

effect of a partial eclipse of the sun causing a big change in a counter background. Although the authors do not specifically come out and say so, they imply that radiation of solar origin was cut off by the interposition of the moon. While photons are indeed so cut off, charged particles from the sun do not move in straight lines and the effect which is reported must have some quite different explanation. Further, charged particle radiation of solar origin has reached sealevel a half-dozen times, at the most, in the last decade. This effect is rare and shows large latitude dependence.

On the whole, the book is excellent. It will form a useful addition to the library of anyone interested even in low activity detection. It should certainly be read carefully by anyone about to start on such work. It is a welcome addition to the literature of the subject.

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About the Reviewer: Serge A. Korff is a Professor of Physics at the New York University. Since receiving his Ph.D. degree from Princeton in 1931, Professor Korff has taught at the University of Chile and the University of San Andres, Bolivia; he was a Senior Consultant with the UNAEC in 1951 and was a member of several cosmic-ray expeditions during the past 20 years. Professor Korff is a Fellow of the Physical Society and of the American Geographical Society, and is an Honorary Member of the Lima Geographical Society.

The Analytical Chemistry of Thorium. By D. I. Ryabchikov and E. K. Gol'braikh. Pergamon Press, The Macmillan Company, New York, (January 27, 1964). 316 pages. \$14.00.

The Academy of Sciences of the U.S.S.R. is sponsoring the publication of some 50 volumes on the analytical chemistry of the elements. Approximately five years will be required to complete the project. This inaugural volume is devoted to thorium. Subsequent volumes nearing publication are those on the analytical chemistry of plutonium, lithium and gallium. The general approach in writing these monographs is to include 1) general information on the properties of the element and its compounds, 2) a description of the important chemical reactions, 3) a review of the physical and chemical methods of analysis and 4) methods of analysis of the ores, the element, its alloys and compounds. Some effort is to be made to be as critical as possible of the methods listed. A comprehensive list of references is to be included.

In general, one must conclude that the authors of the volume on thorium have set a rather high

standard of completeness for succeeding authors. There is only a modest amount of duplication of procedures. The methods are presented in a concise, yet sufficiently complete, manner so that practicing analysts can make direct use of this book. Thus the authors have successfully combined a portion of the procedural manual with the reference book. In brief, this volume presents nearly all the information that one desires on the analytical chemistry of thorium.

There are several areas where the authors have chosen to be extremely brief when, in the reviewer's opinion, more detail would be welcomed by analytical chemists. The discussion of spectrophotometric methods is not as well done as that on gravimetric and volumetric methods. The authors have failed to be critical and do not give comparative data on the sensitivity of the reagents cited. This is a shortcoming that hopefully will be corrected in future volumes. The section on separations by solvent extraction is rather weak. Little space is given to thenoyltrifluoroacetone (TTA), certainly one of the more widely used reagents for this purpose. More emphasis should have been given to X-ray fluorescence measurement of thorium concentration, an extremely useful means of analysis. Activation analysis is only briefly mentioned. A few grammatical and typographical errors were observed, perhaps more than usually associated with texts of this kind.

This series and this book will have a special appeal to analytical chemists and others, too, in that it provides an insight into Russian work and attitudes toward analytical chemistry. Certainly these volumes will be carefully scrutinized and reviewed. Since a similar series with similar objectives is being published in the United States (edited by Kolthoff and Elving), comparisons of their relative merit are inevitable. The volumes on thorium which were published essentially at the same time are nearly identical in organization, content and scope. Both provide the reader with a complete history of the analytical chemistry of the element. It is unlikely that many individuals will purchase the entire set of either or both series; technical libraries will, however, be incomplete without such works.

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