theory of the method and its applications. Each author considers a different mix of theory and application to be appropriate to his subject, and each reader will probably have yet a different opinion. To my own taste, the vibrational chapters are much too heavily weighted toward theory. The magnetic resonance chapter is essentially all theory. The microwave and electron diffraction presentations are reasonably well balanced. Because a number of different experimental techniques have been applied to the study of very simple molecular systems, there is considerable repetition of coverage. The energy diagrams for the interconversion of the conformational forms of ethane and of 1,2-disubstituted ethanes are illustrated in four different places. Such problems arise from the multiauthor approach. The ability to achieve a high level of expertise in each area, however, more than offsets the drawback of unnecessary repetition.

Because some of the experimental methods (microwave, electron diffraction, torsional vibrations) are applicable primarily to rather simple molecules, good coverage of these techniques is not difficult. The broader sweep of NMR, however, covers so much molecular territory that complete coverage would be an impossible task. Nonetheless, the most significant shortcoming of the book is its failure to provide even cursory coverage of many important areas studied by NMR. The addition of two chapters explicitly designed to survey NMR results, for example, one on acyclic systems and another on rings with other than six members, would have more realistically portrayed the volume of NMR studies. The chapter on 1,3dioxanes might have been broadened to cover other six-membered systems. Another weak point of the book is the subject index. Five pages is insufficient for a volume of this size. A consistent set of energy units is not used throughout the book. Some chapters use kjoule/ mole, whereas the majority use cal/mole or kcal/mole. One final regret is that one of the 20 contributors is unnecessarily singled out by title in the list of contributors, the table of contents, and the chapter by-line.

The book is relatively up to date in its coverage. Most of the chapters appear to have been written in 1972, with coverage complete through 1971. Several of the authors have written addenda to bring their material up to date through 1973. This book should assume its place as the standard reference work on internal rotation in small molecules,

superseding the 1954 book by Mizushima. It will be of particular use to the person who wants an introduction to any of the several experimental techniques for measuring rotational barriers.

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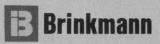
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