cal and preparative techniques have brought about a considerable revival of terpenoid research. This book documents much of this progress. It presents the views of 12 investigators who have a broad and varied interest in the field. A chapter of particular interest to me was one that dealt with the biological significance of terpenes in plants. Although no biochemical function of monoterpenes in plants is yet known, much is known about the functions of the higher terpenoids. Here the author was able to bring to the reader the manifold fashions in which terpenes interact with their biochemical environment. From gibberellins to sterols to carotenoids, the author traces their function and form.

Considerable emphasis is placed on terpenoid biosynthesis. Material is presented on specifically labeled substrates, biosynthesis of monoterpenes, terpenoid quinones, and prenols (polyisoprenoid alcohols). A chapter on structural determinations of carotenoids points up the role of modern analytical instruments in this complex field and reveals the great progress made since the introduction of such techniques as nuclear-magnetic-resonance spectroscopy. J. S. E. Holker's chapter on conformational analysis presents one of the clearest expositions of this subject that I have encountered.

Most certainly any volume with 12 authors has inherent disadvantages, from discontinuities in style to presentation of too specialized a view of a particular area of study. *Terpenoids in Plants* suffers from these to some extent, but offers in compensation an excellent overall review of the many facets of a complex and fascinating subject.

RICHARD A. BERNHARD
University of California, Davis

Petrography

Electron Micrographs of Limestones and Their Nannofossils. ALFRED G. FISCHER, SUSUMU HONJO, and ROBERT E. GARRISON. Princeton University Press, Princeton, N.J., 1967. 157 pp., illus. Cloth, $6.75; paper, $3.25. Monographs in Geology and Paleontology, No. 1.

As its name implies, this first volume of the new series Monographs in Geology and Paleontology is an annotated collection of electron photomicrographs of representative limestones and their included minerals and microfossils. Fischer, Honjo, and Garrison present a survey of the microstructure of fine-grained limestones from many geologic environments ranging in age from Cambrian to Recent. These authors are well known for their work in this relatively new area of geologic research, and this book is a careful selection of some of their best published and unpublished photographs.

In addition to a discussion of the mineral grains, the overall limestone fabrics encountered, and the fossils in phyletic order, a thorough and clear treatment of the techniques of the replica method that are necessary for the proper interpretation of the resulting electron micrographs is given. The chief value of this book will be its usefulness to the carbonate petrographer faced with the task of unraveling the history of fine-grained limestones. Here is a reference book of electron micrographs valuable for comparative purposes. The value could have been substantially increased, however, by the use of more than one replica technique on several of the samples and by inclusion of some of the photomicrographs from other workers in the field.

Apart from some text references which were omitted from the remarkably up-to-date bibliography and a misplaced figure legend, the text is quite free of errors of production. Although many readers may take exception to some of the interpretations of the more than 80 beautifully reproduced plates, few can quarrel with the reasonable price of this book, which will undoubtedly find its way to the reference shelves of all serious students of fine-grained carbonate rocks.

KENNETH M. TOWE
Department of Paleobiology, Smithsonian Institution, Washington, D.C.

Semiconductors: Lines of Inquiry

The Physics of Semiconductors. Proceedings of an international conference, Kyoto, Japan, Sept. 1966, sponsored by the International Union of Pure and Applied Physics. TOSHINOSUKE MUTO, Ed. Physical Society of Japan, Tokyo, 1967. 794 pp., illus. $32.

The conference of which this volume forms the report was the eighth in an international series dating back to 1952. The proceedings were issued, readably and cleanly presented, clearly printed on good paper and well bound, a short three months after the conference was held. This efficiency and good judgment were typical of the conference, which in setting, organization, and presentation has had no superior among its predecessors and which will set a very difficult aiming mark for its successors.

The organizing committee made a severe choice from the submitted material, confining their selection to topics they considered suitable for 1966. To my mind they showed good taste—the older lines of research were solidly represented, while newer investigations which may be expected to be productive in the future, but which marked something of a departure from tradition, were introduced on the international scene. Thus in the former category we find reports of competing methods of calculating theoretically the band structure of diamond-family semiconductors, considered alongside optical measurements which in principle determine the structure above the lowest band edges but which in practice seem to be full of problems of interpretation; we find ever more complex experiments and detailed interpretation of optical experiments at intense magnetic fields; we find a session on the fundamental mechanisms of radiative recombination with or without the interaction of complex defects, very little on laser action (but apparently a deliberate omission of extensive reporting on semiconductor lasers); we find that the hydrogenic impurities still provide experiments and theoretical problems, but that the deeper impurity states have usually not found better than the most phenomenological cataloguing of their energies; we find that transport effects, and especially the oscillatory low-temperature effects, are providing basic data on the less well-understood materials; and we find a great interest in hot electrons and current instabilities such as the Gunn effect.

In the second category I found impressive the very interesting papers on electron-phonon interaction, especially those on interactions leading to sound amplification. A long session was devoted to magnetoplasma and magnetoacoustic phenomena, and it seems certain there will be more to come. There