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Extremely Low Frequency Electromagnetic Fields: The Question of Cancer

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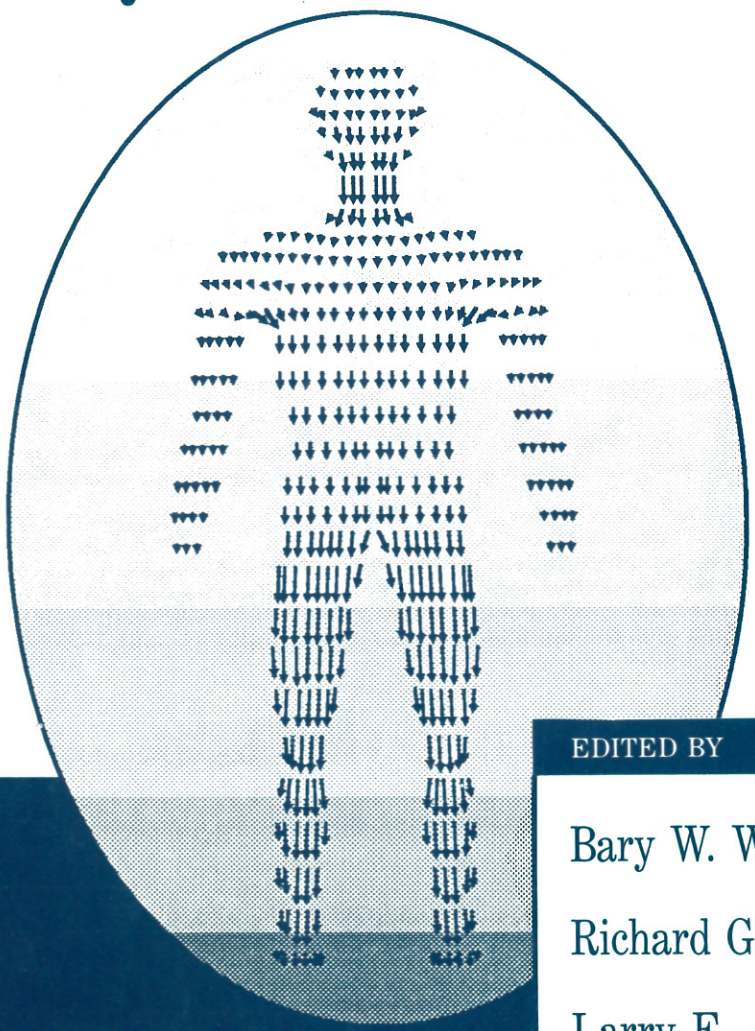
THE QUESTION OF CANCER



EDITED BY

Bary W. Wilson

Richard G. Stevens

Larry E. Anderson

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Extremely Low Frequency Electromagnetic Fields: The Question of Cancer

Power-frequency electric and magnetic fields are products of technological advances to which virtually everyone on our planet is exposed. Possible links between exposure to extremely low frequency (ELF) electromagnetic fields and increased cancer risk have become an important issue for the scientific community, environmental groups, and the electric utility industry, as well as for the general public. Starting with a nontechnical introduction to the subject and progressing through presentation and discussion of the latest research, this volume provides a timely and comprehensive treatment of the ongoing scientific work related to the question of ELF fields and cancer and should be of value to the interested lay reader as well as to policymakers and scientists working in the area. Possible mechanisms for increased cancer risk related to ELF field-induced phenomena at the atomic, molecular, and cellular levels, as well as animal and human effects, are considered from the perspectives of cell biology, neuroendocrinology, oncology, and physics. As a contribution to the understanding of ELF field effects, the book goes beyond presentation of the research to propose testable hypotheses and suggestions on further work that could reduce the uncertainty regarding possible consequences of ELF field exposure on cancer risk.

THE EDITORS

BARY W. WILSON received his B.S. in physics from the University of Washington in Seattle and his Ph.D. from St. Bartholomew's Medical College in London, England, where he worked on the identification of melatonin in humans. He held a staff position in the Department of Chemistry at M.I.T. for several years before joining Battelle in 1978. Dr. Wilson's work on ELF electromagnetic field effects has spanned more than a decade. Through his scientific work and publications, he has made key contributions to the growing body of knowledge regarding the interaction of these fields with the neuroendocrine system.

RICHARD G. STEVENS received his B.S. degree in genetics from the University of California in Berkeley, and his Ph.D. in epidemiology from the University of Washington in Seattle. His research interest is the biology and epidemiology of cancer. Dr. Stevens has worked in biochemical epidemiology on studies of the possible role of body iron stores in the etiology of cancer, and has a continuing interest in the relation of cancer to micronutrients in general. His interest in electric power began five years ago when he was manager of a study of adult leukemia and residential exposure to ELF fields that was part of the much-publicized program of research on power lines and human health sponsored by New York State. He is particularly interested in the possible role of electric power in the etiology of breast cancer in women and other hormone-related cancers in both men and women. Dr. Stevens joined Battelle in 1984.

LARRY E. ANDERSON is a staff scientist and program manager for bioelectromagnetic programs at Battelle, Pacific Northwest Laboratories, in Richland, Washington. He received his B.S. in chemistry from Brigham Young University and his Ph.D. in biochemistry/neurochemistry from the University of Illinois. His research interests focus on questions related to biological effects of ELF electric and magnetic fields, with specific emphasis on nervous systems interaction, pineal metabolism, and neurohormones associated with circadian biochemistry. Dr. Anderson is currently the President of the Bioelectromagnetics Society and serves on the Editorial Board of *Bioelectromagnetics*. He is a member of the United States' delegation to the US/USSR Committee on Health Effects of Non-Ionizing Radiation, and is a member of the World Health Organization Working Group on Health Protection for Non-Ionizing Radiation.

EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS: THE QUESTION OF CANCER

Edited by
Bary W. Wilson,
Richard G. Stevens, and
Larry E. Anderson

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W. Ross Adey (211),* Research Service, Pettis Memorial Veterans Administration Center and Loma Linda University School of Medicine, Loma Linda, California 92357

Larry E. Anderson (17, 139, 159, 361), Life Sciences Center, Pacific Northwest Laboratory, P.O. Box 999, Richland, Washington 99352

Carl L. Blackman (187), Health Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711

David E. Blask (319), Department of Anatomy, College of Medicine, University of Arizona, Tucson, Arizona 85724

Charles F. Ehret (47), Biological, Environmental, and Medical Research Division, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, Illinois 60439

Kenneth R. Groh (47), Biological, Environmental, and Medical Research Division, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, Illinois 60439

William P. Hammond, IV (109), Division of Hematology, Department of Medicine, University of Washington School of Medicine, Seattle, Washington 98195

*Numbers in parentheses indicate the pages on which the authors' contributions begin.

William T. Kaune (17), Enertech Consultants, 300 Orchard City Drive, Suite 132, Campbell, California 95008

Abraham R. Liboff (251), Department of Physics, Oakland University, Rochester, Michigan 48063

Bruce R. McLeod (251), Electrical Engineering Department, Montana State University, Bozeman, Montana 59717

Gary A. Pascoe (337), Tetra Tech, Inc., 11820 Northup Way, Suite 100, Bellevue, Washington 98005

Marijo A. Readey (47), Biological, Environmental, and Medical Research Division, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, Illinois 60439

Russel J. Reiter (87), Cellular and Structural Biology, University of Texas Health Sciences Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284

Stephen D. Smith (251), Department of Anatomy, University of Kentucky, Lexington, Kentucky 40506

Richard G. Stevens (9, 361), Epidemiology and Biometry, Pacific Northwest Laboratory, P.O. Box 999, Richland, Washington 99352

Thomas S. Tenforde (291), Chief Scientist, Life Sciences Center, Pacific Northwest Laboratory, P.O. Box 999, Richland, Washington 99352

Bary W. Wilson (3, 159, 361), Chemical Sciences Department, Pacific Northwest Laboratory, P.O. Box 999, Richland, Washington 99352

Preface

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