

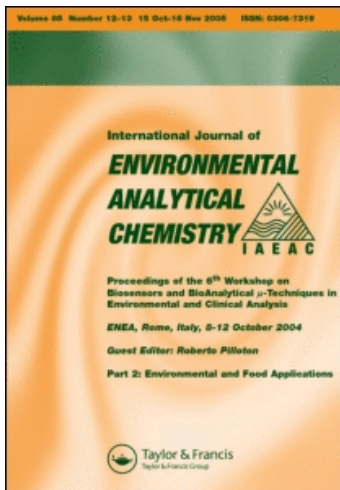
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Book Review

GEOCHEMISTRY AND THE ENVIRONMENT, VOLUME III (Distribution of Trace Elements related to the Occurrence of Certain Cancers, Cardiovascular Diseases, and Urolithiasis) by the National Academy of Sciences. 200 Pages, formate 277 × 215 mm, ISBN 0-309-02795-0, printed and available from the National Research Council, 1978, Office of Publications, 2101 Constitution Avenue, N.W., Washington, DC 20418, U.S.A.

Volume I and II emphasized the environmental chemistry and the health aspects of individual trace elements. Volume III deals with more general aspects and interferences. It is based on a 1974 workshop in Florida (under the auspices of the Subcommittee on the Geochemical Environment in Relation to Health and Disease of the National Research Council), but it contains updated material. The whole project stood under the chairmanship of Howard C. Hopps, Columbia and Ernest E. Angino, Lawrence, Kansas. At present the responsible subcommittee continues to work under the chairmanship of Ivan S. Smith, Kansas City, Missouri and Leonhard T. Curland, Rochester, Minnesota, who contributed already to this volume.

Volume III considers in the beginning the sources and pathways of trace elements (in principle those elements that ordinarily comprise less than 0.01 percent of the human organism and which may be essential) through rocks (Chairman of the workgroup: Helen L. Cannon, Denver, Colorado), through water (Ernest E. Angino, Lawrence, Kansas), through soils (Joe Kubota, Ithaca, New York) and through plants and foods (Kenneth C. Beeson, Sun City, Arizona).

From there part II considers three disease groups that may be causally implicated and significantly distributed geographically. Of course this approach of epidemiologic research is somewhat controversial. The three disease areas are esophageal, stomach and colorectal cancer (Howard C. Hopps, Columbia, Missouri), cardiovascular disease including hypertension and stroke (Gardner C. McMillan, Bethesda, Maryland) and

urolithiasis or more particularly kidney stones (George K. Davis, Gainesville, Florida).

Part III of Volume III deals with data collection, manipulation, display, and analysis. In this brief assessment two workgroups (Jesse H. Wheeler and Wellington B. Stewart, both Columbia, Missouri) demonstrate how innovations in geography, cartography, remote sensing, and data-information systems may be brought to bear on such broad and difficult problems. Three valuable appendices and an index contain information or examples of major data sources and concepts.

This Volume III does not particularly deal with analytical chemistry. Even though the approach used does not easily lead to conclusive results, the book can be recommended to any scientist—also the analytical chemist—because it shows in which relevant fields there is a basic understanding and in which fields there are gaps of knowledge. Each scientist can get valuable ideas, where additional research—including better data—is necessary. He finds also information about which interferences are reality and which premises may be false. Extrinsic factors—the location of them are shown—are more important than intrinsic factors in acting together to cause one of the mentioned diseases. Quantitative levels of environmental factors and disease distribution are portrayed in map form, others in tabular form. Of course one should know more about the individual population characteristics and about behaviour (for instance culture, eating habits and residence changes) in the different counties and one should perhaps subdivide some of these counties. Among other results it seems that we should know more about possible protective effects of selenium and zinc against cancer, and about the role that softness of water, cadmium and interferences between elements may play in cardiovascular diseases. Probably the most interesting conclusions are all in all the recommendations for future strategies: Discovering and evaluating relations between chemicals (and combinations of chemicals) and effects which includes the need for further analytical investigations.

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