and laws, and the final section uses the earlier presentations to find the rate law for an elementary reaction. The two final chapters are studies of catalysis and photochemistry to the extent that they are helpful in understanding kinetics in general. In the body of the text, kinetic studies deal with reactions caused by collisions. Here an introduction is given to those rate processes caused by absorption of radiation and the converse process where radiation is produced in an elementary reaction.

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Earth Sciences

EARTH SCIENCE CURRICULUM PROJECT REFERENCE SERIES, W. H. Matthews III (Editor), RS-1, RS-2, RS-3 — set of three for $1.00, Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1964.

The first three pamphlets in this reference series provide important information on source materials for the biology teacher. Pamphlet RS-1 48 pp., will be extremely useful in locating data on fossils and earth history for local and regional areas. Degree-granting departments, government agencies, and scientific organizations are given for each state in the fields of astronomy, geology, meteorology, oceanography, and physical geography. Astronomical observatories and planetariums are also listed. A separate twelve page section presents coded designations for type of exhibit in United States and Canadian museums. This pamphlet will encourage contact with state surveys and educational institutions for source materials and consultations.

Pamphlet RS-2, 34 pp., have listed 1260 references for earth science, astronomy, geology, meteorology, oceanography, and physical geography. The six major subject areas are further subdivided into sections on introductory textbooks, teaching guides and handbooks, laboratory manuals and workbooks, general, referance works, periodicals, and career booklets. In addition, a section on field trips and field methods is included for geology, and a section on atlases accompanies the physical geography coverage.

Topics for oceanography illustrate a typical grouping of the general section within each subject area. The 210 oceanographic references are found under the headings of introductory reading, geology of sea bottom and coasts, islands and reefs, ocean charts and maps, ocean life, ocean movements, ocean water, oceanographic expeditions, oceanographic techniques and procedures, resources of the sea, and undersea exploration. Forty-six references comprise the sub-section on ocean life. The fossil subsection in the geological subject area contains sixty-six items. Addresses for publishers are given on the last six pages.

The first section of RS-2, 34 pp., lists 239 films by title. Descriptions include a critical summary, coded audience suitability, date, length, sound or silent, black-and-white or color, and primary distributor. A sampling of film titles includes the following: Animals of the Ice Ages, Beaver Dam, Cave Community, Cosmic Rays, The Dinosaur Age, The Fossil Story, In the Beginning, Life Between Tides, Marine Biologist, National Parks — Nature's Last Frontier, Prehistoric Animals of the Tar Pits, Story in the Rocks, What's Under the Ocean, When Air Masses Meet. A second section lists the same films by subject. Areas of special interest to the biology teacher are arctic regions, biology, conservation of natural resources, fossils, historical geology, national parks, oceans and oceanography, water supply, and weather and climate. The third section lists films by primary distributor, and a fourth section lists the addresses at which the films may be obtained.

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GEOLOGY AND EARTH SCIENCES SOURCEBOOK FOR ELEMENTARY AND SECONDARY SCHOOLS, Robert L. Heller, Ed., 496 pp., $2.96, American Geological Institute, Holt, Rinehart and Winston, Inc., New York, 1962.

This is one of the most complete sourcebooks this reviewer has seen for any subject. It is the result of the consideration given by the Education Committee of the American Geological Institute to the type of program that would be most effective in improving the quality of current teaching. The need for this compilation of resource material is the result of the rapid growth of earth science offerings in schools throughout the country, inadequate teacher training for such courses, and the need for encouraging its incorporation in all science courses.

This sourcebook of materials for elementary and secondary schools is the product of a writing conference organized by an AGI steering committee. The committee consisted of university, secondary school, and industry representatives. The criteria for including material was its overall quality of subject matter, suitability for use in general science for grades 1-9, suitability for an earth science course at the high school level, and suitability as supplemental material for related courses at the high school level.

Twenty-three units, covering the entire field of earth science are presented, including the

geological relationships to biology, chemistry, and physics. All units are set up on the same format listing facts and concepts to be covered along with accompanying methods and activities to accomplish the objectives. Teaching aids are also listed for each unit, including general catalogues, special sources for specimens, slides, films, and tools, along with teacher and student references.

The book is highly recommended for both the elementary and secondary school library.

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GEOGRAPHERS AND WHAT THEY DO, William Warntz, 149 pp., $3.95, Franklin Watts, Inc., New York 22, 1964.

This short book is written for readers of high school age. The book attempts to give answers to certain questions that might be entertained by a young person thinking of geography as a vocation.

The book presents the geographer as a professional person working in all areas of modern society—business, law, and government as well as a scientist doing basic research. The book also devotes a chapter to the question of should one become a geographer? This chapter would seem to be very helpful for a young reader without knowledge of the duties and functions of a geographer.

The book can be read in a short time and is written in an interesting style. One criticism is that the arrangement of the chapters relegates the definition of geography (and a geographer) as a science to the middle of the book. It would seem desirable, indeed, to place this chapter at the front.

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THE EARTH: LIFE NATURE LIBRARY, Arthur Beiser, 192 pp., $3.95, Time Incorporated, New York, 1962.

The illustrations in this volume are stunning and tell of the status of the earth sciences today. The IGY has, of course, helped enormously in charting more accurately the information about our planet. First, the author traces the history and origins of earth, putting the planet into a meaningful context. Then, something of the crust of earth itself. Meteorology is also taken up. Some of the gigantic problems involving earth are spelled out, e.g., population, minerals, etc. Curiously, there is a considerable section on the origin of life, including DNA, etc. Appendices are most helpful. As is true in the other volumes of this series, this has a definite place in the school and home.

LIFE BEYOND THE EARTH, V. A. Firsoff, 320 pp., $7.50, Basic Books, New York 16, 1964.

Written by an English astronomer, this is a rather complete compendium of information on the subject of exobiology. However, the book suffers from chapters in which the material is presented in a narrative form without any real emphasis as to important points versus those which are subordinate to main topics. The author reaches his stride, however, when the chapters on the planets and certain other astronomical phenomena are taken up. The main part of the book consists of chapters relevant to the subject of life and the chemical origins. The book is illustrated with very fine photographs. It is a very complete book, and one is sure to find references to practically everything which has been written on this subject that has any validity. For those students and teachers who wish to go into some detail on this subject, this will be a very handy reference book. It is rather difficult reading, but the reader who wishes to stick with it will be rewarded.

THE POLES: LIFE NATURE LIBRARY, Willy Ley, 192 pp., $3.95, Time Incorporated, New York, 1962.

The deserved success of this venture of which this is one volume is made obvious again in this volume. The scope of the treatment is broad, and as suspected, the illustration material is outstanding. What the author really tackles are both the Arctic and Antarctic regions. There is a lengthy, historical treatment of exploration. The brief treatment of life at the Poles is well illustrated. The book ends on a warning note of the rich resources awaiting the new type of explorer. The treatment on man in these inhospitable environments is excellent. A book for all school libraries and one most appropriate for the home.

THE UNIVERSE: LIFE NATURE LIBRARY, David Bergamini, 192 pp., $3.95, Time Incorporated, New York, 1962.

This masterful and awesome series has in this treatment an excellent pictorial as well as descriptive summary of what man knows about the universe. The color plates are fantastic, and if they do not race the reader's imagination, I do not know what can. The volume is devoted to astronomy and cosmology, including a historical theme. It is the type of book which is perfect for a gift, but its greater importance is as a solid and oft-read book in the library.

SPACE FLIGHT REPORT, Jerry and Vivian Grey, Eds., 224 pp., $7.50, Basic Books, New York 16, 1962.

Another handsome book product by this publisher. This one is the result of a series of symposium papers on the general subject of aerospace