

Book Review

Chemical Reaction Mechanisms, by George M. Fleck. Holt Rinehart and Winston, Toronto, 1971, 235 pp, clothbound \$12.05

An interesting approach to teaching kinetics is a feature of this book, which limits itself largely to homogeneous reactions in the liquid phase of a first-order or pseudo-first-order nature. The chapters are interspersed with case studies which make an effort to cover most of chemistry's subdivisions — inorganic, organic and biochemistry. The case studies include experimental suggestions and preparative details with references. In this way the book is able to present a perspective between theory and the chemistry it deals with. Most of the chapters have both worked examples and problems for the student, answers for which are given in the Appendices. Bibliographical notes with references for further study appear at the end of all but one or two of the twelve chapters, and a selective bibliography appears in the appendices. Also in the appendices are mathematical notes, the exponential function and derivative, natural logarithms, the use of determinants and the Greek alphabet. Relaxation phenomena in chemical processes are dealt with in a 46-page chapter near the middle of the book. This topic, which often tends to appear estranged from the mainstream of kinetics is dealt with imaginatively. There are also chapters on First-Order Methods for Bimolecular Reactions, Reversibility, the Steady State and a short final chapter on Encounter, Activation, Transition and Reaction. The mathematics involved is presented reasonably well, steps being explained as the logic is developed. While long mathematical expressions and lists of numbered equations always present a psychological barrier to at least some students, the author has attempted to encourage the faint-hearted to follow through.

It is difficult to make a general statement on for whom the book is intended. The preface suggests a wide range of usage from freshman courses to graduate studies and professional extension courses. The book appears to fulfil these claims, although the price will probably limit it to the latter two, particularly as freshman courses become less specialized. Nevertheless, it should not be overlooked as a valuable resource book for any course dealing with reaction rate phenomena in solution.

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