
Thomas and Elizabeth Lamboll: Early Charleston Gardeners. *Elise Pinckney.* The Charleston Museum, Leaflet No. 28, Charleston, South Carolina. 1969. vi+45 p. No price given.

Those interested in the historical development of horticulture and botany in our country will find this leaflet a valuable source of information. It contains a documented account of the life and times of Thomas Lamboll and his third wife, Elizabeth Pitts, eighteenth-century residents of Charleston. The Lambolls, along with Dr. Alexander Garden and Martha Logan, were John Bartram's faithful South Carolina correspondents and plant swappers. Sixteen letters dated 1761 to 1786 from Lamboll to John Bartram and his sons John, Jr., and William of Philadelphia, as well as a letter from William to Lamboll's daughter, Mary Lamboll Thomas, are transcribed; only two of these have been published before. They indicate an informed and enthusiastic concern about native and exotic plants. Carefully researched reports such as this one make important contributions to regional history and to the broader history of American science; they are also enlightening reading.

EMANUEL D. RUDOLPH

BOOK REVIEWS

Environmental Geology: Conservation, Land-use Planning, and Resource Management. *Peter T. Flawn.* Harper and Row, New York. 1970. xix+313 p., colored map inside back cover. \$13.95.

Peter T. Flawn has produced a very timely book, appearing shortly before Earth Day (April 22, 1970), with all its publicity on environmental problems. Environmental geology is a relatively new field of geology and is sometimes equated to urban geology. According to Flawn (p. xvii), "Environmental Geology is a branch of ecology in that it deals with relationships between man and his geological habitat; it is concerned with the problems that people have in using the earth—and the reaction of the earth to that use."

The book is suited for students of environmental geology (the number of whom is rapidly increasing), earth scientists (as well as regional planners), civil engineers, architects, mayors, and laymen concerned with meaningful land use. There are eight chapters, the first three of which contain basic concepts and information necessary for those with little or no geological background to understand much of the rest of the book. Chapter 4 describes the importance of resources for materials, energy, and sustenance of life, including low-value varieties, such as sand, gravel, and water, and high-value varieties, such as diamonds and petroleum.

Man as a Geological Agent (Chapter 5) describes some of the changes effected by man in the construction of highways, disposal of many types of wastes, and extraction of resources from the earth. Some statistics will be a surprise to many, a boon to a few; for example, it costs New York \$30 to collect and dispose of a ton of garbage, three times the cost of coal mined in West Virginia and delivered to New York! If a low-value material like concrete aggregate has to be transported from some distance outside of the city, haulage costs can double the cost of the aggregate, maybe only \$70 for a small house, perhaps \$30,000 for a large building.

The next two chapters, *Conservation and Management* and *Applications of Environmental Geological Data*, stress three major elements important in environmental management, not all of which are considered by today's environmentalists: the biological system, the geological-meteorological system, and the cultural system. The role of the environmental geologist in conservation is emphasized. As a professional he should be involved with the evaluation of conservation problems and programs from the view of resource occurrence and earth processes; as a citizen in civic affairs he must be willing to support, before planning agencies, councils, and the general public, any regional plan based on sound geological data. In the United States only a few planning bodies have geological advisers or members, and in the past only a few geologists have been willing to become involved when they saw flagrant abuse of the geological environment. This book may provide the incentive for geologists to get involved as professionals and as citizens; it may also bring to the attention of planners and others the importance of the geological-meteorological element in managing the environment. For example, the geology of Austin, Texas, is described in Chapter 8 with the aid of a geologic map. Problems that have occurred in Austin indicate the need for geologic information in urban planning. Unfortunately, the author does not mention or give examples of one of the most important developments in environmental geology—land-use maps based on geologic data.

In general this is a well-written and well-printed book. Although aimed at the professional, I believe that many citizens who have more than a passing interest in the environment will find the book very informative.

GARRY D. MCKENZIE

Physics in My Generation. A selection of papers. *Max Born.* Springer-Verlag, New York (paperback). 2nd revised edition, 1969. vii+172 p. \$3.80.

Max Born, 1954 Nobel laureate in physics, close friend of Albert Einstein, and above all a very great man, on his retirement collected the essays he had published previously about science. It is this collection, revised and brought up to date, that is here published. In his "Preface," Born describes how the changes that had occurred in physics during his life time affected his point of view. He says that in 1921 he believed "that science produced an objective knowledge of the world . . . governed by deterministic laws." To him the scientific method then "seemed superior to other more subjective ways of forming a picture of the world—philosophy, poetry, and religion." Moreover, he "even thought the unambiguous language of science to be a step towards a better understanding between human beings." By 1951, Born says, he had rejected all of these ideas. What had been previously a clear-cut distinction between subject and object became blurred; statistical laws operated instead of deterministic ones, and, "although physicists understood one another well enough across all national frontiers, they had contributed nothing to a better understanding of nations, but had helped in inventing and applying the most horrible

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weapons of destruction." These essays, originally published between 1921 and 1966, reflect some of the reasons for Born's (and for physicists in general) new way of looking at the world.

It is impossible to single out any essay for particular attention; each is revealing in its own way. Born's "Introduction to Einstein's Theory of Relativity (1921)" is an acknowledged classic. "Statistical Interpretation of Quantum Mechanics," Born's Nobel acceptance speech, is one of the great Nobel addresses. His personal recollections of Einstein, of Einstein's work and of its impact, are alive, warm, and intellectually stimulating. From a biographic point of view, his "Physics and Relativity" is illuminating. His "What is Left to Hope For?," written in 1966, presents a strong and cheering case for not tiring "in fighting the immorality and unreasonableness which today still govern the world." For Born, the one hope left to us lies in bringing about the peaceful coexistence of all people.

There is no class of readers, be they scientists or humanists, who will not find something to savor and to think about in Born's essays. One can feel only gratitude to Born, and to others like him, who take the time to talk about their science and its philosophic and political and moral implications.

J. Z. FULLMER

Proceedings of the Apollo 11 Lunar Science Conference. *A. A. Levinson, ed.* Pergamon Press, New York. 1970. Vol. I, Mineralogy and Petrology (pp. 1-990); Vol. II, Chemical and Isotope Analyses (pp. 991-1936); Vol. III, Physical Properties (pp. 1937-2492). \$40 for 3 vols., not sold separately.

These proceedings of a conference that took place in Houston, Texas, January 5-8, 1970, comprise Supplement I of *Geochimica et Cosmochimica Acta* (Journal of The Geochemical Society and of The Meteoritical Society). More than 150 authors were involved, as well as 17 associate editors. The papers contained in these three volumes are considerably more complete than are those appearing in volume 167 of *Science* (No. 3918) in most cases, and the authors were allowed more time after the conference for revision of their papers. As was true also of *Science* No. 3918, current subscribers to *Acta* received the supplement at no additional expense. This duplication of effort in publishing seems regrettable in some respects, and as stated by Philip H. Abelson, Editor of *Science*: "Some readers may feel that this issue of *Science* provides more than they care to know about the moon. . . ." While it is surely true that the flight of *Apollo 11* opened the door to investigation of the properties of lunar materials, thoughtful persons will realize that this knowledge is primarily useful insofar as it can be drawn upon to enhance the study of earthly things; there is no dearth of unanswered questions on earth—involving biological as well as physical sciences.

DUNCAN MCCONNELL

Ore Deposits as Related to Structural Features. *W. H. Newhouse, ed.* Hafner Publishing Co., New York. 1969 (facsimile of the 1942 edition). xi + 280 p. \$14.50.

This volume was originally prepared (in 1942) under the direction of the Committee on Processes of Ore Deposition of the Division of Geology and Geography of the National Research Council, a committee of ten, whose chairman was W. H. Newhouse. The volume contains 79 papers by 65 of the foremost economic geologists of that time.

The committee points out in the Preface that there is a lack of agreement on the relative importance of the several structural features that have localized ore in a given mining district, and that economic geology of metals is in that stage of growth when sufficient facts have not yet been accumulated to test hypotheses. The committee believed that this volume would fill a unique need by bringing together facts of structural features and ore occurrences. The emphasis in the separate papers is on description and fact rather than on theory, recognizing that "fact" is colored by interpretation. As might be expected, there are differences in viewpoint and emphasis in these papers. In addition, no claim was made that these papers should include all the types of structural features that control or deposition.

The first three papers, by B. S. Butler, T. Lovering, and W. H. Newhouse, are general papers describing relations of ore deposits to structural features. The next eight papers describe the structural features associated with ore deposits of certain types and in large areas, such as the Lake Superior iron deposits, pyrometamorphic deposits, and the Rouyn-Harricana Belt of Quebec. There follow descriptions of other ore deposits, grouped according to structural features as follows: (1) ore deposits in massive rocks, with subdivisions of (a) those not related to known faults, fissures, or shear zones; and (b) those with faults, fissures, or shear zones; (2) ore deposits in layered rocks with the same subdivisions (a and b) as above; and (3) ore deposits near contacts of massive and layered rock. The last paper is on structural petrology as applied to ore deposits.

The text is well printed and easy to read, but many of the numerous maps and cross-sections, both in the original edition and in this facsimile edition, are on such a small scale that they are difficult to read.

GEORGE E. MOORE, JR.

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