material, while more organic photochemists who find little to attract their primary attention will find it sufficient to consult a borrowed copy occasionally. The book is indispensable for up-to-date institutional collections in physics and chemistry. Considering the rapid rate of expansion and progress in photophysics and photochemistry, and the excellence of this volume, I look forward to the next volume.

DAVID I. SCHUSTER
Department of Chemistry,
New York University,
New York City

Superconductivity

Superconducting Magnet Systems. H. BRECHNA. Springer-Verlag, New York, 1973. xii, 590 pp., illus. $65.60. Technische Physik in Einzeldarstellungen, vol. 18.

Brechna has put together a massive text on the various technologies that underlie the design of superconducting electromagnets. The book is built around three major topics: magnetic field calculations, superconductivity (treated in collaboration with G. D. Cody), and cryogenics (treated in collaboration with H. M. Long). Each of these topics is treated from first principles, and each treatment constitutes in itself a more or less complete reference work. Unfortunately the book as a whole suffers from the defect of many jointly authored compendiums, namely a failure to integrate the component parts into a balanced treatment of the main subject.

Despite its lack of balance, the book offers a good collection of basic theory and reference material. There are a fine introductory section on the methods of generating high magnetic fields and an interesting chapter on magnet economics. Techniques of field calculation are treated in the largest chapter in the book; this material is useful but the chapter is perhaps overlong in view of other omissions.

A separate chapter on the fundamentals of superconductivity covers the basic Bardeen-Cooper-Schrieffer (BCS) and Ginzburg-Landau-Abrikosov-Gorkov (GLAG) theories, plus detailed mechanisms of flux pinning. Though this is an excellent treatment, it seems obvious that more emphasis should have been placed upon real magnet materials and the advanced filamentary structures that have become the central basis for modern superconducting magnet technology. It is also curious that there is virtually no discussion of the basic materials work from which this relatively new technology originated.

A similar criticism applies to the lengthy chapter on cryogenics, which qualifies as a good introduction to the subject but deals poorly with the cryogenics-magnet interface. One would like to have seen more consideration of the practical aspects of magnet cooling in relation to the physical structure of the coils, the superconductor-to-normal-conductor ratio, and other vital design factors.

A major problem in large superconducting magnets is the loss of field energy due to normalization. Brechna deals with this in a chapter entitled "Superconducting alternating current magnets." Here the emphasis on a-c losses seems to be excessive, and the dynamics of the superconducting-to-normal transition would seem to warrant much more attention. The protection of magnets after normalization is essentially ignored, as are practical questions of achieving field uniformity in space and time, persistent mode operation, and so forth.

Superconducting Magnet Systems contains a lot of good material. Regrettably, much of it is irrelevant to magnet technology, and much that would be relevant is omitted.

JOHN K. HULM
Westinghouse Research Laboratories,
Pittsburgh, Pennsylvania

Geosynclines

Modern and Ancient Geosynclinal Sedimentation. Proceedings of a symposium, Madison, Wis., Nov. 1972. R. H. DOTT, JR., and ROBERT H. SHAVER, Eds. Society of Economic Paleontologists and Mineralogists, Tulsa, Okla., 1974. viii, 380 pp., illus. $11.50; by subscription, $9.50. SEPM Special Publication No. 19.

This publication is the outcome of a symposium dedicated to Marshall Kay, whose famous Geological Society of America Memoir 48, *North American Geosynclines*, published in 1951, laid the foundation of American geosynclinal thinking for two decades.

The timing of the publication could not be better. Five years have passed since the concept of plate tectonics provided a theory of world structure that satisfied most earth scientists. Geologists working on ancient geosynclines and mountain belts have been able, for the first time, to develop conceptual models based on properly understood modern analogs. It is now becoming possible to place the sediments of geosynclines into a global framework.

It was long customary to divide geosynclinal sediments into preorogenic preflysch (pelagic sediments, fine-grained turbidites, carbonates, and ophiolites), synorogenic flysch (turbidites and mass-flow sediments), and postorogenic molasse (continental fanglomerates and fluvial-deltaic sediments). As Marshall Kay emphasizes, geosynclines are of many sorts, however, and this volume shows that the pattern in which preflysch, flysch, and molasse occur varies, reflecting distinctive environmental and tectonic settings that depend on the type of plate or continental boundary.

Discussing the old controversy about the depth of water and the depositional environment of the preflysch, Bernoulli and Jenkyns explain convincingly how a widening "Atlantic" ocean explains the carbonate platforms and pelagic facies of the Tethys. Other types of preflysch, such as those formed around island arcs and in marginal basins, are touched upon by Kanmera and by Churkin.

All the papers concerned with flysch illustrate the current tendency to emphasize the importance of submarine fans as the loci for turbidite deposition. The sedimentary environments are well described, but, perhaps owing to the difficulties of establishing the tectonics from a study of flysch alone, there is little mention of the structural setting.

Molasse is rather neglected, but Van Houten and Eisbacher each cover a different type. The former describes the classical nonvolcanic molasse of the Alps and Pyrenees and the latter the Canadian Cordillera "successor basins," where postorogenic sedimentation is associated with magmatic activity.

There are several papers that deal with sedimentation in particular tectonic situations: Scholl and Marlow in Pacific trenches; Dickinson, Okada, and Kanmera (in separate papers) around island arcs; and Moore and Curray on "Atlantic" midplate margins.

Two papers are of particular importance. Crowell synthesizes the tectonics and sedimentation along the San Andreas fault, showing how huge thicknesses of varied sedimentary facies accumulate in basins associated with continental transform faults. Hoffman,