

## *Recensiones*

**R. D. Levine, R. B. Bernstein: Molecular Reaction Dynamics.** London: Clarendon Press: Oxford University Press 1974, 250 pp. price: £ 5.00.

One of the most exciting areas of research in theoretical chemistry is that of molecular dynamics and the field has received and continues to receive periodic reviewing. Generally, these reviews are directed toward either researchers and students currently active in the subject or toward persons active in other research areas. There has not been any text available which was aimed at a general introduction to this subject and the present book is a most welcome answer to this need.

The authors are exceedingly well qualified to write such a book and the result of their collaboration is a superb little volume which is ideally suited for use as a text in an advanced undergraduate or introductory graduate course in molecular reaction dynamics. The book could also be used as a supplement for a very modern course in chemical kinetics which includes both a phenomenological and a more fundamental approach to reaction rates and mechanisms.

Although the entire book is well written, this reviewer found certain portions especially interesting and Chapters 5 and 6 are particularly effective in presenting the general concepts and flavor of the field of molecular dynamics. Both the theory and experimental techniques which have been brought to bear on probing molecular mechanisms of reactions are presented in a manner which should be readily understood by undergraduate chemistry students. The reviewer found the discussions of the  $F + H_2$  reaction and of collision complexes to be particularly stimulating. These chapters convey very well the sense of excitement which characterizes this field of research.

Finally, the book has been meticulously proofread and is virtually free of disconcerting errors. The few this reviewer found are of an extremely minor typographical sort. This is especially important for such a book which is aimed at providing an introduction to a new field of study. It is a pleasure to recommend this book with the greatest enthusiasm.

Donald J. Kouri

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**P. O. Löwdin: Advances in Quantum Chemistry, Vol. 8.** New York-London: Academic Press 1974. XVII + 291 p., Price: US \$ 32.50 (£ 15.60).

P. O. Löwdin continues in the proved format to edit representative progress reports on a variety of topics in quantum chemistry. It is encouraging to see a change in perspectives gradually coming to fruition among the authors. G. Del Re recognizes a need for interpretation of quantum chemical calculations. He puts emphasis on models, a familiar theme from the early days of chemical bonding. The insights of Del Re's article are essentially not new and the references seem somewhat arbitrary. But the discussion may be helpful in drawing attention to an important cause, although there is little hope from the article that significant progress will be made easily. Going beyond the scope of this article, namely equilibrium considerations, are two contributions by J. Serre on symmetry groups of non-rigid molecules and by D. A. Micha on Hamiltonians for molecular collisions. Both are mostly formalistic, but it is refreshing to see a recognition of the fact that there are internal and external motions of molecules which happen all the time, but have not yet obtained a proper place in standard quantum chemistry. Inorganic chemistry takes a major portion of the rest. C. K. Jorgensen discusses photoelectron spectra in ligand field theory and G. Berthier shows us some recent developments in the theory of coordination compounds of metals. Young diagrams by W. I. Salmon are swinging the pendulum towards the formalistic side. It is not easy to see immediate use for chemistry. This volume is typical for the manifold of interest in the field of quantum chemistry, but it also reflects the increasing difficulty of integration under a common denominator.

Karl Jug

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