which every scientist, every person interested in the history of ideas, will find profitable and enjoyable. It is exciting, even—indeed especially—in those passages which do not entirely persuade.

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Bone and Radiostrontium. Arne Engstrom, Rolf Björnerstedt, Carl-Johan Clemedson, and Arne Nelsen. Wiley, New York; Almquist and Wiksell, Stockholm, Sweden, 1957. 139 pp. Illus. $8.75.

For lack of a consistent editorial viewpoint this book is a puzzling mixture of general introductory material and highly specialized reports of research. It is aimed at no particular group or level. For all of that, the "shotgun approach" is not entirely without merit. Pieces and sections of the book will be interesting to almost anyone. For example, the casual scientific reader will find the introductory chapter a fine, annotated bibliography of the Sr^{90} fallout literature. The rest of the book he can and will ignore; it's much too specialized. The bone specialist will find the introduction boring, but later he will encounter a good summary of the important work on microstructure of bone for which the Karolinska group has earned an enviable reputation. To the radiation biologist, the discussions of bone microstructure are a bit "thick," but the calculations of radiation dosage will be new and exciting.

I came upon two minor annoyances. In the specialized sections, the referencing is chauvinistic. There are only rare references to work done outside the Karolinska "family," and this is a field which has been built by many men of many nations. The other annoyance is with the final summary. Here, the authors wrestle weakly with the problem of Maximal Permissible Concentrations. It would have been better either to give the problem "full treatment" or not to mention it at all.

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The Mushroom Hunter's Field Guide. Alexander H. Smith. University of Michigan Press, Ann Arbor, 1958. ii + 197 pp. $4.95.

A simple yet authoritative field manual for the identification of mushrooms has long been needed in this country, since most of the books available to the amateur mushroom collector are either obsolete in their nomenclature or limited in their geographical coverage. The preparation of a manual for the nonspecialist has been made difficult by recent progress in the taxonomy of higher fungi, because much of this progress has resulted from the use of microscopic characters for the identification of species, so that identification of some mushrooms in the field has become impossible even for the specialist. Fortunately, some of the species that are of particular importance to those interested in mushrooms as food can be recognized in the field on a basis of macroscopic characteristics and habitat.

Alexander H. Smith, curator of fungi in the Herbarium of the University of Michigan, has selected some 124 species of fungi that can be recognized in the field for inclusion in *The Mushroom Hunter's Field Guide.* In addition to mushrooms (Agaricales), the book includes other Basidiomycetes such as coral fungi, shelf fungi, chanterelles, and puffballs and edible Ascomycetes such as the morels and their relatives. For each species listed, there is at least one photograph, together with paragraphs on (i) when and where to find the species, (ii) the important characteristics for field identification, and (iii) a discussion of its edibility. Poisonous species are clearly indicated, but Smith advises caution in eating others, because some individuals are sensitive to mushrooms that most people find innocuous.

In addition to the main part of the book, there is an introduction, written in nontechnical language, which tells a little about the place of mushrooms in the scheme of things, the structure of mushrooms, and the variability of their characteristics. It also contains some general remarks about eating mushrooms and mushroom poisoning. There are also useful lists of the names of species found in the western United States, of edible mushrooms safe for beginners, of mushrooms associated with certain trees, and of the habitats of selected mushrooms according to season.

The book has two unusual external features. The first is its shape. It is shaped to fit the pocket—that is, if one happens to have pockets of 5¼ by 10¾ inches. A second and laudable feature in a book designed for field use is the water-repellent cover.

The two most important requisites for a useful field manual are workable keys and adequate illustrations. One disadvantage to artificial keys of the type found in this book is the fact that the user does not know whether he is "getting warm" or not, so that if he makes a mistake, he is lost. He is also lost if the key is misleading. For example, if *Helvella gigas* were found in the Sierra Nevada, it could not be identified by means of the key, because the choice leading to this species requires that it must occur in the Rocky Mountains.

Any deficiencies in the keys are more than compensated for by the illustrations, which are truly excellent—large, clear, and well-reproduced. Smith is an outstanding photographer, and many of his illustrations have esthetic qualities as well as scientific utility.

The Mushroom Hunter's Field Guide should have a wide appeal and help to fill the need for a book of its kind. Although it is written for the beginner, it should be useful to the more advanced collector because of its authoritativeness and the extent of its geographical range. Finally, it should be helpful as a reference work for physicians, but it is to be hoped that this attractive and scientifically accurate book will help to forestall unnecessary illness and needless deaths from mushroom poisoning.

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Young People's Book of Science. Glenn O. Blough, Ed. McGraw-Hill, New York, 1958. 446 pp. Illus. $4.50.

Space Book for Young People. Homer E. Newell, Jr. McGraw-Hill, New York, 1958. 114 pp. Illus. $2.95.

Frontiers of Science. Lynn Poole. McGraw-Hill, New York, 1958. 173 pp. Illus. $3.25.

These three books are intended primarily for children from grades four through nine. However, the general public would benefit from their use. This is especially true of *Frontiers of Science* by Lynn Poole.

Young People's Book of Science is a collection of selections from the writings of the Bendicks, Crouse, Grant, Hyde, Kimble, Poole, Richardson, Schnieder, Schwartz, Skilling, Stillman, Sullivan, Swezey, and Tannenbaum, ranging in nature from those of historical significance to others concerned with modern science.

Many methods of gathering evidence are discussed, from using your eyes, without optical instruments, up to and including use of the electron microscope. Also included are studies of weather, atomic energy, space travel, the ocean, and electricity, including television. Although all the topics are presented in a factual, yet stimulating, manner, the portion devoted to the ocean is most fascinating. This includes descriptions of the geology of the ocean floor as well as of marine biology. As you read this section, you can actually visualize a dive using a scuba or snorkel.

Space Book for Young People includes a very readable presentation of elemen-

tary astronomy (covering the planets, the sun, the moon, comets, asteroids, meteors, stars, and galaxies) and the structure of rockets to be launched into space. The simple approach to a quantitative concept of the vastness of the universe is of particular note. The entire book is simple, yet informative.

Frontiers of Science is truly a book about modern scientific development. The description of the use of the evaporograph as a means of taking pictures in the dark and the study of geobotany will be of interest to the scientifically minded person. The individual who is interested only in the sociological aspects of science will appreciate the chapters devoted to the theories of invention and diffusion in the discussion of human geography, the use of drugs in treating mental illness, and the treatment of organic diseases. In chapter 16 there is an excellent elementary discussion on the glow of the firefly.

It is difficult to describe these three books adequately in a short review. They present truth as it exists and should stimulate young people to study science. They all help to show the reader that the curtain of ignorance is being pushed ever farther open.

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American Agriculture: Geography, Resources, and Conservation. Edward Higbee. Wiley, New York; Chapman & Hall, London, 1958. x + 339 pp. Illus. $7.95.

This is a general book on the geography of American agriculture. Following three introductory chapters on broad land resources, climate, and soil, the author discusses the present agricultural patterns in the western states (13 chapters) and in the eastern states (11 chapters). The selected regions are discussed mainly in terms of the dominant physical features and present trends of land use. Maps and charts are used freely to illustrate the major regions. Diagrams of about 35 selected farms and several of communities, forest areas, and subregions are used to illustrate typical situations. Most of these are excellent but some of the large and complex ones of broad regions have been reduced too much.

In the regional chapters the author uses his case farms and such discussions as he feels will be helpful—sometimes he emphasizes soils, sometimes climate, and so on, depending on the area. Frequently he refers to significant historical, economic, and technological factors, and the effects of the agricultural programs for price supports, soil conservation, and the like. Since he does not do this consistently throughout, the basis for his selection of factors for discussion is not clear.

Orderly economic analyses of his sample farms would have helped the reader get a clear idea of the operating budgets of these farms.

Apparently the book is intended as a text for geography students who have had little or no previous training in agricultural science. It will help these students to get a conception of the variability and complexity of American agriculture and some general notion of the potentialities of our rural lands and of the problems of their use.

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Oil: From Prospect to Pipeline. Robert R. Wheeler and Maurine Whited. Gulf Publishing Company, Houston, 1958. ix + 115 pp. Illus. $2.95.

This very concise account of oil operations is intended for laymen and oil company personnel. Such a book has long been needed by the rather departmentalized professional and clerical staff of the oil companies and by countless mineral owners and investors in the oil business. It should be of great value to students contemplating a career in petroleum geology and other fields of oil technology.

In a clear and often entertaining fashion the authors have covered the technical, economic, legislative, and competitive aspects of finding and producing oil, using nontechnical language easily understood by laymen. A description of the first six chapters of the book follows:

"Oil is how you find it" considers the environment of oil accumulation and the techniques of evaluating prospects and exploring for production, all of which are within the province of the petroleum geologist.

"Drilling for oil" discusses the roles of the geologist and engineer in supervising drilling and testing operations.

"Getting the oil to market" discusses reservoir mechanics and the problems of securing oil production from the well bore.

"Who owns the oil" is a fascinating excursion into the legal problems of ownership, conservation, and legislation designed to promote the equitable sharing of this valuable natural resource.

"What's it worth" is an analysis of supply and demand, cost and profit, and unique tax legislation designed to encourage oil exploration—in general, a study of the economics of the domestic oil business.

"Pride, participate or promote" is an often amusing effort to compare the major and independent oil companies with regard to their philosophies of conducting oil operations, which run the gamut from pure prejudice to the most refined technology.

Following the main text of the book is chapter 7, an abridged oil dictionary designed to aid the secretarial-clerical staffs of the oil companies and conveying a good deal of the colorful language of the "oil patch."

The dictionary is followed by abbreviations used in oil reports, a tabulation of regional stratigraphic terminology for the important oil-producing regions in the United States, typical legal forms of mineral conveyance, and other useful tables concerning taxable income and fractional production equivalents.

Even to the experienced oil operator, this book will be of considerable interest and value because, as noted earlier, there is very little overlap between the professional departments in the oil companies. While it will not make experts of the geologists, geophysicists, reservoir engineers, landmen, and accountants in fields other than their own, it will give them some insight into and appreciation of the jobs of others.

Although most of the chapters could have been treated in considerably more detail, it was quite evidently the authors' object to treat each subject as concisely and consistently as possible. The simplicity and clarity of statement that characterize this presentation undoubtedly derive from the facts that Wheeler and his secretary, Maurine Whited, manage the operations of the Pyramid Oil & Gas Corp., and that the idea of the book was to help simplify each phase of oil operations for their directors and coinvestors.

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The Chemical Industry during the Nineteenth Century. A study of the economic aspects of applied chemistry in Europe and North America. L. F. Haber. Clarendon Press, Oxford, England, 1958 (order from Oxford University Press, New York). viii + 292 pp. $7.20.

This book defines its object as the filling of a gap in economic history, a gap that encompasses the chemical industry during its period of greatest growth. Without exhausting the subject, Haber accomplishes remarkably well the organization of this complex and obscure subject into a coherent and readable narrative. He proceeds through the jungle of sprouting and decaying business structures of the late 19th-century chemical industry with a facility which has