reference to the behavior of the numerous compounds mentioned under the many solvent combinations. For this information alone, the book is to be welcomed; but it also brings together much other information on tests that are applicable to paper chromatograms, etc. Some may miss an author index, but otherwise the information is easy to locate in the work.

In its enthusiasm for the subject, the book could well have given more recognition to the limitations of paper chromatographic identification, for there is still the need of classical chemical methods of isolation and critical identification of crystalline products where the identity of the substance, new or old, is to be determined unequivocally. While chromatography on paper has been one of the most powerful of new analytical tools, it has also been said that it is one of the most rapid known ways of reaching the wrong conclusion! While the editor's hope that even the "family doctor" may apply paper chromatography to diagnosis may prove to be justified, it still appears that the best use of the techniques described, and of this book, will be in the research laboratory. Therefore, especially for the uninitiated, the pitfalls as well as the advantages of paper chromatographic analysis might well have been more heavily stressed.

A short section on chromatography of inorganic substances would have been useful, and gas chromatography clearly deserves a mention. Also, a list of the many abbreviations, which are often confusing, would have been helpful. These are, however, minor shortcomings in a manual which clearly merits the comment by C. E. Dent in the Foreword, for this noted contributor to the application of chromatography to medicine describes the volume as an "excellent and concise statement of the present position with regard to the major uses of chromatography." As the editor hopes, the book should certainly prove "of value to clinical biochemists and all those who use chromatography in organic, agricultural, and biochemistry."

DEPARTMENT OF BOTANY
CORNELL UNIVERSITY F. C. STEWARD
ITHACA, NEW YORK