sexuality was an integral part of aboriginal religion, it is singularly rare in the art of either the past or the present. The next chapter compares the Marquesans with Polynesia in general, showing basic similarities, and the final chapter is an often provocative and interesting treatment of the probable causes of cultural change. Five appendices on special topics and a bibliography conclude the volume.

The book is replete with information which, when compared to other cross-cultural data, is of substantial theoretical import. For example, it is clear that female sexual responsiveness is extremely subject to cultural conditioning; that permissiveness does not preclude strong jealousy nor prevent preoccupation with sex; and that a major cultural interest need not be expressed in the graphic art. In view of the value of Suggs's contribution, one joins him in his hope that anthropology will develop more precise measurements and techniques to categorize behavior into meaningful units so as to facilitate studies of change and causation.

PAUL H. GEBHARD
Institute for Sex Research, Indiana University, Bloomington

Introductory Textbook on Ecology

This second edition of **Field Biology and Ecology** (McGraw-Hill, New York, ed. 2, 1966. 509 pp., $9.50), by Allen H. Benton and William E. Werner, Jr., has been largely rewritten with additional chapters on energy exchange and marine ecology. The appendix has also been enlarged to include bibliographic reference sources, ecological instrumentation, and a very brief discussion of statistical terms. The book is composed of 13 chapters, one of the earliest being a brief but excellent history of the development of natural history and ecology in the United States. In addition to lucid chapters on taxonomy, communities, and succession, the authors also present the basic principles of animal behavior and, in a later chapter, review and stress the increasing importance of ecologically orientated research on man's deteriorating environment. However, although the authors claim that their book "is designed to meet the needs of a beginning ecology or field biology course," it only partially reflects the orientation and important research developments that characterize the growth of ecology during the past decade. For example, of the 13 chapters, one is devoted to energy flow in ecological systems and one to population ecology, but together these chapters comprise less than half of the material describing ecological succession. In the chapter on natural populations the significant concepts and current problems relating to growth and regulation are only briefly touched on, and the emerging relationships between genetics and ecology are omitted. In addition no mention is made of the Morris 15-year budworm study, which is probably one of the most significant studies of a natural population ever attempted, nor of the work of MacArthur on species diversity and community stability which has stimulated so much recent research and discussion.

The authors' interests and competence in the description of natural ecological systems is evident throughout the book, particularly in the chapters on plant communities and succession which comprise almost half the book. Avoided in the discussion of communities, however, is the biocoenological approach that has resulted in research into the reality of the plant community and the emergence of the concept of the vegetational continuum. In addition, even though many students today are equipped with the elements of calculus before enrolling in a beginning ecology course, an introduction to the use of mathematics and statistics has been avoided throughout the book, despite the fact that these are indispensible tools for the ecologist today.

Most chapters are profusely illustrated with excellent photographic material, much of it from the authors' own files. Graphical content is low and reflects the descriptive rather than the analytical and experimental approach of the authors. The book will continue to serve very adequately as a text for use in an elementary ecology course at the sophomore level, where emphasis is on vegetation, but it does not provide sufficiently the balance of content and the depth necessary for the more prevalent introductory course in general ecology at the junior-senior level.

ALAN E. STIVEN
Department of Zoology, University of North Carolina, Chapel Hill

Meteorology

Climates of the U.S.S.R. (Aldine, Chicago, 1966. 279 pp., $10), by A. A. Borisov, is written as a manual for high school teachers and students of geography. It presents a considerably reworked version of the first edition (1948) which was received very unfavorably in the U.S.S.R. [*Meterol. i Gidrol.* No. 1, pp. 79–81, and No. 4, pp. 51–52 (1950)]. This English-language edition was translated from the second Russian edition (1959) by R. A. Ledward; Cyril A. Halstead edited the translation.

In the introduction Borisov presents a quite interesting outline of the development of climatology in the U.S.S.R., he then discusses, in the first chapter, the climate-forming factors, such as radiation regime, circulation conditions, and moisture cycle. The tables showing the frequencies of different air masses, and of lows and highs, are compiled for the interval 1930 to 1939 rather than for a later or a longer period. Under the heading "Moisture Cycle" the author discusses the attempts to calculate the moisture transport in the period prior to World War II (Kasatkin, Kaminskii), but the investigations of contemporary meteorologists are only briefly mentioned.

The second chapter deals with the general characteristics of climatic elements in the U.S.S.R.: air and soil temperatures, humidity (here it is difficult to understand why the author presents a map showing the distribution of relative humidity at 1 p.m. in May), cloudiness and sunshine, precipitation, evaporation, and snow cover. This chapter concludes with a treatment of the general characteristics of the climate of the U.S.S.R. and with a table comparing the extreme values of climatic elements in the U.S.S.R. with those recorded world-wide. In the brief discussion of continentality it is rather odd for the author to use Zenker's formula (not "Tsenker"—one should be careful in re-transliterating *non*-Russian names; the same holds for "Fikker" = Ficker).

The last, the most valuable, and also the most interesting chapter, chapter 3, deals with regional climates of the U.S.S.R. The author divides the area into eight regions according to the circulation types and dominant air masses. He also describes the climatic regions in relation to their geomorphological features: climates of seas and lakes, of plains, and of mountainous

areas. But he does not confine himself to a more detailed description, rather an attempt is made to find a physical explanation for the occurrences and course of climatic elements. Although there are not many tables and maps, the text is sufficiently illustrated; nevertheless, foreigners would perhaps derive more benefit from the book had more tables been used.

Generally, this book presents considerable information. It is easy and pleasant to read and even has some poetical citations, among them a wonderful description, from Turgenev's classic "The Diary of a Hunter," of a summer day in the forest-steppe area.

The translation is generally good. However, there are some shortcomings that may be partly misprints—for example, burana instead of buran; Benzenchuk instead of Bezenchuk, a misprint in Table 16, and "Papanintsev's observations showed . . ." instead of "Observations during Papanin's expeditions showed . . ." (p. 108). More serious is "nucleus-less winters" (p. 108). This is wrong; it should be "coreless winters," or a German word, frequently used in this country, "kernlose winters." It is also difficult to understand why the translator writes "Vize"; the same persons also published numerous papers in Germany as "Wiese." Unfortunately this same error stems back many years in translation practice, apparently owing to the translators' ignorance of the subject matter.

The subject index is a very commendable addition to the translation. The printing is excellent.

P. PUTNINS

Environmental Science Services Administration, Washington, D.C.

Introductory Astronautics

Science education seems to be the common concern of scientists and engineers, and **Astronautics for Science Teachers** (Wiley, New York, 1965. 398 pp., $8.95), edited by John G. Meitner, represents another contribution in this area. Specifically, this book was "prepared by space scientists and engineers in order to bring [high school] teachers up to date in astronautics, so that they can introduce some of its facets into their science classes." Unfortunately, astronautics seems to embrace practically every phase of science and engineering, and in their zeal the authors cover the spectrum of subjects from DNA to relativity.

The longest chapters are those entitled "Orbits," "Semiconductor electronics," "Rocket propulsion," and "The nature of space." The remainder are concerned principally with space exploration, life in space, and the next decade in astronautics. The emphasis throughout is on space travel and space exploration; and the book is replete with speculation that borders on science fiction, and with sweeping generalizations. ("Most innovations of our civilization—in fact *all* innovations throughout the history of mankind—are either engineering developments or medical developments.")

In view of the intended reader, it is not surprising that the technical discussions are usually grossly oversimplified; but they are also often incorrect. Not infrequently the level of presentation seems geared for the student in grade school. On the other hand, the chapter on orbits and trajectories offers a formidable challenge to any science teacher.

The experienced teacher will have little difficulty in spotting numerous errors. Some are understandable in view of the need for simplification of advanced concepts. Others display either a lack of understanding on the part of the author or a disdain of the comprehension level of science teachers. Still others, like the figure that displays trajectories of projectiles and satellite orbits (p. 111), are inexcusable by any standards.

No doubt the perceptive reader will gather a great deal of information on astronautics. It is doubtful, however, whether the average teacher will have learned much of the basic principles of the subject.

LEON BLITZER

Department of Physics, University of Arizona, Tucson

New Books

General

Abridged Science for High School Students. vols. 1 and 2. Nuclear Research Foundation, School Certificate Integrated Science Textbook Group of Authors and Editors. H. Messel, Chairman. Nuclear Research Foundation, Univ. of Sydney, Australia, 1966. vol. 1, 288 pp.; vol. 2, 334 pp. Illus.

Action and Purpose. Richard Taylor. Prentice-Hall, Englewood Cliffs, N.J., 1966. 283 pp. $5.95.

The Annual of Czechoslovak Medical Literature 1963. Josef Navráil, Ed. Czechoslovak Medical Press, Prague, 1965. 688 pp. Paper. Books, the proceedings of congresses and conferences, university publications, and journals are listed; there is a list of the periodicals indexed.

Antarctica: The Worst Place in the World. Allyn Baum. Macmillan, New York, 1966. 159 pp. Illus. $3.95.

Applied Research in Education. E. Wayne Courtney, Ed. Littlefield, Adams, Totowa, N.J., 1965. 355 pp. Paper, $2.25.

Astronomical Dictionary: Chinese-English, English-Chinese. Hong-Yee Chiu, Ed. Consultants Bureau, New York, 1966. 187 pp. $15.

Bibliography of Hookworm Disease (Ancylostomiasis) 1920–1962. WHO, Geneva, 1965 (order from Columbia Univ. Press, New York). 251 pp. Paper, $4. More than 4000 references, arranged alphabetically by author, and a combined subject and geographical index in English and French.

Birds of Colorado. vols. 1 and 2. Alfred M. Bailey and Robert J. Niedrach. Denver Museum of Natural History, Denver, Colo., 1965. vol. 1, 466 pp.; vol. 2, 451 pp. Illus. Plates. $35.

Chemistry. Royal B. Leach and Galen W. Ewing. Doubleday, Garden City, N.Y., 1966. 408 pp. Illus. $5.95. A TutorText.

The Correspondence of Henry Oldenburg. vol. 3, 1666–1667. Edited and translated by A. Rupert Hall and Marie Boas Hall. Univ. of Wisconsin Press, Madison, 1966. 679 pp. Illus. $12.50.

Defense Purchases and Regional Growth. Roger E. Bolton, Brookings Institution, Washington, D.C., 1966. 203 pp. Illus. Paper, $2.50.

Depths of the Earth: Caves and Cavers of the United States. William R. Halliday. Harper and Row, New York, 1966. 414 pp. Illus. $7.50.

Dictionary of Chemistry and Chemical Technology in Six Languages: English, German, Spanish, French, Polish, Russian. Z. Sobecka, W. Choinski, and P. Majorek. Pergamon, New York; Wydawnictwa Naukowo-Techniczne, Warsaw, 1966. 1333 pp. $30. Revised edition of *Dictionary of Chemistry and Chemical Technology in Four Languages* (1962).

A Dictionary of Quotoons. O. A. Battista. Reader-Services Company, Morrisville, Pa., 1966. 283 pp. $4.95.

Elementary Logic. Willard Van Orman Quine. Harvard Univ. Press, Cambridge, Mass., ed. 2, 1966. 141 pp. Illus. $3.50.

The Experimental Investigation of Meaning: A Review of the Literature. Marjorie B. Creelman. Springer, New York, 1966. 240 pp. $6.75.

How to Live with Schizophrenia. Abram Hoffer and Humphry Osmond. University Books, New Hyde Park, N.Y., 1966. 189 pp. $5.95.

Illustrierte Geschichte der Medizin. Th. Meyer-Steineg and K. Sudhoff. Robert Herrlinger and Fridolf Kudlien, Eds. Fischer, Stuttgart, Germany, 1965. 361 pp. Illus. $10.50.

Integrated Data Processing Systems. E. Jerome McCarthy, J. A. McCarthy, and Durward Humes. Wiley, New York, 1966. 575 pp. Illus. $8.95.

(Continued on page 567)