graphic data for many specimens from the American midcontinent are given in terminology applicable to the Appalachian region. The curious French practice of translating foreign geologic names has been followed strictly and has introduced at least one source of confusion—plants from the British Lower Coal Measures (Upper Carboniferous) are almost invariably represented as originating from Lower Carboniferous rocks.

Although the work is published on high-quality paper and much expense and care has gone into production, some routine editorial chores have been given skimpy attention. There are many typographical errors; all too frequently, works cited in the discussion are not listed in the bibliography; in some cases, references in the text are over abbreviated (most people will be frustrated by examples like "*Neocalamites squamulosus* Turutanova-Ketova 1962," for "*Neocalamites squamulosus* Turutanova-Ketova, in Prynada and Turutanova-Ketova, 1962"); many works listed in the bibliography are nowhere cited in the text.

It is clear that this volume has shortcomings, but they must be considered in relation to the nature of the task so ambitiously undertaken. It then becomes surprising that one man has been able to accomplish so much. There is no doubt that this volume stands as the most significant single source of information on sphenophytes and noeggerathiophytes. The nonpaleobotanist will find it a useful guide to a complex field, and the professional paleobotanist cannot fail to learn from it. The latter should be particularly grateful for the fine coverage of much recent literature from Soviet Russia. All sorts of intriguing questions are apparent when this largely unfamiliar work is placed alongside the more familiar. How different is *Umbellaphyllites* from *Raniganjia* and *Phyllotheca*? Should the genus *Gamophyllites* really be separated from *Equisetinostachys*? Can the distinctions between *Equisetina, Koretrophyllites*, and *Phyllotheca* really be maintained? Are the differences between Sorocaulaceae and Phyllothecaceae really significant? Clearly, Boureau has presented students of fossil plants with a valuable reference volume that will provoke anticipation of the volumes yet to appear in this treatise.

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Nuclear Technology: Analysis of Materials

Analysis of Essential Nuclear Reactor Materials. Clement J. Rodden, Ed. Atomic Energy Commission, Oak Ridge, Tenn., 1964 (order from Superintendent of Documents, Washington, D.C.). xiv + 1280 pp. Illus. Paper, $4.25.

The purpose of this book, as stated in the preface, is to provide assistance in analyzing materials used in nuclear reactors. This purpose has been achieved, and the result is a valuable reference source that provides the information required for the analysis of reactor materials without the need for further literature searching.

The book is a collection of published and unpublished information, with extensive references up to 1961. The practical aspects of analysis have been stressed with minimal attention given to physical and inorganic aspects of the subject. This, however, does not detract from the value of the book.

Each of the 16 chapters was written by one or more experts in the field. The fuel elements uranium, plutonium, and thorium are each given a chapter, as are the moderator elements beryllium and graphite. The poison element boron is discussed in detail in a separate chapter. The reactor coolants water, helium, carbon dioxide, sodium, sodium-potassium, and polyphenyls are treated in one chapter; heavy water is discussed separately. The trace elements that occur in reactor materials are also discussed in one chapter. The last four chapters are devoted to a description of analytical techniques—for example, mass spectroscopy, radiochemistry, electrometric methods, and x-ray spectroscopy.

The main criticism that can be made of the book is that it is disorganized and contains a certain amount of duplication. This, undoubtedly, results from the many types of materials discussed and from the multiplicity of authors. Thus, to locate a particular analytical method, one may have to consult several chapters. This, however, is a minor point that should not seriously affect the usefulness of the volume. Although the quality of the printing is excellent, the paper binding will not withstand the wear and tear that should be expected in a frequently used reference book.

This book can be recommended as a valuable reference book for those concerned with the analysis of materials used in nuclear reactors.

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NATO Advanced Institute on Books and Non-Books

Algae and Man. Based on lectures presented at the NATO Advanced Study Institute (Louisville, Ky.), 22 July–11 August 1962. Daniel F. Jackson, Ed. Plenum Press, New York, 1964. x + 434 pp. Illus. $14.50.

"With the continuous increase in human population and its constant demands on the aquatic environment, there has been a compounding of the interrelationships between algae and man." This opening statement clearly gives the *raison d'être* of the symposium and at the same time intimates the strong bias toward plankton ecology evident in the assemblage of contributions.

These proceedings join the rapidly lengthening list of non-books which result from the combined zeal of publishers and academic entrepreneurs. Granted the propriety of these principals to seek financial compensation and prestige, the effect on science is not wholly salubrious. As if the information explosion is not enough to cope with, we are faced with a far more formidable phenomenon—the publication explosion. The relationship between the two is not linear: the number of cepts per printed page has declined markedly during the past few years. No one can doubt this downward trend after having read the third, fourth, and even fifth rehash of the same review in as many months.

The subject of non-books is fascinating. To those who may think that the term "non-book" is merely *Timese* and hence cleverly meaningless, let me hasten to say that non-books unfortunately exist, although I should like to believe that they are not here to stay. They may be defined as bound fascicles of printed pages ("signatures" in the trade) without literary purpose