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BOOK REVIEW

UNIFIED SEPARATION SCIENCE

J.C. Giddings

Wiley/Interscience, New York, 1991,
hardbound, 320 pages, \$54.95

This is an advanced text on separation science, written by an expert for other experts. The twelve chapters treat: 1. Introduction; 2. Equilibrium: Driving Force for Separative Displacement; 3. Separative Transport; 4. Flow Transport and Viscous Phenomena; 5. Zone Formation and Resolution; 6. Steady-State, Two-Dimensional, and Overlapping Zones; 7. Classification and Comparison of Methods; 8. Separation by External Fields (Sc Methods): Electrophoresis and Sedimentation; 9. Separation Using Perpendicular Flow, $F(+)$: Field-Flow Fractionation, Chromatography, and Related Methods; 10. Chromatography: A Deeper Look; 11. Chromatography From a Molecular Viewpoint; 12. Plate Height and Optimization in Chromatography. Each chapter ends with a list of references, and a series of exercises classified with one to three asterisks, according to difficulty. The answers to the exercises which require calculations are given in Appendix I. However, when theorems or equations are asked to be proven, the list of answers only furnishes the cryptic exclamation: "Proof". Appendix II comprises: A. A reiteration of the author's publications which already were cited at the end of each chapter, and B. A list of the author's hitherto non-cited publications in the field of separation science. The volume ends with author and subject indices. The book also has a highly appreciated list of the mathematical symbols and other abbreviations used: one can only wish that all authors of books that comprise a fair number of equations would do the same. The first six chapters expound the major general principles underlying separation science. Then, in the middle of the book, comes the

classification scheme (chapter 7). Among the major classification criteria is the distinction between stationary (chapter 8) and flow (chapter 9) methods. The last three chapters deal with aspects of gas and liquid chromatography.

This monograph is probably most suited for accompanying chemistry or chemical engineering graduate courses in separation science. However, as clearly stated in the Preface and the introductory chapter, one should not desire to use the work as a quick reference on which separation method would be optimally suited for solving a given separation or purification problem. This admirably organised volume is highly recommended to academic and industrial chemists, biochemists, chemical and biochemical engineers, and graduate students, with a serious involvement in separation science.

Carel J. van Oss