methods available for determining impurities, only those for aluminum, boron, and certain rare earths are considered, even though the necessity for methods was mentioned in chapter 5. Chapter 4, "Determination of thorium in natural materials and in industrial products," a quite comprehensive chapter, is the best one in the book. In general, this volume will be quite useful to the analyst.

Analytical Chemistry of Thallium (Moscow, 1960), by I. M. Korenman, is quite adequately documented. The published literature on thallium is relatively meager, and this volume is consequently considerably smaller than the other monographs. The author's evaluation of the methods given indicates that he is quite familiar with the subject. A considerable number of microscopic methods are given under qualitative reactions. The lack of a section on the analysis of commercial materials does detract in a small way, especially in view of the coverage given to this aspect of the topic in other volumes. The properties of thallium compounds in which the analyst may be interested are given in an appendix.

Analytical Chemistry of Uranium (Moscow, 1962), contains papers by various contributors, and the literature of the field is well covered. The work carried out in Russia is well documented and of considerable value. Chapter 4, on the determination of uranium, is the most important chapter in the book. As one would expect when several authors are responsible for a volume, the coverage is somewhat uneven. More space than appears warranted is given to polarography. In several instances the authors are noncritical. Certain rarely used procedures are given. Chapter 7, on the determination of impurities in uranium, is very spotty in its coverage and of somewhat questionable value. Considered as a whole, however, the monograph will be of considerable interest to the analytical chemist.

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British Ecological Society Monograph

Grazing in Terrestrial and Marine Environments. A symposium of the British Ecological Society, April 1962. D. J. Crisp, Ed. Blackwell, Oxford, England; Davis, Philadelphia, 1965. 338 pp. Illus. $12.50.

Like other symposia in the series, this one addresses itself mainly to fundamental aspects of practical problems. For future historians of science it thus provides a reflection of some of the concerns of the period and an assessment of the status of specific problems. For present-day readers the utility of different parts of the book will vary. Contributions range from one or two cursory progress reports, through detailed accounts of particular research efforts, to more general reviews. Coverage is broad, including such diverse phenomena as the effects of larger mammalian grazers on perennial plants and those of small invertebrate filter feeders on oceanic plankton. As must be expected, the variety of contributions results in something less than a satisfactory overview, and many aspects of grazing phenomena may have received less attention than they deserved. However, this is a natural consequence of this sort of effort. The comparisons and contrasts provided should, in any case, stimulate the many workers concerned with any of the aspects of grazing.

A short, unsigned introduction, which attempts to summarize the symposium as a whole, and the first paper, a review of the energetics of grazing (by Macfadyen), serve to integrate the other parts into which the volume is subdivided. Of these, the sections on grazing and range management and those on grazing by littoral and benthic organisms seem least successful in providing a coherent account of what is and what is not known. One feels that the efforts of various authors to be general have resulted in undesirable vagueness. But a group of four papers on grazing by sheep is particularly praiseworthy, for the individual contributions truly complement each other and document nicely a complex but reasonably well-understood set of interactions that may prove of considerable general interest.

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Applied Physics

Electron-Stream Interaction with Plasmas. Richard J. Briggs. M.I.T. Press, Cambridge, Mass., 1964. xii + 187 pp. Illus. $7.50.

An extensive effort has been made in recent years to investigate the interaction between streams of charged-particle beams and a plasma. The motivation has been, on the one hand, to understand and catalog unwanted instabilities and, on the other, to investigate the possibilities of generating and of heating a plasma. Some attempt has also been made to use these interactions for microwave amplifiers. The most active research has been done by the Russians, who are concerned with fusion, and by a number of groups in this country, who are concerned with somewhat more diverse objectives. Concepts and ideas from the field of microwave tubes have influenced much of the work in the United States, and the research activity of the group at Massachusetts Institute of Technology is among those which have been largely influenced by such concepts. The book under review, which is derived from the author's Ph.D. thesis, represents the general set of ideas associated with this group, particularly with the work of Bers, Haus, and Smullin. It is definitely a book for the specialist, but for his purpose it is valuable.

The long preliminary chapter is concerned with the set of criteria for distinguishing various kinds of instabilities, the so-called convective and nonconvective instabilities. These categories originated from the work of Sturrock and of Landau and Lifshitz, but very useful generalizations and extensions of these concepts, which have been made by the author and some of the other MIT workers, are described in detail in this chapter. Because the entire approach involves "pololology" and the general exploration of the complex plane, the discussion is necessarily largely mathematical. A partially successful attempt is made to provide some feeling for the physical aspects of the various criteria, but there is room for another attempt to provide physical plausibility. However, the chapter is probably the most complete treatment of this valuable approach, and extensions not available elsewere are described.