clinical and scientific world would accept the credibility of experts. But impressionistic, "commonsense" diagnoses, however achieved, by however distinguished experts met together, are not enough. The Framingham reply is that sharpening the diagnosis would only serve to enhance the important relationships found.

On the other hand, there is no lack of forthrightness in Dawber's opinions on collecting, managing, and collaborating in the analysis of epidemiological data. He has clearly been stung by a world in which Framingham data, collected under a highly visible government contract, involving many Public Health Service officers and staff and long-term government funding, are considered the property of the institution that commissioned and sponsored the study:

> The separation of the investigators collecting the data from those directly responsible for its analyses became a real problem. In spite of frequent meetings of all concerned, I found that as Principal Investigator, I had less and less control over the analysis. In addition, the staff at the National Institutes of Health became increasingly possessive of the data, ostensibly to preserve the confidentiality of medical records. The question of ownership of the data still has not been completely resolved and has arisen in other studies financially supported by NIH. My own insistence was that the data collected by an investigator in a study under his personal direction are primarily his. They must be available to him for analysis and reporting. The National Heart, Lung, and Blood Institute authorities took the view that the data were theirs, and were not to be released to anyone. Fortunately, we arrived at reasonably amicable arrangements whereby earlier data were made available to me. The lesson I learned was that under no circumstances should any scientific investigator allow his work to be controlled by others who act not strictly as co-investigators but as analysts of the findings of the research.

This is an understandable view. Perhaps a more appropriate view today would be that, after initial publications and major contributions are made, the principal investigator would then best encourage, consult, supervise, and share with others the exploitation of data obtained collaboratively.

The book contains many other pithy statements of the author's views, based on 30 years of experience. All of Framingham can be found here. The saltily seasoned judgment of the original and senior Framingham investigator is lagniappe.

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Bacterial Cell Surfaces

Microbial Cell Walls and Membranes. H. J. ROGERS, H. R. PERKINS, and J. B. WARD. Chapman and Hall, London, 1980 (U.S. distributor, Methuen, New York). x, 564 pp., illus. $75.

This book comes at an appropriate time, for different disciplinary approaches are now converging on the study of the microbial cell wall. The book is a sequel to the highly successful *Cell Walls and Membranes* by Rogers and Perkins. A comparison of that book with the present volume reveals the many advances that have occurred over the past decade.

These authors together with Ward have completely rewritten their book. The new volume emphasizes the ultrastructure of bacterial envelopes, membrane composition and function, the structure and biosynthesis of peptidoglycan, additional polymers of the wall, autolysins, and the cell wall in growth and division. The mechanisms of antibiotics that inhibit the assembly of the wall receive major emphasis. In addition, the structure and biosynthesis of yeast and fungal walls are described.

The majority of the chapters give an intensive, thorough review of their topics. The mechanism of penicillin action is described with an in-depth, objective analysis. This topic, the biosynthesis of peptidoglycan, other antibiotics affecting bacterial wall synthesis, and the biosynthesis of teichoic acids receive extensive treatment and provide some of the highlights of the book.

The authors have omitted a number of topics that might have contributed to the central focus of the book. For example, there is no description of the relationship of any of the surface appendages, such as pili and flagella, with the membrane and the wall. Wall polysaccharides in Gram-positive organisms are given only a cursory view. This is surprising in light of the current interest in such bacteria as *Streptococcus mutans*, one of the cariogenic organisms. In addition, the role of the envelope in chemotaxis and bacterial adherence is not discussed. In one or two chapters some of the more recent information has not been included. For example, the important contribution of Schwarz and his co-workers (1978) concerning the arrangement of glycan chains in the sacculus of *Escherichia coli* is not described in the chapter on the structure of peptidoglycan even though the chapter contains references from 1979.

Scientists in a number of disciplines, including pharmaceutical chemistry, will be attracted to this book. With supplementation, it would make a useful textbook for an advanced course in bacterial cell surfaces.

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Regional Tectonics

Sedimentation in Oblique-Slip Mobile Zones. Papers from a symposium, Auckland, New Zealand, Jan. 1979. PETER F. BALLANCE and HAROLD G. READING, Eds. Blackwell Scientific, Oxford, 1980 (U.S. distributor, Halsted [Wiley], New York). vi, 266 pp., illus. Paper, $37.50. International Association of Sedimentologists Special Publication No. 4.

Strike-slip tectonic regimes have received considerable attention during the past five years, as witness a number of significant conferences and volumes on the topic. This is largely because intracontinental transforms, in particular, are spectacularly developed systems, are susceptible to relatively easy study, and are increasingly recognized as important in the search for hydrocarbons.

Not surprisingly, because the stratigraphic record associated with an oblique-slip fault is only properly preserved in fault-offstepping pull-apart basins, such basins feature in several papers in this symposium volume. The volume contains some papers, particularly those of Bluck on the late Devonian of the Midland Valley of Scotland, Steel and Gloppen on the early Devonian of western Norway, and van der Lingen and Pettinga on the Makara Basin in New Zealand, that are valuable additions to the literature in providing definitive and well-interpreted data sets. A sequence of papers (Spörli, Lewis, van der Lingen and Pettinga, Prebble, Ballance, and Norris and Carter) on basins associated with the Alpine Fault System of New Zealand and its terminations gives an excellent insight into the Cenozoic evolution of the New Zealand plate boundary system, although greater emphasis on basins of the Marlborough area would have been more useful in a volume on oblique-slip zones. Papers by Heward and Reading on the Carboniferous of Cantabria and Robertson and Woodcock on Cretaceous-Paleogene sediments associated with the Antalya Complex in Turkey are fine but seem a little out of place in this volume in that neither makes a convincing case for

oblique slip. A more theoretical paper by Rodgers shows how double pull-apart basin systems develop where offstepping strike-slip faults overlap by more than the width of offstep. Howell *et al.* usefully summarize the sedimentological effects of the California transition from a subduction to a strike-slip regime during the late Tertiary.

The volume does not provide, as its title implies it will, a thorough view of sedimentation in oblique-slip zones. Of 13 papers only four address themselves specifically to clear examples of oblique-slip-related basins, and there is a preponderance of papers on compressional regimes in New Zealand, although the latter are geometrically related to the Alpine Fault System. Nevertheless, for those, like the reviewer, who are interested in regional tectonics, this is a most important reference volume.

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Waste Disposal

Ocean Dumping of Industrial Wastes. Papers from a symposium, West Greenwich, R.I., Oct. 1978. BOSTWICK H. KETCHUM, DANA R. KESTER, and P. KILHO PARK, Eds. Plenum, 1981. x, 526 pp., illus. $59.50. Marine Science, vol. 12.

The Report on Ocean Dumping issued in 1970 by the U.S. Council on Environmental Quality concluded that there was a need for a national policy regarding ocean dumping. The conclusion was based on ocean dumping activity in the United States, which had increased rapidly since the end of World War II. Since 1970 a series of laws passed by the U. S. Congress has reversed that trend. At the same time, it has become apparent that there are many real, or perceived, problems with waste disposal on land. During the past three years, several marine scientists have argued that the oceans can be used in some cases for disposal of waste with few ill effects on other desired uses of the oceans. At the very least, they argue, we should reexamine the scientific basis for a ban on ocean dumping within the context of all waste-disposal options: land, sea, air, and recycling. The present situation has been summarized and a series of recommendations set forth in a Special Report to the President of the United States and the Congress ("The Role of the Ocean in a Waste Management Strategy," January 1981) by the National Advisory Committee on Oceans and Atmosphere (NACOA).

Thus *Ocean Dumping of Industrial Wastes* has been published at a propitious time. Even though the content mainly reflects the state of research and policy as of 1978, the volume provides a good reference for much of the background of present approaches to ocean dumping of wastes. The focus of the discussion and the source of most of the examples are experience in the United States, with some comments pertaining to the United Kingdom and international policy. Prospective readers should realize that the volume was not intended as, nor is it, a comprehensive review of the subject.

The book has five main sections. The introductory section, which contains four papers, begins with a concise, well-written account by P. K. Park and T. P. O'Connor of historical and international developments as they relate to the perspective of the United States. The essence of the main issues is presented in an 18-line introductory poem by Momiji.

The second section, Physical Aspects of Ocean Dumping, contains four very good papers describing applications of physical oceanography to ocean dumping of barged wastes and two papers about remote sensing. I found this section to have the best balance between theory and practice.

The third section, Chemical Aspects of Ocean Dumping, contains a mixture of good papers, for instance one on transition and heavy metals associated with acid-iron waste disposal by D. R. Kester *et al.*, and a few cursory papers containing data with little interpretation. A paper by K. S. Kamlet on disposal of organochlorine wastes by incineration at sea is an interesting, lucid description of its topic from a legal and policy viewpoint but does not contain any chemistry as such.

The fourth section, Biological Aspects of Ocean Dumping, is a conglomerate, with papers about aspects of microbiology, phytoplankton, zooplankton, fish, and histology and physiology. It would have been helpful to have an overview that related these studies and placed them in the broader context of response of marine organisms, populations, communities, and ecosystems to stress.

The final section, Future Prospects of Ocean Dumping, consists of a paper by Kester, Ketchum, and Park that relates the physical, chemical, and biological aspects dealt with in the preceding sections and provides an assessment of present knowledge and future needs. The authors anticipate the issues set forth in the NACOA report.

I recommend selective reading of appropriate sections of this useful volume for all those enmeshed in the how, where, and for-how-long hassles of waste disposal—whether their current interest is land, sea, or air.

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Books Received

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