

southeastern and central Canada. Models for fractured rock flow and heat transfer in slow-flow modes are discussed in a joint Canada-U.S.-Swedish paper and flow profiles are described for solute transport through finely fractured media in another Canadian paper. A British paper discusses thermally induced water movement around a repository. Several papers deal with the effects of jointing of different crystalline masses; it is evident that it is difficult to generalize regarding the type of flow to be expected, though one group suggests treating fractures in deep, hard rock as an equivalent effectively porous permeable medium.

The papers as a whole present a good overview over the state-of-the-art; however, together with the roundtable discussion, which is reproduced in full, they also indicate how many gaps there still are in our understanding of fractured rocks and their permeability to water.

This is a valuable contribution to the present literature on waste disposal. It is more technical and less self-serving than many other conference proceedings that are appearing on the subject at present and can be highly recommended to all specialists in the field.

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Radiostrontium Movement in Soils and Uptake in Plants

Author C. W. Francis
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Reviewer Gregory R. Choppin

This review of the ecology of radiostrontium is directed primarily to soil scientists and plant physiologists and does not cover radiostrontium in food chains of man. Within this limitation, the author provides a comprehensive and well-organized evaluation of the studies reported over the last two decades. A considerable effort was devoted to inclusion of Russian literature, which certainly adds to the comprehensive and authoritative value of this review.

The book is divided into six chapters covering the distribution, movement, and mechanism of sorption of radiostrontium in various soils and plants. The author is to be congratulated on an outstanding job of collating the mass of studies—often only fragmented measurements on particular samples—into rather reasonable patterns of the radioecology of strontium. Each chapter concludes with a brief summary in which a more subjective evaluation is given compared to the fairly straightforward reporting in the body of each chapter. In fact, these brief evaluations show so much insight that the reader may wish that the author had practiced his subjectivity more often as he describes the many studies. However, the carefully organized presentation often leads the reader to an implicit evaluation.

This book is worth many times its price and should become familiar not only to workers in radiostrontium studies but equally well to those concerned with the geochemical and ecological behavior of the actinide elements, since many of the strontium results can be related to analogous systems of these elements.

Gregory R. Choppin received his PhD from the University of Texas and after a post-doctoral period at the Lawrence Radiation Laboratory, Berkeley, joined the faculty of Florida State University, where he is professor of inorganic and nuclear chemistry. He has spent a year at the Center of Nuclear Research, Mol, Belgium, and recently returned from sabbatical leave at the Institute for Trans-uranium Elements, Karlsruhe, Federal Republic of Germany. He is the author of approximately 100 articles in nuclear and radiochemistry and of 3 books. At present he is a member of the Technical Review Committee for the Chemistry Technology Division of Oak Ridge National Laboratory. He has served as chairman of the Division of Nuclear Chemistry and Technology of the American Chemical Society and is chairman of the Subcommittee on Radiochemistry of the National Research Council.