Already the *Atlas of Britain* has a historical quality. It presents Great Britain in the late 1950's. Works have closed, and new works have opened; the more precise and detailed the atlas, the more quickly it is dated. That is a risk the publishers take, but for the next decade or two this atlas will be the standard work on the distribution of economic activity in Britain.

NORMAN J. G. POUNDS
Department of Geography, Indiana University

Science for the Layman

A Short History of Biology. Isaac Asimov. Published for the American Museum of Natural History by Natural History Press (Doubleday), Garden City, N.Y., 1964. x + 182 pp. Illus. Paper, $1.25.

This little volume is packed with much material, especially in its latter half which treats modern aspects. It is written in Asimov's usual lucid style, with pinpoint accuracy, and covers the entire historical span of the evolution of the biological sciences from Alcmaeon and Hippocrates to Urey and Miller's experiment on amino acid synthesis in vitro and the roles of DNA and RNA in the cell. For obvious reasons of professional bias Asimov tends toward favoring progress in his own field of biochemistry and offers the reader the full and exciting story of such peak achievements as the discovery of enzymes, antibodies, protein structure, genes, nucleic acids, intermediary metabolism, and similar topics. Other phases of biology do not fare as well, plant and animal physiology for example. An author must, of course, choose his own points of stress. The outcome here justifies Asimov's choice, and the reader gains a good view of the great drama of the phases selected.

More serious is the criticism that can justly be raised with respect to the author's entire approach to Greek and medieval biology and medicine, however brief its treatment in the text. In that section one finds the usual stereotyping of a great era of inspired and laborious pioneering through brute hindsight evaluation and superficialities, the end result of having used standards of judgment which by no stretch of the imagination can be justified either historically or anthropologically. For example, no attempt is made to evaluate Galen's actual work, but his religious views are dragged in as though they influenced his skill as an experimentalist or the questions that he posed and the answers he could possibly obtain concerning the function of blood or nerves. The reader thus fails to perceive the great panorama of man's painful quest for science in that era, so devilishly beset by pitfalls within his conceptions and the prevailing level of knowledge. There is a tendency to blame individual views rather than the actual obstacles and intrinsic obscurities, which man ultimately defeats only to be faced with new challenges. Also, the vitalistic-mechanistic class battle is, in my opinion, greatly overplayed since the presumed combatants more often than not struggled with real biological problems rather than with philosophic ghosts.

Fortunately, these two points deal with only a small part of the book. In its totality it is a stimulating, readable, and informative account which fully lives up to the promise of its title.

MARK GRAUBARD
Natural Science, Interdisciplinary Studies, University of Minnesota

Soviet Geography

Geography of the U.S.S.R. Paul E. Lydolph. Wiley, New York, 1964. xii + 451 pp. Illus. $10.95.

Until very recently, those who teach the geography of the Soviet Union in the colleges of the United States have been seriously handicapped by the lack of English-language materials on that area. Fortunately the situation is improving—at least in terms of the quantity of material available. In 1961, the second edition of Georges Jorre's *The Soviet Union* (Longmans) appeared, to be followed by *A Geography of the U.S.S.R.: The Background to a Planned Economy* (Butterworths) by J. P. Cole and F. C. German. In the following year, the late George Cressey's *Soviet Potentials: A Geographic Appraisal* (Syracuse University Press) was published. These three texts, together with a growing volume of journal articles on various facets of Soviet geographic development, afford a basis for intelligent classroom use.

The most recent publication, by Paul Lydolph (chairman of the Department of Geography, University of Wisconsin, Milwaukee), should, if the lecture course is given a regional emphasis, prove to be the most useful elementary text available. It is divided into two main sections. Part 1, The Regions of the U.S.S.R., constitutes about two-thirds of the text; the remaining third, part 2, is entitled Topical Analysis of Cultural and Economic Phenomena. This organization is the reverse of standard procedure, the author's preference presumably having been determined by his successful experience in teaching. The author's justification for the organization as stated in the preface—"Analysis of interworkings of complexes of phenomena in specific localities attached to place names are more real and meaningful to the beginning student than are discussions of social and economic abstractions"—may be controverted, however. At any rate, Lydolph's topical section is not especially abstract, since it includes an assembly of a wide array of descriptive material drawn from a number of good English-language sources.

However, the general usefulness of the text in a regional lecture course should not conceal the basic methodologic weakness of the book's regional treatment. Lydolph has devised his own scheme of regionalization, rather than relying on Soviet practice. Although Soviet economic regionalization is frequently unsatisfactory because of boundary delineations, it is nevertheless based on subdivisions like the oblast and krai for which some statistical data are available in official Soviet handbooks and annuals. Lydolph, in an attempt to improve on the delineation of regions, has chosen to use the following as his criteria: (i) reasonably well-defined zones of agricultural production which are closely related to the natural environment, (ii) recognizable industrial nodal areas which lie within and transgress the boundaries of the agricultural regions, and (iii) traditional areas whose names have a real but unclearly defined significance in the minds of the Russian people. The end result is, in some instances, almost identical with Soviet practice or, in others, even more fantastic!

One wonders by what stretch of the imagination it is an improvement on Soviet practice to include within one large region the Vasyugan Swamp, the West Siberian Steppe, the Kuzbass industrial node, and the semiarid steppes

of western, central, and eastern Kazakhstan. What historical validity is there for accepting the contemporary Soviet boundary of the Ukraine S.S.R. which, as the author shows, nevertheless cuts through the Donets coal basin? Clearly, one must add the criterion of "convenience" to the three mentioned above, and, indeed, Lydolph confesses as much on page 76. Moreover, the Donbass, a miniature Ruhr, is a clearly "recognizable" industrial nodal area, but it is not recognized by the author, although he does distinguish the Central Industrial Region. If we apply the criteria selected by the author, there is also a concrete basis for identifying, among others, a region focused on the middle Amur and the Ussuri valleys, which Lydolph ignores. It seems highly doubtful that the regions delineated by the author will be more meaningful to students in the United States than those revealed in Soviet publications.

Despite these objections, which are of more concern to the advanced student, the text is well written and it has an agreeable appearance.

W. A. DOUGLAS JACKSON
Department of Geography,
University of Washington, Seattle

The Aurora Borealis

Keoeeit: The Story of the Aurora Borealis. William Petrie. Pergamon, London; Macmillan, New York, 1963. xii + 134 pp. Illus. $5.

This excellent book for laymen on the aurora and certain related upper atmospheric phenomena contains a careful and simplified account of much that is known about the aurora. It also presents a careful discussion of early theories and of the generally accepted present theory, which, although it can only be given in general terms, shows clearly where more data and reasoning must be applied to give more understanding. This section is the best up-to-date statement available.

In the first three chapters Petrie discusses the aurora in history, why it should be studied, and the instruments used for its study. The form, location, time and space variations, light, and possible sound of the aurora are treated in four chapters. The final two chapters deal with related upper atmosphere phenomena as well as with the cause of these and of the aurora. The volume is copiously illustrated. Many of the 47 plates are pictures of the aurora; 8 of them are in color. The color plates, which are reproductions of paintings by the author's wife, are excellent and "help to convey some appreciation of the beauty of this phenomenon."

One aim of this book is "to convey to the reader something of the fascination of the aurora, and [to] . . . make clear why those people [who] are fortunate enough to observe this beautiful phenomenon of the night time sky develop a life long interest in it." As one who has been an observer for 40 years, I can hardly say how much I would have appreciated and enjoyed this book years ago. This book is also a very brief history of one branch of science, and it shows the erratic progress, with false starts, errors, and sudden enlightenments with which the field developed.

Although there are no important misstatements of fact, the text is somewhat repetitious, but this is necessary in a teaching book. I dislike the use of Roman numerals for numbering plates, and I object to the use of a fine picture of the aurora on the book jacket without repeating the picture in the book.

CARL W. GARTLEIN
Department of Physics,
Cornell University

Paleontology

Fossils in America. Jay Ellis Ransom. Harper and Row, New York, 1964. xii + 402 pp. Illus. $8.95.

This book is intended to be a handbook for the amateur who is interested in finding and studying fossils. Ransom discusses the formation and characteristics of fossils and how to collect, prepare, and identify them. He presents a brief discussion of geological time and stratigraphy. A large proportion of the book is devoted to a list of fossil localities; the list, which is organized by state, provides information (for most localities) about the age of the rock as well as the names of the more common fossils. There is a glossary and a list of reference libraries and mineral museums.

In general, I consider this book unsatisfactory, and I do not believe that it will provide the amateur with the information he needs. In the section on the identification and classification of fossils, far too much emphasis is placed on groups that are not well represented in the fossil record and not enough emphasis is placed on those frequently encountered. For example, two pages are devoted to the identification of worms, animals rarely well enough preserved for identification, but only one-third of a page is devoted to bryozoans, two-thirds to brachiopods, one-third to snails, and one-half to trilobites. The data on fossil localities are not sufficiently detailed. I suspect that many of these localities could not be located with the information provided in this book. It would have been more useful to include fewer localities and to provide more data, in particular a map on which the location of each site was indicated. Furthermore, some of these localities are not open to the public.

The information provided on museums is outdated—for example, the author cites five institutions in the District of Columbia which are supposed to have mineral collections and specimens available for private collections. Three of these institutions no longer have museums of geology, and none of them will provide specimens to private collectors.

PORTER M. KIER
Smithsonian Institution,
Washington, D.C.

Notes

Readings in Population and Community Ecology. William E. Hazen, Ed. Saunders, Philadelphia, 1964. x + 388 pp. Illus. Paper. $4.75. The 25 essays presented here are grouped under the following headings: Single Species Populations; Relationships between Species; Community Metabolism; and Community Structure. The papers "attempt to explore some of the avenues that research and speculation in population and community ecology have taken."

Ideas and Backgrounds. Keith G. Huntress, Fred W. Lorch, and W. Paul Jones. American Book Company, New York, ed. 2, 1964. 276 pp. Paper. A selection of some 40 essays, reprinted from various sources, on the following topics: Science and Survival; The Population Explosion; Education; Race Prejudice; and Our Country's Image.