secticides (penetration, metabolic degradation, and the like).

After reading through this small book, I find it difficult to do more than compliment the authors who undertook such a prodigious assignment within so few pages. I do wonder whether the book can be profitably used by one who is *only* an entomologist or a radiologist, but there is no question that it will be valuable to either, provided he already has an introductory appreciation of the other field. I profited from reading the book but was unable to avoid noting sentences like the following, "The principle is simple" (p. 102). There is nothing in this sentence which indicates that the *art* of the game is tricky and laborious. I also wonder about the wisdom of including a section on vision, despite its being within the scope of the title. But these and any other points I might raise about this volume reflect primarily slight differences in point of view. The authors obviously know whereof they speak, and the volume should be really useful to a significant fraction of each of the two audiences to which it is addressed. It is to be recommended.

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Space Physiology

Physiological Problems in Space Exploration. James D. Hardy, Ed. Thomas, Springfield, Ill., 1964. x + 333 pp. Illus. $12.50.

This book is a refreshing change from the plethora of hastily compiled almanacs on the space explosion. James Hardy has produced a valuable text and reference work on space physiology; it is composed of nine monographs by Hardy and six of his colleagues at the Naval Aviation Medical Acceleration Laboratory, the Aerospace Crew Equipment Laboratory, and the University of Pennsylvania Medical School.

Hardy himself is an authority on the biophysics of heat radiation and on acceleration. The monographs on temperature, acceleration, and weightlessness, which he prepared for this book, are models of lucid, scientific exposition, competently illustrated with pertinent tables, graphs, diagrams, and photographs. The formulas and equations for temperature and acceleration, relating to space flight and environment problems of survival and protection, are understandable to both medical and engineering students. He sets a high standard for the other authors.

Clark, an authority on acceleration, must have felt trepidations at undertaking a review of high energy radiations. But his well-organized, scholarly presentation gains more from his insight into the implications of the space environment than it loses from being outside his primary field of research. He teaches others by having taught himself from a well-selected bibliography of 55 references. In contrast, Brobeck, in the chapter on food requirements in space, assumes that his readers will be well-versed in the subject and thereby relieves himself of the need to elucidate. From the standpoint of a "space gourmet," he expresses intuitive opinions, interesting and provocative, but not substantiated by factual data. He refers prefunctorily to a bibliography of 30 unnumbered entries, leaving the reader to make his own review.

Another chapter that needs more homework is the one on sensory and perceptual problems in space flight, by Brown. Surely, the 51 references cited by Brown could have provided a few tables, graphs, or diagrams. Paradoxically, Halberg, in his monograph on physiological rhythms, almost goes into semaphore to convey information via graphs and diagrams. He points out an insidious variable in biological experiments: how diurnal and seasonal physiological rhythms modulate tolerance to other stresses. Hormone experiments are significantly modified by the time of day hormones are administered. The adaptations of astronauts to 18 sunrises and sunsets daily over a period of weeks in orbit should be interesting. Chambers expertly reviews 124 references on isolation and disorientation. He compares data from space and high altitude balloon flights made by the United States and the U.S.S.R. with data from ground simulators with respect to sensory perceptions and adaptations. Labyrinthine anatomy could have been more neatly presented in diagrams than in words. The consequence of this reluctance to illustrate is a cumbersome cataloging of visual details not unlike the effort involved in making a bed by using a walking stick rather than the hands.

Taking nothing for granted, Hendler reviews basic respiratory physiology and relates it to survival requirements in space flight; he then provides a critique of space cabin simulators in which human volunteers are exposed to the gamut of breathing atmospheres and pressures feasible for space flight. Hendler matches Hardy in clarity and effectiveness of exposition. The reader can forgive him for not putting his 50 references in alphabetical order, while wishing that Hardy had listed a few more than 7 or 8 references for each of his chapters.

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Brain and Behavior

Unfinished Tasks in the Behavioral Sciences. Arnold Abrams, Harry H. Garner, and James E. P. Toman, Eds. Williams and Wilkins, Baltimore, 1964. xviii + 264 pp. Illus. $10.

This book contains 23 papers dealing with brain and behavior in animals and man. In the first half of the book, experts on anatomy, physiology, and pharmacology describe the present status of their brain research and project it into the future, while in the second half the psychologists and psychiatrists perform similarly with respect to their spheres of competence. In the introduction Percival Bailey surveys the territory to be covered, and at midpoint Seymour Kety provides an appropriate bridge to connect the two halves of the book. A very short index comes at the end.

Although many of the papers are so brief as to be almost trivial abstracts, others represent contributions of some importance. Eccles, Grundfest, Killam, and Woolsey each take pains to summarize their current views of brain mechanisms, and Woolsey presents an extended description of the medial geniculate projection to the cortex, which has not been published elsewhere. Similarly, Harry Harlow goes into detail on the behavior of infant monkeys following social deprivation, Gardner Murphy states his hopes for a "science of individuality," and Roy Grinker discusses hypothesis testing in psychoanalysis. The range of topics covered is obviously appropriate for the purposes of the symposium that brought

the authors together—that occasion was to celebrate the first birthday of the laboratories in the Division of Behavioral Sciences of the Institute for Medical Research at the Chicago Medical School.

Some of the frankness that must have characterized the interchanges is preserved in the text. But, on the whole, this book does no better than most, and not nearly so well as some (for instance, the best of the Macy conference series), in conveying to the reader whatever stimulation and instruction such get-togethers provide for the speakers and their audience.

Considering the modest amount of hard information that it contains, with respect to both finished and unfinished business in the behavioral sciences, this book can hardly be called a "Best Buy." In fact, it could be argued that the only reason it exists at all is that our affluent society can afford to publish in its permanent record just about everything anyone cares to say.

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Mathematics

Elements of Point Set Topology. John D. Baum. Prentice-Hall, Englewood Cliffs, N.J., 1964. x + 150 pp. Illus. $7.95.

Elements of Point Set Topology contains well-chosen and well-organized material for a one-semester, upper-level, undergraduate course in topology. Perhaps the most effective feature of the book is its emphasis on problems blended with examples, definitions, and the like so as to promote the beneficial habit of verifying unproved statements as one reads.

After presenting basic necessities of set theory in chapter O, topologies are defined in chapter 1, using a direct axiomatic approach via neighborhood systems, fortified with concrete examples and discussion to help orient the student. Fundamental concepts, namely, open, closed, limit, basis, and related notions are then presented. Chapter 2, on functions, begins with a good summary (which should prove helpful to students) of properties of a function and its inverse and of those which are 1-1, onto or both. Chapters 3 and 4 treat three types of compactness and of connectedness, respectively, and interrelationships. Concluding with chapter 5, "Metric spaces," Baum firmly ties topology to analysis and gives a clear, concise proof of the Urysohn metrization theorem (although use of exercise 2.18 would eliminate half of a page).

The typography is excellent with but a half dozen errors liable to disturb students. Some distracting features, other than the author's habit of using commas where semicolons or periods might be more appropriate, are about a dozen instances of confusing notation (such as one symbol with two roles in the same expression), more than a dozen misleadingly elliptic or redundant statements (for example, on the first page of chapter 5), and at least three (really very few) outright errors —in theorem 2.10, in the unduly devious definition of the Tychonoff Plank, and in the motivation of Definition 3.30. Also, theorem 0.3 could be proved more simply and convincingly without encouraging the dangerous habit of "thinking" something to be that which it is not.

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Note

Marine Science

Marine Bio-Acoustics (Pergamon, London; Wiley, New York, 1964. 427 pp. Illus. $15), edited by William N. Travolga, is a very useful and valuable report of the symposium held at Bimini, Bahamas, in April 1963. The interdisciplinary nature of the field has resulted in the scattering of the literature in a diverse assortment of journals, and few marine laboratories or research institutions can afford to subscribe to all the journals that have published research papers in this field. This volume not only brings much of this together, but also provides additional information in the published reports of the discussions which took place at the symposium. Some of the reports come from industrial laboratories, and the famous 20-cycle signal has finally emerged from the limbo of classified data.

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New Books

General

American Gem Trails. Richard M. Pearl. McGraw-Hill, New York, 1964. 185 pp. Illus. $5.50. A popular account intended to supplement Pearl's *How to Know the Minerals and Rocks* and *Successful Mineral Collecting and Prospecting*.

Annals of the International Geophysical Year. vol. 36, *Catalogue of Data in the World Data Centers*. Pergamon, New York, 1964. 752 pp. Illus. Paper, $10.

Concepts of Mass. In classical and modern physics. Max Jammer. Harper and Row, New York, 1964 (© 1961). 242 pp. Illus. Paper, $1.75.

The Prospect of Immortality. Robert C. W. Ettinger. Doubleday, Garden City, N.Y., 1964. 212 pp. $3.95.

The Psychologist and the Foreign-Language Teacher. Wilga M. Rivers. Univ. of Chicago Press, Chicago, 1964. 220 pp. $4.

The Role of Science in the Development of Natural Resources, with Particular Reference to Pakistan, Iran, and Turkey. A symposium held under the auspices of the CENTO Scientific Council (Lahore, Pakistan), January 1962. Pergamon, London; Macmillan, New York, 1964. 474 pp. Illus. $7.50. The symposium, which was organized jointly by the CENTO Institute of Nuclear Science and the Pakistan Atomic Energy Commission, was attended by more than 100 scientists who discussed fuel, power, and atomic energy in the region; the development of water, forestry and land use planning; agriculture and soil; forest and plant products; animal health and nutrition; and public health. Many of the papers in these sections are brief abstracts (1 page or less). The place of research in developing countries was considered by D. H. Wilkinson, who discussed the relationship between pure and applied research, Sir William Slater, who considered the relationship between government and science, and E. C. Watson, who outlined organization of scientific research in the U.S.

The Scientific Revolution and World Politics. Caryl P. Haskins. Published for the Council on Foreign Relations by Harper and Row, New York, 1964. 125 pp. $3.50.

The Story of Fabian Socialism. Margaret Cole. Wiley, New York, 1964. (© 1961). 381 pp. $1.95.

Strategy and Conscience. Anatol Rapoport. Harper and Row, New York, 1964. 351 pp. Illus. $6.95.

Technology and Social Change. A seminar held at Columbia University. Eli Ginsberg, Ed. Columbia Univ. Press, New York, 1964. 168 pp. Illus. $4.50.

The Vertebrates of Arizona. Annotated check lists of the vertebrates of the State: the species and where they live. Charles H. Lowe, Ed. Univ. of Arizona Press, Tucson, 1964. 269 pp. Illus. $5.

Women in the New Asia. The changing social roles of men and women in South and South-East Asia. Barbara E. Ward. UNESCO, Paris, 1963 (order from Columbia Univ. Press, New York). 529 pp. Illus. $10.