

Book Reviews

The Natural Radiation Environment. John A. S. Adams and Wayne M. Lowder, editors. The University of Chicago Press, Chicago. (1964). xiv + 1069 pp. \$15.00.

In this thick volume at a bargain price are gathered detailed reports on the occurrence and the techniques of measurement of uranium, thorium, potassium and related radioactivity in the ground, water and air of the continental areas of the earth. The editors have succeeded in creating a monumental reference work on the geology and physics of this carefully restricted subject. They have wisely not been distracted into even cursory examination of related subjects, such as the occurrence of artificially radioactive contaminants in nature, the biological effects of radiation, or radioactivity in the sea. Cosmic radiation is included insofar as it is related to the natural background of neutrons and to radiation-detector background. The 61 papers, written by specialists in universities and research laboratories, are equally divided between a description of the occurrence of radioactive elements in the earth's surface regions and a discussion of the current apparatus and techniques for radioactivity measurement and for conducting aerial and ground surveys of gamma radiation.

Implicit in the selection of subjects in this compendium, and in the perceptive introduction and final paper, is the importance of establishing now a base-line knowledge of our natural radiation environment, before it is complicated by significant additions of artificially radioactive contamination. From the size of the book and the high quality of the work reported in it, this reviewer is impressed by the great effort that has been devoted to this research in recent years by workers of many specialties. Now this interdisciplinary work is brought together in a form which is comprehensive but well-organized and easy to use as a basic reference and guide to the general literature. Some of the papers are reviews, while others are detailed research reports, which give the reader the opportunity to see large areas of

research in perspective as well as the chance to experience the depth of particular subjects.

This reviewer was especially interested in the nine papers on radon and its daughters in the atmosphere and in the two papers on radon in soil gas. Radon emanates from the earth's surface as a mixture of three isotopes of half-lives 3.8 days, 52 sec, and 3.9 sec in amounts depending on the concentrations of the uranium and thorium parents. As radon migrates upward in the air, it decays to products which are themselves radioactive and which have interesting electrical and chemical properties. The amounts of this radioactivity found in air, rainwater and biological samples are related to air chemistry and micrometeorology, and the relevance of this information to the behavior of fission products and chemical pollutants in the atmosphere is clear. It is fortunate that this book brings so much information to the general scientific reader conveniently and with good bibliographic reference to the scattered literature.

The William Marsh Rice University has done a great service to the scientific community in publishing, by arrangement with the University of Chicago Press, this proceedings volume of the semicentennial symposium held in Houston, Texas, in April, 1963. May we have similar volumes in the future on the natural chemical environment and the natural psychological and social environment before we no longer live in a 'natural' environment?

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