chapter is a discussion of the zoogeography of North American *Pseudophonus*, which is illustrated with distribution maps. I missed a phylogenetic tree or dendrogram, but the reader can probably construct his own from the data presented.

This little volume is the first of a series, "Studies on Speciation," published for the Institute for the Study of Natural Species. It sets a high standard for future publications in the series, of which, let us hope, there will be many.

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Introductory Textbook

Basic Concepts of Physical Geology. Edgar Winston Spencer. Crowell, New York, 1962. v + 467 pp. Illus. $8.50.

Spencer's book, an introductory volume on physical geology, is another outstanding textbook in general geology that will contribute to the training of the next generation of geologists. Nothing in its basic approach and presentation is really new, except perhaps the attempt in the first chapter to introduce the student to the nature and the practical applications of the various fields of geology. This excellent idea is carried out successfully except for the one-sided, old description of the formation of mineral deposits. Another new feature of this chapter is the introduction of the structure of geology as a science and as a part of the scientific community.

The second chapter, entitled "Raw materials in geology," offers a systematic description of elements, minerals, and rocks, with respect to their major processes of formation. The third chapter, "Framework of the earth," is in essence a good summary of basic principles of structural geology, including geophysical evidence. Chapter 5, "Our dynamic earth," is largely a continuation of the third chapter, and in a future edition the material might be combined with that in chapters two and three.

Chapter 4, "Gradation of the earth's crust," deals with all processes taking place on the surface of the earth's crust. All textbook writers face the dilemma of whether the processes should be discussed before the material is described, or vice versa. In this book the difficulty is more obvious in the treatment of sedimentary rocks and processes than in the discussion of any other topic. The author found a happy medium by placing much emphasis on the extra-crustal processes with which we are, after all, in daily contact through weather, wind, temperature, and water.

The table of contents is extensive but not entirely complete. A most welcome addition is the five double-page topographic and geologic maps collected in the back of the book. Although this textbook still shows some typical earmarks of the old overemphasis on epi-exogenetic patterns of thought in such discussions as those on ore formation and granitization, it strikes the new keynote in placing the correct emphasis on sedimentary contemporaneous rocks and processes. It is well illustrated and the drawings (by Elizabeth H. Spencer) are excellent, but the reproduction of some of the full-tone photographs should be sharper. Otherwise the publisher has done a commendable job.

This book can be recommended for a one- or two-semester introductory course in physical geology, for either liberal arts students or geology majors. The suggested improvements do not diminish its present value.

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Science for the Layman

Exploring the Universe. Louise B. Young, Ed. Published for the American Foundation for Continuing Education by McGraw-Hill, New York, 1963. xxx + 457 pp. Illus. $6.95.

This collection of readings was selected for use as background material and subject matter for a study and discussion program. The 11 topics presented were chosen, in the words of the preface, "to provide the layman with a background of understanding of the principles on which the space age has been built, to give him a glimpse of the mystery and the majesty of the universe, which man has begun to explore with satellites, and, above all, to suggest the methods and nature of the search itself." An organizer's manual and a discussion guide are available for those who wish to start their own groups, and a series of educational television films based on this volume is being presented this spring in major metropolitan areas. The entire project is the first part of a long-range planned series of programs entitled "The Citizen and the New Age of Science," and it is the result of 3 years of research and experimentation by the American Foundation for Continuing Education, with support from the Fund for Continuing Education and the National Science Foundation.

The Foundation has done well. Selections from the writings of great pioneers of science, from Aristotle to Einstein, and philosophers, from Plato to Bertrand Russell, are interspersed with commentaries by present-day interpreters and critics of science, on the nature and aims of scientific inquiry, its methods and techniques, and its relation to human history and culture. Significant material has been selected and arranged into a well-ordered and progressive study, and very little of a trivial, sensational, or merely picturesque nature is in the book. The scope may be shown by some of the unit titles: part 2, Is there a scientific method?; part 6, Is there a limit to man's understanding of nature?; part 8, How was the universe created?; and part 10, Why explore space? These inquiries may sound overly speculative; actually, they arise from careful scrutiny of fact and theory expounded and analyzed in detail, and they represent very fairly the contemporary thinking on the significance of science. Each part ends with discussion questions and a list of suggested readings. Brief biographical sketches of the principal contributors precede the first unit; a glossary which includes some tables, derivations of formulas, and brief theoretical summaries and an index conclude the volume. The typography is excellent and the illustrations are well chosen. In cursory reading I noted no misprints, but one illustration is upside down and captions for two others have been interchanged.

I congratulate the editor and the foundation, and I recommend *Exploring the Universe* to the well-known "intelligent layman" and also to scientists, who may well benefit by seeing themselves as others (including each other) see them. It will repay individual as well as group study.

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