cal education," "Problems in pharmacy," and "Pharmacy in literature and music." Each section begins with a student-oriented introduction (about two pages) and ends with some 40 to 80 citations of additional readings. A majority of the essays are by 20th century writers within Anglo-American pharmacy, with the main stress on the pharmaceutical profession (rather than on pharmaceutical science or the manufacturing industry).

The essays are well selected, judged within the editor's stated purpose of "inculcating proper ideals and necessary background of pharmacy" through a textbook of essays chosen for "interest, significance, appropriateness for an undergraduate audience, and understandability." To stay within this concept, it was necessary to omit "many worthwhile essays . . . because they were too technical and, hence, would be beyond the understanding of first-, second-, or third-year students" of pharmacy. Adherence to brevity and to the English language (without any translations) further narrowed the editor's range of choice.

The essays are responsibly written, but show the wide gamut of divergent styles and disparate topics characteristic of anthologies: For example, companion essays in the section on drugs are a semifictional account of the discovery of morphine and an essay on antibiotics by a Nobel Prize winner.

These essays are the seasoned survivors of some years of classroom experience with a wide range of assigned readings of the type here selected. The editor quite properly and usefully offers them to help ameliorate the fact that "course work directed specifically toward the development of professional enthusiasms, pride, and idealism has not been as universal, as generally well thought out, or as emphatic" as it could be.

For use in professional orientation courses, the present volume undoubtedly will be most effective when used for assigned supplementary readings in conjunction with a systematic textbook. Even seasoned pharmaceutical workers will enjoy taking up *Readings in Pharmacy*, whether to browse or buy; and every library with a pharmacy collection should find it worthwhile. The book is well printed, well bound, and briefly indexed.

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Classical Zoology

Introductory Zoology. Lincoln Coles Pettit. Mosby, St. Louis, Mo., 1962. 619 pp. Illus. $7.50.

The onrush of modern biology has somehow left the descriptive, morphological aspects of that science far out in backfield. Genetics, physiology, cytology, ecology, experimental embryology, biochemistry, virology, bacteriology, and the like have, with their unending triumphs, long outshone the terrain, and, as they basked in their glories, these fields have made students feel apologetic for even taking an interest in such a drab subject as general zoology, although its subject matter was admitted to be of some value.

Pettit has, therefore, performed a signal service to biology by producing this text, which does an outstanding job of enlivening and modernizing a half-neglected, classical subject. In addition to rendering even the straight classificatory sections most readable, the author uses examples that are of immediate application in thought and teaching; he also adds much interesting, up-to-date, and diverse information, wherever it is relevant, by interweaving his accounts with the latest findings in genetics, ecology, animal behavior, medicine, and other lines of knowledge, all of which enrich the material immensely. These attributes not only redeem general zoology from the threat of desuetude, but they also turn the entire field into a vital and absorbing subject. The work, which is dedicated to Libbie Hyman, employs some of her suggestions in the reclassification of many invertebrate phyla.

The book is truly a text in introductory zoology which is wide in scope and rich in contents, one which scans the entire field and lays a solid background for every aspect of it. More than a third of the material is given over to human anatomy, general physiology, heredity, population, ecology, and evolution, all of which are excellently and interestingly handled down to the very latest modern detail, and are logically related to the story as a whole.

The final section, "Zoology and human destiny," is a fascinating survey with an original construction of the story of the origin of man and of his racial ramifications. This section also contains penetrating comments on science and religion, scientific freedom, science under Nazism and Communism, the population explosion, and other significant topics that one least expects to find in such a volume; yet these topics are treated in a fresh and stimulating manner, free from the meaningless slogans with which they are all too frequently bedecked, even by scientists of high repute. The book, which terminates with an informative brief essay on the history of zoology, is a remarkable, pioneering venture from beginning to end, and it fully achieves what it sets out to do—to introduce the student to the panorama of general zoology.

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Space Medicine Symposium

Psychophysiological Aspects of Space Flight. B. E. Flaherty, Ed. Columbia University Press, New York, 1961. x + 393 pp. Illus. $10.

"One can say with confidence that we now possess all the basic knowledge required to keep a man alive in space for a limited, yet significant, period of time." With this sentence, General Otis O. Benson introduces the collected papers from the 1960 space medicine symposium conducted by the USAF School of Aviation Medicine, which are presented in this book. The book is organized into four sections: Technical Background, Critical Problem Areas, Problems of Human Reliability, and Special Techniques of Control. The range of contributors is remarkable—from program managers like Donlan of Project Mercury, through researchers in governmental biomedical laboratories, to the most respected of basic scientists like Magoun, Kleitman, and Halberg. Where the authors have applied themselves specifically to the problems of man in space, there seems to be general agreement with Benson's position.

The book is notable in several different respects. It contains a managerial description of the Mercury program. There are excellent summaries of such diverse subjects as sensory deprivation, the neurophysiology and neuroendocrinology of stress, circadian rhythms, and operator proficiency. Several aspects of isolation and confinement are presented, including results from space cabin simulators, water immersion devices, isolated arctic stations, and cubicles in university laboratories. One conclusion

which might be drawn from these papers is that the more applied the experiments, the less pessimistic the conclusions concerning behavioral problems in space flight. The final section contains papers on hypothermia, hypnosis, and the concept of the cyborg, which is defined as "the extension of homeostatic controls by means of cybernetic techniques." These final papers suggest the possibility that man may take some stupendous trips in a rather stuporous state.

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Advanced Textbook

Stereochemistry of Carbon Compounds. Ernest L. Eliel. McGraw-Hill, New York, 1962. xv + 486 pp. Illus. $15.

There is every cause to applaud the basic purpose of this book, which should soon become accepted as the standard textbook in carbon stereochemistry and which, as such, should also be the guidebook to this important field. It is an overdue modernization of the work by Shriner, Adams, and Marvel and by Wheland, and it presents the new systems and methods of nomenclature and configurational assignment, with an extensive treatment of conformational analysis.

The subject of stereochemistry has grown to "impossible" proportions, as W. Klyne has noted, but in my opinion, the task of inclusion and exclusion has been carried out exceedingly well in this book. The stereochemistry of nitrogen is treated in several sections, but that of the other elements (with the exception of carbon) is not mentioned. This major exclusion may also be read into the book's somewhat ambiguous title.

That this is an advanced text is evident from its assumption of a preliminary understanding of chemical reactions, nomenclature, thermodynamics, and kinetics. The seven or eight "reader exercises" scattered through the book are too simple and too few, to serve as problems for students, but each chapter concludes with a selection of general references that constitute a list of previous treatments and, thus, a source for further reading. Specific references appear on each page. The author writes well and critically and, in some instances (page 246), he discusses current questions when available data allow only tentative conclusions.

Errors inevitably occur in a work of this compass, but in this volume they are not serious. On page 39, for example, racemization is *not* evidently due to change of configuration at the No. 5 carbon. Digitonin (page 59) is a saponin. Printing errors are found on pages 65, 97, 387, and 410. Casual inspection of the author index shows that the entry "R. Adams" includes the citations to the work of two people. The subject index withstood my spot check for errors, but it failed to direct me to the subject of the shape of heterocyclic rings (page 246), except under the terms *morpholine* and *piperidine*, or to interconversion of amine enantiomers (page 385). Some readers will be irked by the frequent necessity of turning one or more pages in order to examine both a figure and the text material that applies to it.

This book is well done and although it will be most useful to students, it will find a place on many reference shelves as well.

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Notes

Visual Books Series

Space, the Architecture of the Universe, by Gottfried Honegger and Peter van de Kamp (Dell, New York, 1962. 120 pp. Paper, $0.95), is the first of a new paperback series that will present to the student and the general reader factual knowledge in an unusual and colorful manner. An artist and a recognized scholar closely collaborate, with the aid of four-color art, the result being a book that is half color drawings and pictures and half text. *Space* is really a book on "instant astronomy," which has little if anything to do with present space efforts as such. The book is marred by a number of errors, the diagrams are too often confusing, the colors are sometimes inappropriate, and far too many statements need to be qualified. However, the approach is useful and interesting and should appeal to most readers.

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New Books

Mathematics, Physical Sciences, and Engineering

Advances in Catalysis. And related subjects. vol. 13. D. D. Eley, P. W. Selwood, and Paul B. Weisz, Eds. Academic Press, New York, 1962. 472 pp. Illus. $15.

The Atom. Sir George Thomson. Oxford Univ. Press, New York, ed. 6, 1962. 228 pp. Illus. $1.70.

Concise Encyclopedia of Electrical Engineering. M. G. Say, Ed. Newnes, London, 1962. 918 pp. Illus. 140s.

A Course of Modern Analysis. An introduction to the general theory of infinite processes and of analytic functions, with an account of the principal transcendental functions. E. T. Whittaker and G. N. Watson. Cambridge Univ. Press, New York, 1962 (reprint of ed. 4, 1927). 608 pp. Illus. Paper, $4.95.

Elasticity, Fracture, and Flow. With engineering and geological applications. J. C. Jaeger. Methuen, London; Wiley, New York, 1962. 216 pp. Illus. $3.

Elements of Linear Spaces. A. R. Amir-Moez and A. L. Fass. Pergamon, New York, 1962. 158 pp. Illus. $5.50.

Experimental Transition Probabilities for Spectral Lines of Seventy Elements. Derived from the National Bureau of Standards tables of spectral-line intensities. Monograph No. 53. Charles H. Corliss and William R. Bozman. Superintendent of Documents, GPO, Washington 25, D.C. 580 pp. $4.25.

Formulaire Technique du Géologue. Raymond Furon. Lechevalier, Paris, ed. 2, 1962. 228 pp. Illus. NF. 18.

Fundamental Chemistry. Donald H. Andrews and Richard J. Kokes. Wiley, New York, 1962. 829 pp. Illus.

Gas Chromatography. John H. Knox. Methuen, London; Wiley, New York, 1962. 134 pp. Illus. $3.25.

High-Speed Analog Computers. Rajko Tomovic and Walter J. Karplus. Wiley, New York, 1962. 266 pp. Illus. Plate. $9.95.

High Speed Testing. Proceedings of the symposium held at Boston, Mass., in October 1961. Albert G. H. Dietz and Frederick R. Eirich, Eds. Interscience (Wiley), New York, 1962. 111 pp. Illus. $5.

International Conference on Magnetism and Crystallography, Proceedings. vol. 1, *Magnetism* (729 pp.); vol. 2, *Electron and Neutron Diffraction* (401 pp.); vol. 3, *Neutron Diffraction Study of Magnetic Materials* (71 pp.). Physical Society of Japan, Tokyo, Japan, 1962. Illus. Paper. The conference, held in Kyoto, Japan, during the period 25–30 September 1961, was organized by the Science Council, the Physical Society, and the Crystallographic Society of Japan.

Mathematics of Modern Engineering. vol. 1, Ernest G. Keller and Robert E. Doherty, 331 pp.; vol. 2, Ernest G. Keller, 319 pp. Dover, New York, 1961 (reprint). Illus. $1.65 each; set, $3.30.

Programming and Utilizing Digital Computers. Robert Steven Ledley. McGraw-Hill, New York, 1962, 589 pp. Illus. $12.50.