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