nearly a hundred pages of geomorphic and descriptive treatment of coastal and continental-shelf sediments, all by Swift in his customary inconcise style. (About one-quarter of the volume consists of articles of which Swift is sole or principal author.) Processes at the shelf break and farther seaward rate three chapters (by D. J. Stanley, J. B. Southard, G. Kelling, and J. W. Pierce) that are the most speculative in the volume. This is certainly not unexpected, because these processes are less accessible and have received much less attention than processes farther inshore. What we know about them is mostly inferred from the form and distribution of sediments on the bottom, and this kind of inference has many pitfalls because one can seldom assess the time scale of the inferred process. Early in their chapter, Southard and Stanley say they will "attempt to demonstrate that in terms of sediment transport the shelf break is almost as important a discontinuity as the shoreline" (p. 351). Their attempt falls short of the mark, but their chapter and the two that follow do convey fairly accurately the current state of understanding as long as readers ignore most of their assertions while looking critically at the kinds of evidence they present.

As editors, Stanley and Swift deserve a large measure of credit for putting this volume together, but their own contributions are not up to the general quality of the other chapters.

The fourth section of the volume gets down to some of the specific sediment-related environmental problems on the continental shelf, and its chapters are guides to those who manage and decide. D. B. Duane, in his discussions of beaches, harbors, and placer mineral deposits, outlines engineering methods and approaches; these are not presented in the amount of detail one would find in an engineering manual, but the account is sufficient as a summary for environmental managers of approaches and appropriate places to use them. H. D. Palmer's chapter on structures embedded within or supported by the continental shelf bottom emphasizes the sands that are the dominant material on most shelves and treats problems of foundation failure caused by combinations of external stresses, excess pore pressures, and scour. C. G. Hard and Palmer discuss ocean dumping and stress the point that material dumped at sea is often not so much thrown away as recycled by currents and organisms, sometimes (as in the case of some dredge spoil) back into the estuaries it came from. Hard and Palmer conclude with the upbeat hope that the materials we now dump at sea may some day prove too valuable to discard and that they may be recycled more intelligently than they are today.

Overall, this is a practical volume. For students as well as for those who have to make decisions about building or dumping things on the continental shelf, it provides clear and often specific impressions of what we do and do not know and plenty of fruitful ideas on where to go next to get enough information to build the predictive models that we do not yet have for marine sediment transport. One measure of its success will be the speed with which it becomes outdated.

ROBERT H. MEADE
U.S. Geological Survey, Denver, Colorado

Cell Structures

Microtubules and Microtubule Inhibitors. Proceedings of a symposium, Beerse, Belgium, Sept. 1975. M. BORGERS and M. DE BRABANDER, Eds. North-Holland, Amsterdam, and Elsevier, New York, 1975. x, 554 pp., illus. $45.95.

The papers in this volume are organized into major sections on the structure and chemical properties of microtubules, microtubule functions, and the use of new pharmacological agents to study microtubule-related processes. A predominant emphasis is the use of antimitotic agents to illuminate the role of microtubules in cellular phenomena, with a number of papers describing the effects of drugs such as colchicine, vinblastine, and podophyllotoxin on secretion and intracellular transport. The papers vary considerably in scientific quality and in some cases take such a specialized view of the research problems they deal with as to be essentially meaningless to a general reader. In addition, it is difficult to make connections among the papers, although Dustin's excellent summary partially does this for the reader. The book also lacks a subject index. The collection does, however, include papers that make interesting and novel contributions, and it calls attention to the work of a number of European laboratories that are taking different approaches to the study of microtubules and their functions. On balance, specialists will probably find that, although the papers must be read critically, most are useful.

The section of the book devoted to the structure and biochemistry of microtubules covers the substructure, chemical composition, and in vitro assembly of microtubules, as well as the interaction of tubule protein with antimitotic drugs and its association with various enzymatic activities. Amos's paper on optical diffraction of electron microscopic images, which is concise and well written, provides a good focal point for understanding the organization of subunits in the microtubule lattice and their possible interactions with other proteins or antimitotic drugs. The paper by Luduena *et al.* on cross-linking presents heretofore unpublished work on the substructural organization of the tubulin subunit as a heterodimer and, together with the excellent review by Wilson *et al.* of the pharmacological properties of the microtubule protein, provides a good background on the chemistry of the molecule. The papers by Bryan *et al.*, Jacobs *et al.*, and Engelborghs *et al.* are all concerned with studies on the assembly of microtubules in vitro and, while well written, are so detailed that they will be of interest mainly to those engaged in similar research. Research on phosphorylation and phospholipids and on phosphodiesterase activity associated with microtubules, discussed by Quinn and Lagnado, respectively, is detailed work that has not generally been considered in describing the properties of the tubulin molecule.

A large number of papers (21) are included that discuss the functional aspects of microtubules. These range from reviews of past work to presentations of data that have not previously appeared in print. Topics covered include secretion, intracellular transport, neuronal differentiation, microtubule-membrane interactions, and immunofluorescent localization of tubulin. Malaisse *et al.* review their more recent studies on microtubule-mediated insulin release, including characterization of the effect of a new drug, R 17934. The paper by Ginsel *et al.* is an interesting electron microscopic documentation of the role of microtubules in the secretion of the external cell coat in intestinal tissue. Petzelt *et al.* discuss the characterization of microtubule protein in liver and describe a new technique for determining its distribution in assembled and soluble states. The role of microtubules in phagocytosis and lysosomal fusion is summarized in a well-referenced paper by Malawista, and the conflicting views on the role of microtubules in pigment granule migration are excellently presented by Schliwa. Various novel approaches to studying the quantitation of microtubule protein and the control of its assembly during brain development are described by Nunez *et al.*, who present evidence for the appear-

ance of "nucleating factors" during certain stages of neuronal differentiation. The rapidly emerging use of immunofluorescent staining to localize microtubule and other structural proteins is discussed by Brinkley *et al.* and Weber, and papers by Berlin and Oliver provide excellent reviews, including primary data, of recent evidence pertaining to the role of microtubules in membrane organization. Many of the papers in this section consist of data that have already appeared in journals. Although disorganized and occasionally noncritical, the section is a useful compendium of studies in which microtubule inhibitors have played an important role in the elucidation of function.

Discussion of the role of microtubules in mitosis is limited to a paper by Bajer *et al.* that provides recent experimental evidence to support the "zipper hypothesis" for chromosome movement.

The concluding section of the book deals primarily with the characterization of new antimitotic compounds. Deysson provides an excellent review of the established antimitotic drugs, their cytological manifestations, and more recent data on their chemistry; the major value of this paper lies in its detailed description of plant systems used in the derivation and study of these compounds. Papers by Davidse, Borgers *et al.*, de Brabander *et al.*, and van Putten *et al.* deal with various aspects of a new class of antimitotic drugs, characterized by mebendazole and its analogs R 17889 and R 17934; data are presented on their potentially selective action on neoplastic cells and species-specific inhibition of microtubule assembly. These studies are still preliminary, but the papers describe well the potential clinical and experimental uses of these compounds.

J. B. OLMSTED

Department of Biology, University of Rochester, Rochester, New York

Books Received and Book Order Service

Books Received and the Book Order Service will be combined in issues in which there is a Readers' Service Card. To order any of the Book Order Service books, circle the corresponding number on the Readers' Service Card (pages 382A and 454A); the participating publisher(s) will ship the title(s) ordered and send you a bill.

Advances in Atomic and Molecular Physics. Vol. 12. D. R. Bates and Benjamin Bederson, Eds. Academic Press, New York, 1976. xii, 440 pp., illus. $44.

Advances in Holography. Vol. 3. Nabil H. Farhat, Ed. Dekker, New York, 1976. xii, 252 pp., illus. $28.50.

Alloy and Microstructural Design. John K. Tien and George S. Ansell, Eds. Academic Press, New York, 1976. xii, 430 pp., illus. $39.50. Materials Science and Technology.

Animal Physiologic Surgery. C. Max Lang. Springer-Verlag, New York, 1976. xii, 180 pp., illus. Paper, $10.80.

Ant Larvae. Review and Synthesis. George C. Wheeler and Jeanette Wheeler. Entomological Society of Washington, Washington, D.C., 1976. vi, 108 pp., illus. Paper, $11. Memoirs of the Entomological Society of Washington, No. 7.

Atlas of Carbon-13 NMR Data. Vol. 1, Compounds 1–1000 plus Indexes. E. Breitmaier, G. Haas, and W. Voelter. IFI/Plenum, New York, 1976. Unpaged. In loose-leaf binder, $59.50.

Basic Microbiology. J. F. Wilkinson, Ed. Vol. 4, Microbial Physiology. Ian W. Dawes and Ian W. Sutherland. Halsted (Wiley), New York, 1976. vi, 186 pp., illus. Paper, $9.75.

Beekeeping in the Midwest. Elbert R. Jaycox. University of Illinois Press, ed. 2, 1977. vi, 168 pp., illus. $6.95. Also published as Illinois Cooperative Extension Service *Circular 1125*.

Beyond Culture. Edward T. Hall. Anchor/Doubleday, Garden City, N.Y., 1977. xvi, 298 pp. Paper, $2.95. Reprint of the 1976 edition.

Biochemical Systems Analysis. A Study of Function and Design in Molecular Biology. Michael A. Savageau. Addison-Wesley Advanced Book Program, Reading, Mass., 1976. xx, 380 pp., illus. Cloth, $26.50; paper, $16.50. *To order this book circle No. 388 on Readers' Service Card*

Biologie des Lernens. Hans-Joachim Flechtner. Hirzel, Stuttgart, 1976. xii, 484 pp., illus. Paper, DM 25. Memoria und Mneme, Band 2.

Biomedical Instruments. Theory and Design. Walter Welkowitz and Sid Deutsch. Academic Press, New York, 1976. xvi, 280 pp., illus. $19.50.

Calculus and Its Applications. Larry J. Goldstein, David C. Lay, and David I. Schneider. Prentice-Hall, Englewood Cliffs, N.J., 1977. xiv, 530 pp., illus. $13.95.

Cancer Related Antigens. Proceedings of a symposium, Liege, May 1976. Paul Franchimont, Ed. North-Holland, Amsterdam, 1976 (U.S. distributor, Elsevier, New York). x, 266 pp., illus. $25.75.

Celestial Mechanics. Vol. 5, Topology of the Three-Body Problem. Yusuke Hagihara. Japan Society for the Promotion of Science, Tokyo, 1976. Two parts. xx, 1562 pp., illus. $126.

Chemistry of Organic Fluorine Compounds. A Laboratory Manual with Comprehensive Literature Coverage. Miloš Hudlický. Horwood, Chichester, England, and Halsted (Wiley), New York, ed. 2, 1976. xiv, 904 pp., illus. $77.50. *To order this book circle No. 397 on Readers' Service Card*

Coal. Part 1, Social, Economic, and Environmental Aspects. Mones E. Hawley, Ed. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1976 (distributor, Halsted [Wiley], New York). xiv, 386 pp., illus. $30. *To order this book circle No. 389 on Readers' Service Card*

Cognitive Development. Its Cultural and Social Foundations. A. R. Luria. Translated from the Russian edition (Moscow, 1974) by Martin Lopez-Morillas and Lynn Solotaroff. Michael Cole, Ed. Harvard University Press, Cambridge, Mass., 1976. xvi, 176 pp., illus. $12.50.

Commentaries in Plant Science. Harry Smith, Ed. Pergamon, New York, 1976. x, 286 pp., illus. $18. Reprinted from *Current Advances in Plant Sciences*, Mar. 1973–Dec. 1975.

A Comparative Atlas of America's Great Cities. Twenty Metropolitan Regions. Association of American Geographers, Washington, D.C., and University of Minnesota Press, Minneapolis, 1976. xxiv, 504 pp., $95. Comparative Metropolitan Analysis Project, vol. 3.

Comparative Immunology. John J. Marchalonis, Ed. Halsted (Wiley), New York, 1976. xiv, 470 pp., illus. $37.50. *To order this book circle No. 390 on Readers' Service Card*

Concanavalin A as a Tool. H. Bittiger and H. P. Schnebli, Eds. Wiley-Interscience, New York, 1976. xvi, 640 pp., illus. $42. *To order this book circle No. 375 on Readers' Service Card*

Contributions to the Doctrine of Signs. Thomas A. Sebeok. Indiana University Research Center for Language and Semiotic Studies, Bloomington, and Peter de Ridder Press, Lisse, Netherlands, 1976. xiv, 272 pp. Paper, $17. Studies in Semiotics, vol. 5.

The Crisis of Culture. Steps to Reopen the Phenomenological Investigation of Man. Proceedings of a conference, Montreal, Mar. 1974. Anna-Teresa Tymieniecka, Ed. Reidel. Boston, 1976. viii, 386 pp. $39.50. Analecta Husserliana, vol. 5.

Culture and Practical Reason. Marshall Sahlins. University of Chicago Press, Chicago, 1976. xii, 252 pp. $17.50.

Current Chromosome Research. Proceedings of a conference, Kew, England, July 1976. K. Jones and P. E. Brandham, Eds. North-Holland, Amsterdam, 1976 (U.S. distributor, Elsevier, New York). xvi, 240 pp., illus. $23.95.

Current Developments in Psychopharmacology. Vol. 3. Walter B. Essman and L. Valzelli, Eds. Spectrum, New York, 1976 (distributor, Halsted [Wiley], New York). xiv, 304 pp., illus. $25. *To order this book circle No. 391 on Readers' Service Card*

Current Topics in Cellular Regulation. Vol. 11. Bernard L. Horecker and Earl R. Stadtman, Eds. Academic Press, New York, 1976. xvi, 252 pp., illus. $27.

Cytogenetic Aspects of Malignant Transformation. N. B. Atkin. Karger, Basel, 1976. viii, 172 pp., illus. Paper, $30.75. Experimental Biology and Medicine, vol. 6.

Dependency or Interdependency in Old Age. Papers from two colloquia, Grenoble, 1974, and Kibbutz Ma'alei Hachamisha, Israel, 1975. Joep M. A. Munnichs and Wim J. A. van den Heuvel, Eds. Nijhoff, The Hague, 1976. xiv, 176 pp. Dfl. 48.

Dermatologic Radiotherapy. O. Braun-Falco, H. Goldschmidt, and S. Lukacs. Translation and revision of the German edition. Springer-Verlag, New York, 1976. xiv, 154 pp., illus. $14.50.

Detection and Spectrometry of Faint Light. John Meaburn. Reidel, Boston, 1976. x, 274 pp., illus. $34. Astrophysics and Space Science Library, vol. 56.

Drug Design. Vol. 7. E. J. Ariëns, Ed. Academic Press, New York, 1976. xvi, 296 pp., illus. $30. Medicinal Chemistry, vol. 11.

Economics and Operational Research. M. H. Beilby. Academic Press, New York, 1976. x, 174 pp., illus. $12. Topics in Operational Research.

The Economics of Nuclear and Coal Power. Saunders Miller assisted by Craig Severance. Praeger, New York, 1976. xviii, 154 pp., illus.

(Continued on page 463)