the applied problems (models of molecular band absorption and continuum radiation in stellar atmospheres).

The other five chapters deal mainly with the upper atmosphere; infrared, ultraviolet, and x-ray spectroscopy of planetary atmospheres; the sun and stars; radio astronomy; and some miscellaneous applications of atomic physics, including the laser, ionization equilibria of gases, and the reentry problem.

On the premise that the educational philosophy behind this text is a desirable one, I think the authors have turned out quite a respectable work. But the philosophy is the debatable issue. There is no doubt some advantage to integrating the study of fundamental physics with the more applied subjects of geophysics, astrophysics, or space physics, even at the elementary and intermediate levels. Astronomy departments, for example, have long lived with the problem and have handled it in various ways. Some feel that if an astronomy student can acquire his advanced physics in astronomy courses, rather than in the curriculum of the physics department, some needless duplication is avoided and the student saves a great deal of time. And since the physics is always illustrated with practical problems anyway, why should not the problems in plasma physics involve the solar corona, say, instead of controlled nuclear fusion?

One obvious disadvantge in covering too wide a spectrum in a course or book is that it cannot be covered very thoroughly. In this book, space limitations often require the use of such statements as "it can be shown," and one wonders how much genuine understanding a student can gain when much of the physics is developed sketchily or is merely stated. Thus, there is a trade off between enticing the interested student into space physics early and providing him with more thorough instruction in fundamentals.

If you adopt the former view, this book should serve your purposes rather well, although some of the sections on space physics give the impression of having been put together hastily. But I suppose one's main reaction will be a matter of individual preference. As Bernard Shaw's Devil would say, "It takes all sorts to make a universe. There is no accounting for tastes."

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Physical Inorganic Chemistry Series

Elements of Inorganic Chemistry. Robert A. Plane and Ronald E. Hester. Benjamin, New York, 1965. xvi + 188 pp. Illus. Paper, $3.95; cloth, $8.

The avowed purpose of this book is to serve in conjunction with *Physical Inorganic Chemistry* by Sienko and Plane (Benjamin, New York, 1963) as "a text for a one-term advanced inorganic chemistry course." If such a course is at the upper-division undergraduate level, this book will be adequate and useful; however, it is difficult to envision it as the text for an inorganic chemistry course at the graduate level. Basically, the content is descriptive chemistry, with all of the chemical families receiving coverage that ranges from scant, in the case of the lanthanides and actinides, to moderately comprehensive in the case of the halogens. This great variation in emphasis stems from the impossible task that the authors have undertaken —that of adequately describing the chemistry of the elements in 188 pages. To achieve the necessary condensation, Plane and Hester have made numerous omissions that seem arbitrary, but such criticism probably could be leveled at any inorganic chemistry text of less than several thousand pages in length.

A more serious criticism concerns the cursory treatment of certain topics that has crept into the book along with the condensation. It would have been better to omit some sections than to present them in their present form. The first paragraph in section 4-5, on complexes, and the discussion of nuclear magnetic resonance in section 1-1 may be cited as examples. The latter topic would seem more suited to extensive treatment in the text by Sienko and Plane.

On the positive side, the descriptive chemistry is well fortified with clearly presented experimental data, and heavy reliance on these data is made to establish a basis for descriptive concepts. Furthermore, the book is up to date, and an obvious effort has been made to present inorganic chemistry as a fascinating and active area of endeavor.

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Techniques and Instrumentation

Telemetry Systems. LeRoy E. Foster. Wiley, New York, 1965. x + 308 pp. Illus. $12.75.

This book fills much of the long existing need for a primer on telemetry and instrumentation systems. The well-written chapters on practical fundamentals will be useful to engineers and technicians in their first work with telemetry and instrumentation. A valuable set of "ground rules" for the instrumentation engineer and test sponsor is included. These rules clearly show the author's familiarity with practical telemetry and instrumentation problems, and they will give the reader an appreciation of those problems. The discussions of tracking, telemetering, recording, and data-processing systems, including the descriptions of the hardware used, will help make intelligible much of the telemetry jargon in use today.

The preface includes a statement that this is intended to be a comprehensive reference work for the engineer who is experienced in the use telemetry systems as well as an introduction to telemetering systems and techniques. Unfortunately, the lack of rigor in the analyses, the failure to include descriptions or even mention of numerous current telemetry techniques and operating characteristics, and the misleading descriptions of equipment make this book of little value as a comprehensive reference source. Twenty-eight pages are devoted to a comparison of modulation techniques in which two samples per data cycle are used as the basis of comparison for digital techniques. Three pages later, it is noted that at least four or five samples per data cycle are required in practical systems. This is indeed true; thus, the comparison presented can be misleading. There is no discussion of phase lock, frequency modulation with feedback, predetection recording, and many other techniques that have been developed in the past few years and

are currently in use. The descriptions of tube-type subcarrier discriminators and tube-type magnetic tape recorders could be misleading, even if there were an acknowledgment that the models described were introduced at least 7 or 8 years ago. The failure to mention the 2.2-Gc to 2.3-Gc telemetry band is difficult to understand. By 1970, telemetry users must vacate the 215-Mc to 260-Mc band, and many programs are now operating in the higher frequency band.

The format of the book is attractive, and the text is easy to read. I noted few typographical errors.

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Mycology

The Fungi. An advanced treatise. vol. 1, *The Fungal Cell.* G. C. Ainsworth and Alfred S. Sussman, Eds. Academic Press, New York, 1965. xviii + 748 pp. Illus. $24.

This volume, the first in a projected series of three, fills a long-felt need for an authoritative, up-to-date summary of information on the structure and the biochemical and physiological activities of the fungus cell. The first two chapters, which can scarcely be considered as advanced, constitute the introduction and provide a historical background and a review of the structures and reproduction of fungi. These are followed by a 12-chapter section entitled "Cell Components," and a one-chapter section called "Gene Action." The chapters are well organized in sequence as well as in content, with numerous subheadings, and they are well documented with recent references. An author index, a subject index, and an index to organisms complete the volume.

The illustrations are excellent. Most of the reviews are well written, but some have a tendency to be choppy, with subject matter in as many as four subdivisions being discussed on a single page. Each chapter is by a specialist in the subject treated. For the most part the authors have been content to review the literature and their own research. I would appreciate (and others probably would also) more discussion of the author's viewpoint on the topic that he considers and his ideas on current and future problems in the area. Only one chapter includes such discussion.

Topics that will be of specific interest to the teacher of mycology include the structure of the cell wall, flagella, the ultrastructure of the cells, and nuclear behavior during mitosis and meiosis. Several topics deal specifically with biochemical activities—"Chemical Constituents of the Cell," and "Carbon Metabolism" (an extensive review). Certain topics will be of special interest to the fungus physiologist who may be concerned primarily with the growth of fungi—uptake and translocation of materials, various phases of the chemical environment, factors of the physical environment, kinetics of growth, mechanism of extension and branching, growth rhythms, and special techniques. The review of gene action deals almost entirely with *Neurospora.*

Although the primary purpose of this volume appears to be to serve as a reference for the teacher and researcher, the advanced graduate student who is interested in fungi will find it equally valuable. In brief, the volume represents a remarkably successful attempt to bring together under one cover the vast amount of information on the fungus cell. This book should be on the desk of every research-minded mycologist and fungus physiologist, but the price of the volume will prevent it from reaching the bookshelf of all of the biologists who may wish to refer to it frequently.

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New Books

General

Adolescents and the Schools. James S. Coleman. Basic Books, New York, 1965. 135 pp. Illus. $4.50.

Air Conservation. Report of the Air Conservation Commission of the AAAS. AAAS Publication No. 80. Richard Landau, Ed. AAAS, Washington, D.C., 1965. 347 pp. Illus. Cash price to members, $7; others $8.

Awareness of Dying. Barney G. Glaser and Anselm L. Strauss. Aldine, Chicago, 1965. 319 pp. $6.95. Observations Series, edited by Howard S. Becker.

Behaviour in Uncertainty: And Its Social Implications. John Cohen. Basic Books, New York, 1965. 207 pp. Illus. $5.50.

Better Report Writing. Willis H. Waldo. Reinhold, New York, ed. 2, 1965. 284 pp. Illus. $10.

British Miniature Electronic Components Data 1965–66. G. W. A. Dummer and J. Mackenzie Robertson, Eds. Pergamon, New York, 1965. 1000 pp. Illus. $28.

The Challenge of Science. George Boas. Univ. of Washington Press, Seattle, 1965. 113 pp. $2.95.

The Correspondence of Henry Oldenburg. vol. 1, 1641–1662. Translated and edited by A. Rupert Hall and Marie Boas Hall. Univ. of Wisconsin Press, Madison, 1965. 544 pp. $12.50.

Crosscuts Through History. Dagobert D. Runes. Philosophical Library, New York, 1965. 126 pp. $2.75.

Decision-Making for Defense. Charles J. Hitch. Univ. of California Press, Berkeley, 1965. 91 pp. $2.95.

Famous Problems of Mathematics. Solved and unsolved mathematical problems from antiquity to modern times. Heinrich Tietze. Translated from the second revised German edition (1959). Beatrice Kevitt Hofstadter and Horace Komm, Translation Eds. Graylock Press, New York, 1965. 383 pp. Illus. $10.

The Free World Colossus. A critique of American foreign policy in the cold war. David Horowitz. Hill and Wang, New York, 1965. 451 pp. $6.95.

Gardening in Hot Countries. Arthur Thomas. Faber and Faber, London, 1965. 207 pp. Illus. 30s. Botanical Monographs, vol. 4, edited by W. O. James.

The Giant Canada Goose. Harold C. Hanson. Southern Illinois Univ. Press, Carbondale, 1965. 250 pp. Illus. $9.75.

Growth. James M. Tanner, Gordon Rattray Taylor and the Editors of *Life.* Time Inc., New York, 1965. 200 pp. Illus. $3.95. A volume in the *Life* Science Library.

Handbook of California Birds. Vinson Brown and Henry G. Weston, Jr., Naturegraph, Healdsburg, Calif., ed. 2, 1965. 160 pp. Illus. Paper, $2.95; cloth, $4.50.

The Heinz Handbook of Nutrition. Benjamin T. Burton. Published for H. J. Heinz Company by McGraw-Hill, New York, ed. 2, 1965. 472 pp. Illus. $6.75.

A History of Parasitology. W. D. Foster. Livingstone, London; Williams and Wilkins, Baltimore, 1965. 210 pp. Illus. $8.25.

How To Succeed in High School: And Score High on College Entrance Examinations. George Weigand. Barron's Educational Series, Great Neck, N.Y., 1965. 135 pp. Illus. Paper, 95¢.

Life Beyond the Earth. Samuel Moffat and Elie A. Shneour. Natl. Science Teachers Assoc., Washington, D.C., 1965. 156 pp. Illus. Paper, 50¢. Vistas of Science Series, No. 11.

Lighthouse of the Skies. The Smithsonian Astrophysical Observatory: Background and history, 1846–1955. Bessie Zaban Jones. Smithsonian Institution, Washington, D.C., 1965. 355 pp. Illus. $5.

Mr. Tompkins in Paperback. G. Gamow. Cambridge Univ. Press, New York, 1965. 198 pp. Illus. Paper, $1.95.

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