standing, but will leave the casual reader confounded, and the book is not a handbook or users' guide for interferometers. Many of the most important practical devices are described very briefly. The bibliography relieves this problem, and many of the 400 references are as recent as 1966.

Interferometers need coherence, and many people have supposed that the laser would replace all less coherent sources for interferometers. Steel does not share this belief; he points out cautiously the disadvantages that arise, as well as the important advantages, but does not really survey this new side of interferometry.

On the other hand, he gives major emphasis to the application of interferometry to spectroscopy. The interferogram of a source is, within the limits of the "instrument function," the Fourier transform of the source spectrum. If it is recorded by sampling and digitizing, the spectrum can be determined by calculation, although a big computer is needed. Steel has made fundamental contributions to this field, and he gives a very clear description with many practical considerations reflected in his treatment.

W. LEWIS HYDE
Institute of Optics, University of Rochester, Rochester, New York

Polymerization Mechanisms

The Stereochemistry of Macromolecules. Vols. 1 and 2. A. D. KETLEY, Ed. Dekker, New York, 1967. Vol. 1, xii + 412 pp., illus., $19.50; vol. 2, xiv + 383 pp., illus., $18.75.

These are the first two volumes of a three-volume monograph designed to present a survey of polymerization mechanisms, in which a high degree of steric control is possible during the chain growth, in concert with a discussion of the analytical methods by which the steric structure of polymers can be explored. It is perhaps appropriate to note here that since this latter objective is not met until volume 3, the first two volumes dealing exclusively with polymerization procedures and mechanisms, the title of this series might be considered to be somewhat misleading.

Volume 1 is devoted to discussion of the polymerization of olefins and diolefins actuated by catalysts of the Ziegler-Natta type. The definition followed in this volume for this class of catalysts is the generally accepted one, that is, a Ziegler-Natta catalyst is one that is the product of a reaction between compounds of the transition elements of groups IV to VIII and compounds such as alkyls, aryls, or hydrides of metals from groups I and IV. Thus both heterogeneous and homogeneous systems are covered. The first volume, rather than attempting to be encyclopedic in scope, has focused on what may rightly be considered to be some of the more salient features of Ziegler-Natta polymerizations. Neither the theoretical nor the experimental aspects of these systems have been neglected. The volume contains six chapters, and all are uniformly successful. Several chapters are definitive reviews in areas in which previous presentations have been rendered partially obsolete by recent findings. The lucid chapter by Cossee on the quantum-chemical aspects of the mechanism of polymerization may be cited as a particularly fine example.

Volume 2 is somewhat broader in scope in that it covers both ionic and free-radical systems where polymerizations are induced by catalysts other than those of the Ziegler-Natta type. As in its companion volume, the major emphasis is placed upon the mechanism of polymerization. In the main the presentations are up-to-date and quite comprehensive.

In summary, although a number of authors are represented in these two volumes, the style throughout is generally uniform. It was particularly gratifying to find that in this coverage many of the speculative mechanisms are impartially evaluated. For those familiar with the field, this feature will make these volumes of value; the newcomer will find a unified (particularly in the case of volume 1) and useful survey of this area of polymer science.

LEWIS J. FETTERS
Institute of Polymer Science, University of Akron, Akron, Ohio

Particle Systems

Topics in Several Particle Dynamics. K. M. WATSON and J. NUTTALL, with a chapter by J. S. R. CHISHOLM. Holden-Day, San Francisco, 1967. x + 121 pp., illus. $7.50. Advanced Physics Monographs.

This rather unusual little book touches many bases of recent activity in nonrelativistic quantum mechanics. Its main emphasis is on the three-body problem, but multichannel two-particle systems are also treated. (The "several" of the title seems a slight inflation.) It discusses both the formal development in these subjects and some of the recent calculations. In the three-body problem the Faddeev equations and their variants are described. Their use with separable interactions is presented along with some results on the three-nucleon system. Multichannel two-body scattering theory is sketched and is then used as a framework for discussing variational principles. Results of application of these methods to atomic systems are given. Most of this is done in the modern framework of integral equations and functional analysis, and some of the analysis is developed along the way. Even many-body theory is described, so that it can be compared with the three-body problem and the difficulty of disconnected diagrams.

All this is done on 117 not overly large pages. Therein lies the major attraction or major shortcoming of this book. To do so much in so little space the authors must be very selective as well as very telegraphic. Their selectivity, to which the "topics" of the title refers, is not only in subject but also in chronological emphasis. Very little of the "classical" work on any of the chosen topics is discussed. That is not necessarily a fault in a little book intended as a guide to the recent literature. One exception to the emphasis on recent work is a welcome clarification of the relationship of the earlier Watson multiple-scattering theory to the work of Faddeev. More serious perhaps than the selection of topics is the terseness of presentation. Within any chosen topic the authors leave little of importance unmentioned, but often mention is all a problem gets. Thus the book is certainly not a textbook, nor is it one of those sets of published lectures which so often substitute for texts (although we are told that the book grew out of lectures Watson gave at Texas A. and M.). To follow the book, the reader must bring to it a considerable knowledge of scattering theory and some idea of what the problems are for which the authors are describing solutions. With this equipment he should find the book a useful guide to the literature. Perhaps not one with the thoroughness and completeness of a "Guide Michelin," but one which should help him find the points of interest and keep him on the road. This is probably enough for most travelers.

RALPH D. AMADO
Department of Physics, University of Pennsylvania, Philadelphia