In their third chapter Bayne *et al.* analyze the integration of the component systems in terms of quantitative indices which describe, far better than the performance of individual organs, the compensatory physiology of whole mussels challenged by environmental change. A most valuable index, dealt with at length, is the scope for growth, a measure of energy balance. This index, among others, describes the condition, or health, of mussels and is, therefore, a useful indicator of stress. The results of the stress would be expressed as a loss of fecundity or a decrease in larval survival, a matter also considered by Bayne in his review of larval biology.

In summary, these chapters constitute a complete "operating manual" for *Mytilus edulis* and other mussels performing under any conditions; and, as in any good manual, directions for diagnosing malfunction under stress are included. Moreover, since the physiological approaches and techniques employed are carefully described and the technical pitfalls and sources of error laid out, these chapters constitute a protocol for producing a similar set of data for other organisms—molluscan or not.

The discussion of physiological ecology is extended in two additional chapters. First, Bayne's review of larval biology suggests, again, that a thorough functional understanding of these transient organisms can elucidate such complex phenomena as growth, behavior, the timing of settling and metamorphosis, and, ultimately, the reproductive strategy of mussels. Second, aspects of energy metabolism of both adults and larvae underlying physiological ecology are discussed by P. A. Gabbott. Of particular interest are the seasonal changes in biochemical composition and metabolism accompanying the reproductive cycle of mussels. Gabbott also reviews, critically, anaerobic metabolism in bivalves, a subject currently under wide investigation.

Ecology is discussed by R. Seed, and two ecological subareas—pollution and cultivation—are reviewed by D. Roberts and J. Mason, respectively. That future work in these areas will be influenced strongly by data from physiological and biochemical experimentation is a clear message of the book. Population genetics is another, newer, source of data for understanding ecological processes, and this area is reviewed by J. S. Levinton and R. K. Koehn. Finally, the book contains a reiteration by C. M. Yonge of his notions about the origin of the heteromyarian condition and the development of byssal attachment. Stanley's recent interesting analysis of this subject is considered but briefly and then discarded.

The material in this volume is remarkably well integrated; but then half of the reviews were written by Bayne and his associates. The editorial work was scrupulous. The book is well illustrated; the graphs and tables are clear; the indexing is useful; and the bibliography that follows the chapters is complete and up to date.

Since *Marine Mussels* considers principles, approaches, and techniques of a general nature, it should be valuable to a much wider range of biologists than the title suggests and should serve graduate students in ecology and environmental physiology as a model for their own endeavors.

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Work on Relativity

General Relativity and Gravitation. Proceedings of a conference, Tel-Aviv, June 1974. G. SHAVIV and J. ROSEN, Eds. Halsted (Wiley), New York, and Israel Universities Press, Jerusalem, 1975. viii, 344 pp., illus. $38.50.

Three major themes have pervaded recent work on general relativity: the prospect of astrophysical applications, the employment of global concepts from mathematics, and the exploitation of new experimental methods. The 14 invited papers that make up this book survey the field as of 1974. The coverage is uneven: global results are barely mentioned, whereas astrophysics and experimental results are much talked of. Over half the articles are broad reviews, generally very readable and copiously referenced; in these lies the lasting value of the book. The rest of the articles are a mixed bag.

Modern cosmology is treated by Criss, Matzner, Ryan, and Shepley. This paper is really likable in that the authors discuss together physical or observational cosmology on one hand and mathematical or "general relativistic" cosmology on the other, and every attempt is made to demonstrate that they are two aspects of the same subject; this fact is too often not apparent in the original literature.

W. Kinnersley surveys the known exact solutions to Einstein's equations in a lucid paper that should become a standard reference. This is another subject in which the primary literature too often ignores the forest for the trees; Kinnersley's group-theoretic classification of transformational "tricks" does much to organize the material. Similarly useful technical reviews include papers by J. Goldberg on the canonical method, J.-P. Richard on solar-system experimental tests, Deser, van Nieuwenhuizen, and Boulware on quantum gravity, and J. Ehlers on statistical mechanics.

The astrophysical connection is supplied by M. Rees in a brief and stimulating topical review of observational effects of black holes; this of course is a rapidly changing subject. W. Press mentions some exotic aspects of black holes.

A long panel discussion by gravitational-wave experimenters is intended to air the controversy surrounding Weber's experiments and the failure of others to reproduce his results. Not many answers are forthcoming, but the transcript is somewhat more enlightening than the spotty original literature on this subject. Finally, a summary and appreciation of general relativity by J. Wheeler can be read with benefit by everyone from high school students to senior researchers.

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Books Received

Annual Summary of Information on Natural Disasters. Earthquakes, Tsunamis, Volcanic Eruptions, Landslides, Avalanches. No. 8, 1973. Unesco Press, Paris, 1975 (U.S. distributor, Unipub, New York). 102 pp. Paper, $5.95.

Aquatic Weeds in South East Asia. Proceedings of a seminar, New Delhi, Dec. 1973. C. K. Varshney and J. Rzóska, Eds. Junk, The Hague, 1976. xviii, 396 pp., illus. Paper, Dfl. 110.

Arroyos and Environmental Change in the American South-West. Ronald U. Cooke and Richard W. Reeves. Clarendon (Oxford University Press), New York, 1976. xii, 214 pp., illus. $18.75. Oxford Research Studies in Geography.

Claude Bernard's Revised Edition of His Introduction à l'Etude de la Médecine Expérimentale. Paul F. Cranefield. Science History Publications (Neale Watson), New York, 1976. xii, 323 pp. $30; prepaid, $25. The History of Medicine Series, No. 48.

Coastal Vegetation. V. J. Chapman. Pergamon, New York, ed. 2, 1976. viii, 292 pp., illus. Cloth, $17.50; paper, $9.50. Pergamon International Library.

Cocaine. A Drug and Its Social Evolution. Lester Grinspoon and James B. Bakalar. Basic, New York, 1976. x, 308 pp. $15.

Conventional and Non Conventional Proteins. Proceedings of a workshop, Capri, Oct. 1975. R. Ferrando, M. Ganzin, and P. R. Payne. Il Ponte, Milan, Italy, 1976. 206 pp., illus. Paper, $40. Folia Veterinaria Latina, vol. 6, supplement 1.

Coronary Heart Disease. Clinical, Angiographic, and Pathologic Profiles. Zeev Vloda-

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