

chemistry" (40 pages), M. Szwarc; "Nuclear quadrupole resonance in irradiated crystals" (20 pages), Jules Duchesne; "Correlation problem in many-electron quantum mechanics. I. Review of different approaches and discussion of some current ideas" (116 pages), Per-Olov Löwdin; "Correlation problem in many-electron quantum mechanics. II. Bibliographical survey of the historical developments with comments" (43 pages), Hiroyuku Yoshizumi; "The problem of barriers to internal rotation in molecules" (27 pages), E. Bright Wilson, Jr.

PAUL C. CROSS

*Department of Chemistry,
University of Washington*

Exotic Zoology. Willy Ley. Viking, New York, 1959. xii + 468 pp. Illus. \$4.95.

The art of writing a book with two primary objectives in mind has been attained by Willy Ley in his new book on natural history. Instead of making new editions of *The Lungfish, the Dodo, and the Unicorn* (1941, revised 1948), *Dragons in Amber* (1951), and *Salamanders and Other Wonders* (1955), Ley has selected the most pertinent and interesting portions of each of these books, rewritten some of the sections, and brought them all up-to-date. This material makes up about one-half of the new book, *Exotic Zoology*; the remainder consists of new material not previously published in book form. Thus, a blending of the old and the new has produced one of the most enchanting books on natural history to appear in recent years.

This is the age of the specialist, and such a person should be able to take any chapter of *Exotic Zoology* and write it to death. Instead of this, Ley investigates a number of subjects from two points of view—their historical development in the knowledge of man, and their place, if any, in the evolutionary pattern of life as a whole. This use of both historical and zoological data gives the reader the impression that this is a well-rounded and authoritative book without giving him the feeling that he is reading a textbook. However, no textbook that I have read has the range of factual material that this book has.

Exotic Zoology is divided into five parts. The first part is appropriately

titled "Myth?" It discusses the unicorn in legend and fact, the legends of the survival of large reptiles (dinosaurs?), the Abominable Snowman, and the various legends of the little people—not fairies, but real little people. Pygmies exist, true, but do the descendants of the australopithecines still live in the deep forests of Africa?

The second part, "Records in stone," develops the dragon myths in fact and fiction and includes a very good discussion of the woolly mammoth. A side diversion on the flying dragons—the early bird-reptiles (or is it reptile-birds)—completes this section.

In part three, "Oceanic mysteries," we rove among the strange stories of the Kraken and the scientific basis for belief in huge cuttlefish types in the sea. The sea serpent is treated in a manner that is sympathetic, scholarly, and scientific. The almost unbelievable, large coco-de-mer nut and its strange struggle for existence is one of the botanical puzzles of the world, and it is told here. The spawning habits of the eel complete this section on natural history puzzles.

We find in part four, "Some fabulous islands," the stirring accounts of the extinct moas, and to me, the always intriguing stories (both factual and legendary) of the poison Upas tree. However, the man-eating tree is traced back to a well spun yarn. On the other hand, the Dodo did exist. It played a part in the history of exploration, similar to the role played by the large number of huge tortoises on the islands off the coast of South America.

To conclude this fascinating book, the author (in part five), delves into "Witnesses of the past." Such a hidden treasure house is Australia and its various fauna. Even today, mysteries unfold—such as the discovery of the 200-million-year-old coelacanth—and assure us that adventure is not dead.

To end this journey through space and time, Willy Ley takes us to the continent of mystery, Africa, and the strange and unsuspected animals that turn up there. Such a large animal as the okapi was unknown before 1900. Other primitive types have been found, and the concluding sentence, "And the Congo peacock raised again the old but still open question: what else may be hiding in the Rainy Forest . . . ?" expresses my sentiments completely.

The personal anecdotes, the almost homey treatment, and above all, the careful erudition of Willy Ley will at-

tract the natural and the physical scientist, as well as the layman.

The appendixes contain tables that aid in reading the book, namely, "Sequence and duration of geological periods," and "Animals and climate in northern Europe during the Pleistocene period." Olga Ley's well-done and wisely chosen illustrations add a great deal to the pleasure of reading this book. If you are interested in the world about you, you will like Willy Ley's *Exotic Zoology*.

THOMAS S. GARDNER

*Hoffmann-La Roche, Inc.,
Nutley, New Jersey*

Navaho Art and Culture. George Mills. Taylor Museum, Colorado Springs Fine Arts Center, Colorado Springs, Colo., 1959. 221 pp. Illus. + plates.

To what extent does the art of a people reflect the values and the character of the society that produces it? George Mills, dissatisfied with the intuitive nature of previous studies of this problem, has sought a more objective method of attacking it. Choosing as his people for study the Navaho Indians of the American Southwest, he first seeks to analyze each of four of their artistic media—the traditional arts of weaving, silverwork, ceremonial dry-painting (commonly referred to as sand-painting), and a series of freehand, crayon drawings made for him in 1951–52 under conditions he imposed. He finds some 20 artistic traits which are common to all four media and designates them significant from the viewpoint of cultural values.

Mills then summarizes the major premises of the Navaho way of life as he has determined them from analysis of the literature on the tribe, written by cultural anthropologists. He then seeks to find psychological interpretations for the 20 Navaho artistic traits in the literature on the psychology of art in which the meanings of similar traits in the art of non-Navaho peoples are considered. And finally, he compares these interpretations with the major premises of Navaho life as revealed in the writings of students of the whole culture.

These correlations, for the most part, are very striking. They suggest that Navaho art is, indeed, an integral part of Navaho culture, which reflects the psychological characteristics and cultural values of these people. Furthermore, Mills finds that interpretations

of their art indicate that the Navahos are both more emotional and more inclined to look upon aliens as sources of good, as well as evil, then students of their culture had recognized.

To most readers this book will be of greatest interest as a pioneer effort to introduce rigorous method and objectivity into the study of the relationship between art and total culture. In his concluding chapter Mills shows his awareness of two weaknesses in his methodology. His knowledge of Navaho culture inevitably influenced his selection and definition of typical traits in Navaho art. Faced with conflicting interpretations of artistic traits by different psychologists, he chose the ones which seemed to fit the Navaho cultural situation best. One must admire him for the ingenuity and earnestness of his efforts and for his frank recognition of their shortcomings.

JOHN C. EWERS

U.S. National Museum

Comparative Endocrinology. Proceedings of a symposium. Aubrey Grobman, Ed. Wiley, New York; Chapman and Hall, London, 1959. xx + 746 pp. Illus. \$15.

This volume is a collection of 43 papers presented at the Columbia University symposium on comparative endocrinology which was held 25–29 May 1958. The volume also includes brief reports of the discussion that followed many of the papers (in most cases the discussion is of modest interest), an index of animal names, and a subject index. The editorial work is excellent. The appearance of these papers within a year of the symposium represents an achievement for which both the editorial staff and the contributors should be congratulated.

The papers range from rather broad reviews to quite precise presentations of research. Almost without exception, they are well-written and informative. The general areas covered in these contributions are: (i) endocrine factors in behavior and ecological adaptation, (ii) neurosecretory systems, (iii) comparative morphology and physiology of the thyroid, hypophysis, adrenal, and pancreas, (iv) and comparative endocrinology of reproduction.

None of the papers are clinical in orientation, and many are comparative

in the strict sense of the word, for they make significant use of species as an experimental variable. However, very little attention is devoted to invertebrate endocrine systems, and those contributions which present recent information in this area are addressed to general physiological aspects of endocrinology rather than to the comparative aspects. Exceptions to this are the brief reviews by Berta Scharrer and Ernst Scharrer of neurosecretory systems, and a paper by E. J. W. Barrington on the endocrinology of the protochordates. Hence, "Comparative Vertebrate Endocrinology" would be a more appropriate title for the book.

This volume clearly deserves a place on the bookshelves of workers concerned with comparative endocrinology. It also deserves a broad distribution on the shelves of biologists not directly concerned with this area, but it is, unfortunately, not likely to achieve this broader distribution. This is due partly to the necessarily ephemeral interest of summaries in such a rapidly developing field, but primarily to the high price necessary to defray publication costs of the volume. The paper and binding are good, and the illustrations are numerous and well reproduced. Thus, there is no doubt of value received, but the cost of \$15 will discourage casual interest. This is a pity.

G. C. STEPHENS

Department of Zoology,
University of Minnesota

New Books

Adolescent Aggression. A study of the influence of child-training practices and family interrelationships. Albert Bandura and Richard H. Walters. Ronald, New York, 1959. 487 pp. \$7.50.

Advances in Catalysis and Related Subjects vol. 11. D. D. Eley, P. W. Selwood, Paul B. Weisz. Academic Press, New York, 1959. 394 pp. \$12.50. Contents: "The kinetics of the stereospecific polymerization of α -olefins," G. Natta and I. Pasquon; "Surface potentials and adsorption process on metals," R. V. Culver and F. C. Tompkins; "Gas reactions of carbon," P. L. Walker, Jr., F. Rusinko, Jr., L. G. Austin; "The catalytic exchange of hydrocarbons with deuterium," C. Kemball; "Immersional heats and the nature of solid surfaces," J. J. Chessick and A. C. Zettlemoyer; "The catalytic activation of hydrogen in homogeneous, heterogeneous, and biological systems," J. Halpern.

Africa. Its peoples and their culture history. George Peter Murdock. McGraw-Hill, New York, 1959. 469 pp. \$11.75.

America in the Antarctic to 1840. Philip

I. Mitterling. Univ. of Illinois Press, Urbana, 1959. 211 pp. \$5.

Analytical Chemistry of Titanium Metals and Compounds. Maurice Codell. Interscience, New York, 1959. 391 pp. \$12.

Analytical Cytology. Methods for studying cellular form and function. Robert C. Mellors, Ed. McGraw-Hill, New York, ed. 2, 1959. 544 pp. \$17.50.

Applied Solar Energy Research. A directory of world activities and bibliography of significant literature. Jean Smith Jensen, Ed. Assoc. for Applied Solar Energy, Phoenix, Arizona, 1959. 296 pp.

Biophysical Science—A Study Program. J. L. Oncley, Ed. Wiley, New York, 1959. 648 pp. \$6.50.

The Conceptual Foundations of the Statistical Approach in Mechanics. Paul and Tatiana Ehrenfest. Translated by Michael J. Moravcsik. Cornell Univ. Press, Ithaca, N.Y., 1959. 130 pp. \$3.

The Death of Adam. Evolution and its impact on Western thought. John C. Greene. Iowa State Univ. Press, Ames, 1959. 400 pp. \$4.95. This book was the winner of the 1959 Iowa State Centennial award for "the most outstanding manuscript written by an Iowa State faculty member."

Engineering Thermodynamics. An introductory text. D. B. Spalding and E. H. Cole. Arnold, London; McGraw-Hill, New York, 1959. 383 pp. \$8.50.

Exploding Wires. Based on conference on exploding wire phenomenon, April 1959. William G. Chace and Howard K. Moore, Eds. Plenum Press, New York; Chapman and Hall, London, 1959. 373 pp. \$9.50.

Explorations—East of the High Andes (from Patagonia to the Amazon). Victor Oppenheim. Pagent Press, New York, 1958. 267 pp. \$5.

Ferrites. Physical properties of ferromagnetic oxides in relation to their technical applications. J. Smit and H. P. J. Wijn. Wiley, New York; Philips' Technical Library, Eindhoven, Netherlands, 1959. 383 pp. \$10.

General Biology. William C. Beaver. Mosby, St. Louis, Mo., ed. 5, 1959. 775 pp. \$6.75.

A Guide-Book to Biochemistry. Kenneth Harrison. Cambridge Univ. Press, New York, 1959. 158 pp. \$3.50.

Human Heredity. Ashley Montagu. World Publishing, Cleveland, Ohio, 1959. 397 pp. \$5.

Introduction to Theoretical Meteorology. Seymour L. Hess. Holt, New York, 1959. 376 pp.

John Dewey: Dictionary of Education. Ralph B. Winn, Ed. Philosophical Library, New York, 1959. 160 pp. \$3.75. A compilation of Dewey's theories and statements.

Lehrbuch der Theoretischen Physik. Georg Joos. Akademische Verlagsgesellschaft, Frankfurt am Main, Germany, 1959. 835 pp.

Medizinische Grundlagenforschung. vol. 2. K. Fr. Bauer, Ed. Thieme, Stuttgart, Germany, 1959. 835 pp. DM. 168.

Modern Electronic Components. G. W. A. Dummer. Philosophical Library, New York, 1959. 480 pp. \$15.