metallic phases, borides, oxides, hydrides, and halides. In chapter 5 (5 pages) the crystal radii of the actinides are discussed, and in chapter 6 (18 pages) the rival "actinide" and "thoride" hypotheses for the explanation of the chemical behavior of the elements are considered. A detailed table of contents and a list of the literature cited are given, but no index is included.

The strength of this book lies in the fact that it does collect in one place a great many factual data, and for this reason it should be very useful to persons interested in the subject covered. On the other hand, throughout the book the theoretical or interpretive parts are very poor.

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The Viruses. Biochemical, biological, and biophysical properties. vol. 2, *Plant and Bacterial Viruses*. F. M. Burnet and W. M. Stanley, Eds. Academic Press, New York, 1959. xvi + 408 pp. Illus. $13.

This book is the second of a three volume series written and edited by scientists who are authorities in their several fields. Volume 2, *Plant and Bacterial Viruses*, contains ten essays, four devoted to the plant viruses and six to the bacteriophages. The book differs from a collection of reviews, which might be garnered from other sources, in that each author has made a conscientious effort to present his subject as a whole without placing special emphasis on his own contributions to it. The book differs from an old-fashioned textbook, written by a single author, in that each chapter is suffused by intellectual and factual local color that seldom emerges from the laboratory except in monograph form.

Wildman introduces the plant viruses by describing the growth of tobacco mosaic virus in plant tissues. Markham writes a monumental chapter on the chemistry of plant viruses, which serves both as a handbook on purification and analysis of virus particles and as a review of pertinent theoretical principles. Knight's chapter on hereditary variation and its chemical correlates among mosaic viruses summarizes this pioneering but, so far, relatively unrewarding topic. The presentation is marred by confusing ellipses involving the use of the word *strain*. Black reviews the evidence from which it has been concluded, in recent years, that certain viruses multiply both in their plant hosts and in their insect vectors, a glaring exception to the rule of host specificity in viral growth.

The bacteriophages are introduced by Lwoff in a chapter that defines the place of viruses among other things and bacteriophages among viruses by a wry and slightly perverse logic that recalls to mind the schoolmasters of fiction. The main features of bacteriophage infection are then described in detail by Garen and Kozloff (initial steps), Stent (intracellular multiplication), Levinthal (genetics), and Jacob and Wollman (lysogeny). Each of these chapters is factually comprehensive, thoughtfully interpretive, and uncluttered by controversial issues. The radiobiology of bacteriophages, summarized by Stahl in a final chapter, can be regarded, for reasons explained by its author, as a subject unconnected with the rest of the book. (Stahl perhaps exaggerates; almost the same accusation concerning genetics is made and rejected by Levinthal in his chapter. The facts are that satisfying connections between these subjects and chemistry remain to be made.) Stahl's chapter is unique in other respects, even among the chapters of this excellent book; the elegently conceived, clearly and economically presented, subject matter might lead the unguarded reader to suppose that writing it was an easy task. As an amateur writer sometimes interested in radiobiology, I can assure him that it wasn't.

The book will need no recommendation to virologists; it may be recommended to all who wish to become virologists, and it will serve as a convenient reference source for others.

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Minerals of New Mexico. Stuart A. Northrop. University of New Mexico Press, Albuquerque, rev. ed., 1959. xvi + 665 pp. 1 map. $10.

This revision is the transformation of an inexpensive, paper-bound bulletin into a 665-page, cloth-bound volume. In its original form *Minerals of New Mexico* was useful to mineralogists and mineral collectors traveling in New Mexico. The new version should be of broader interest. Stuart Northrop has made extensive additions to the 1942 text. He has brought old descriptions up to date by adding the names of new localities, and he has added enormously to the number of minerals discussed by including localities discovered in New Mexico as a result of intensified mining and studies of minerals in the war and postwar years.

Interest in the new addition will be more than local, for the book contains many unpublished facts that Northrop has learned by personal correspondence, and reports he has abstracted from publications that a geologist compiling a bibliography might not encounter. The descriptions of some minerals have grown: calcite takes 13 pages instead of 7, carnotite 2 instead of ½; tyuyamunite, a new addition, covers a whole page. At the end, we find an extended bibliography and list of mining districts. The revision, an ambitious undertaking, is justified by the results, for the book is now of much greater value to general readers than before.

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90° South. Paul Siple. Putnam's, New York, 1959. 384 pp. $5.75.

On 18 September 1957 the temperature at the United States' IGY Station at the South Pole reached a record low in man's experience, −102.1°F. It was officially recorded by the first 18 scientists and navy men to live and work through man's first winter at 90° South. Paul Siple, internationally recognized as one of America's most versatile scientists, was the scientific leader at this remote scientific outpost, established in a forbidding environment of nothing but snow, wind, and flesh-splitting cold.

This saga of modern scientific exploration is brought into preliminary focus by a perceptive, historical chronicle of man in Antarctica since the continent was first sighted. Then, with undertones of tolerance and magnanimity, Siple recounts the story of the conception, planning, construction, and operation of the station during its first year, against the background of how this was made possible through the concerted national efforts of our armed forces, scientists, and industry.

Siple, a veteran of four antarctic

winters, has participated in both eras of exploration; he counters the tendency of many operational and scientific specialists to disparage "old explorers" by showing the interpendent role of the explorer-scientist in any scientific pursuit: "for the explorers who go into an unknown area to uncover the existence of land are primarily concerned with giving a first approximation of *what* exists rather than precisely *where* it exists. It is the duty of those who come later to locate precisely what is there and where it is. Unfortunately, the almost inevitable poor positioning of the first explorers is invariably the target of criticism by these latecomers, concerned with filling in the details of geology and geography. Both groups are vital to the process of exploration!" Readers may mentally add—and to scientific progress.

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New Books

Atmospheric Diffusion and Air Pollution. vol. 6, *Advances in Geophysics.* F. N. Frenkiel and P. A. Sheppard, Eds. Academic Press, New York, 1959. 488 pp. $12. Proceedings of a symposium held at Oxford, England, 24–29 August 1958, and sponsored by the International Union of Theoretical and Applied Mechanics and the International Union of Geodesy and Geophysics.

The Chemical Analysis of Air Pollutants. Morris B. Jacobs. Interscience, New York, 1960. 448 pp. $13.50.

College Physics. Francis Weston Sears and Mark W. Zemansky. Addison-Wesley, Reading, Mass., ed. 3, 1960. 1047 pp. $9.75.

Dreams and Personality Dynamics. Manfred F. DeMartino. Thomas, Springfield, Ill., 1959. 394 pp. $10.50.

Encyclopedia of Medical Syndromes. Robert H. Durham. Hoeber-Harper, New York, 1960. 642 pp. $13.50. The *Encyclopedia's* stated purpose is "to present in an editorial style a comprehensive reference text of medical syndromes with an accompanying list of correlated synonyms." The result is an alphabetically arranged, cross indexed list of approximately 1000 syndromes. The description of each syndrome is followed by reference to key literature; descriptions vary in length from a single line to more than a page. The index is arranged by classifications: allergic syndromes, connective-tissue disorders, and so forth.

Essentials of Healthier Living. Justus J. Schiffers. Wiley, New York, 1960. 343 pp. $5.50.

Geologic Names of North America Introduced in 1936–1955. Bull. 1056-A. Druid Wilson, William J. Sando, Rudolph W. Kopf. U.S. Geological Survey, Washington, D.C., 1959. 405 pp. $1. The *Lexicon of Geologic Names of the United States* was published in 1938 and reprinted in 1951 and in 1957. This bulletin is the first step in revising the lexicon; North America, including Greenland and the West Indies, the Pacific Island possession of the United States, and the Trust Territory of the Pacific Islands are included.

Histochemistry. Theoretical and applied. A. G. Everson Pearse. Little, Brown, Boston, Mass., ed. 2, 1960. 1008 pp. $20.

The New Frontier. Man's survival in the sky. K. G. Williams. Thomas, Springfield, Ill., 1959. 169 pp. $5.50.

Severdrup's Arctic Adventures. T. C. Fairley. Longmans, Green, New York, 1960. 317 pp. $6. This book was adapted from *New Land: Four Years in the Arctic Regions,* 1904. Fairley has added some new chapters.

Strange World of the Moon. An inquiry into its physical features and the possibility of life. V. A. Firsoff. Basic Books, New York, 1960. 236 pp. $6.

Tukani. Helmut Sick. Translated by R. H. Stevens. Eriksson-Taplinger, New York, 1960. 240 pp. $5. Translated from *Tukani* published by Paul Parey, Hamburg, 1957.

The Zoological Record. vol. 93. G. Burder Stratton, Ed. Zoological Society of London, London, 1959. 20 sections. £8. This annual volume comprises 19 sections, which, with the exception of the section on comprehensive zoology and the list of new genera and subgenera, record the literature relating to a class or phylum of the animal kingdom. In addition to the bound volume, each section is published separately as soon as it is completed—for example, the Aves section of volume 94 was published on 16 September 1958, and that of volume 95 on 11 October 1959.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed not to Science, *but to the publisher or agency sponsoring the publication.)*

British Museum (Natural History). *Bulletin,* Entomology, vol. 8, No. 5, *The Walker Types of Fruit Flies (Tephritidae-Diptera) in the British Museum Collection,* D. Elmo Hardy, 84 pp. 30s. Historical Ser., vol. 2, No. 1, *Darwin's Journal,* Gavin de Beer, Ed., 22 pp., 8s. Historical Ser., vol. 2, No. 2, *Darwin Notebooks on Transmutation of Species;* part 1, *First Notebook (July 1837–February 1838),* Gavin de Beer, Ed., 1960. *The John Murray Expedition, 1933–34, Scientific Reports,* vol. 10, No. 5, *Sponges,* Maurice Burton, 130 pp. £2; vol. 10, No. 6, *Report of the Brachiopoda of the John Murray Expedition,* Helen M. Muir-Wood. 36 pp., £1, 1959. British Museum (Natural History), London.

Institute pour la Recherche Scientifique en Afrique Centrale. *Eleventh Annual Report.* 1958. The Institute, Brussels, Belgium, 1959. 375 pp.

Institute of International Education. *Thirty-ninth Annual Report.* 1 January 1958–30 June 1959. Institute of International Education, New York 21, 1959. 64 pp.

International Geophysical Year, 1957–58, United States Program. Report of the U.S. Committee. Stanley Ruttenberg, Ed. IGY World Data Center A, National Acad. of Sciences, Washington 25, 1960. 90 pp. $1.

Mental Health Problems of Automation. Report of a study group. WHO Tech. Rept. Ser. No. 183. World Health Organization, Geneva, 1959 (order from Columbia Univ. Press, New York). 30 pp. $0.30.

National Academy of Sciences–National Research Council, Office of Scientific Personnel. Tech. Rept. No. 15, *Validation of Fellowship Selection Instruments against a Provisional Criterion of Scientific Accomplishment.* Lindsey R. Harmon. 10 pp. Tech. Rept. No. 16. *Effects of a Summary Score on Panel Judgements.* Herbert Soldz. 13 pp. *Report of the Conference on Chemical Compounds of Certified High Purity.* Sponsored by the Academy–Council and the National Science Foundation, 22–23 June 1959. 62 pp. National Academy of Sciences–National Research Council, Washington 25, D.C.

National Science Foundation. *Ninth Annual Report, 1959.* National Science Foundation, Washington, D.C. (order from Supt. of Documents, GPO, Washington 25).

The Nth Country Problem and Arms Control. A statement by the NPA special projects committee on security through arms control and a technical report written by William C. Davidon, Marvin I. Kalstein, and Christoph Hohenemser. National Planning Assoc., Washington, D.C., 1960. 62 pp. $1.

Natural Aerosols and Nuclear Debris Studies, GRB Research Notes, No. 24, M. I. Kalkstein *et al.,* 36 pp. *Global Fallout and Its Variability,* Geophysical Research Paper No. 65, E. A. Martell, 26 pp. *Scientific Studies at Fletcher's Ice Island, T–3,* 1952–1955, vol. 1, Geophysical Research Papers No. 63, Vivian Bushnell, Ed. Air Research and Development Command, Bedford, Mass., 1959 (order from U.S. Department of Commerce, Office of Technical Services, Washington 25).

Occurrence and Biological Effects of Fluorine Compounds, Annotated Bibliography. vol 1, books 1 and 2, *The Inorganic Compounds.* Irene R. Campbell and Evelyn M. Widner. Univ. of Cincinnati, Ohio, 1958. 995 pp. $25.

The Puerto Rican Population: A Study in Human Biology. Frederick P. Thieme. Univ. of Michigan, Ann Arbor, 1959. 200 pp. $2.50.

Qualifications and Teaching Loads of Mathematics and Science Teachers. Circular No. 575. Kenneth E. Brown and Ellsworth S. Obourn. U.S. Office of Education, Washington, D.C., 1959. 101 pp. $0.70.

Quality in Laboratory Animals. Report of a symposium. Laboratory Animals Centre, Collected Papers, vol. 8, M.R.C. Laboratories, Woodmansterne Rd., Carshalton, Surrey, England, 1959. 68 pp. 10s.

Survey of Geology-Geophysics Students in the Colleges and Universities of United States and Canada in 1958–59. Compiled by Bonnie C. Henderson. American Geological Institute, 2101 Constitution Avenue, NW, Washington 25, 1959, 23 pp. $0.50.