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Prevention of Occupational Cancer

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A GUIDE FOR THE READER

When one buys an appliance, say a new microwave oven, there is usually a prominently displayed label urging, "Read instructions before plugging in." Presumably no harm will be done if the reader simply "plugs into" this book; still, these few guidelines should make the book more useful to the reader, and perhaps save him some unnecessary effort.

A program for reducing occupationally induced cancers, to be effective, must incorporate the application of knowledge and know-how from a wide variety of fields. A glance at the table of contents discloses that it ranges through such diverse areas as biochemistry, epidemiology, engineering, law, and ethics. Because of the wide range of topics to be covered, it was clear that, within a single volume, each field could not be covered in great depth and detail. The book is intended to give the reader an overview, with enough detail and enough references to enable him to pursue further the topics in which he is especially interested. The authors were instructed to pitch the writing approximately to the level of the educated layman. Most of them have, I think, succeeded. Yet, there are certain subjects which cannot be meaningfully discussed without assumption of special knowledge.

The chapters on carcinogen metabolism, mechanism of action of carcinogens, and chemoprevention could not be understood by a reader having no knowledge of biochemistry. For such readers, we have provided brief chapter summaries which should give them the gist of the subject without necessarily having to know that dimethylhydrazine is converted enzymatically to azoxymethane. Though some readers will want to read from cover to cover, others will read selectively. For the latter, we have sought to make each chapter an entity, to stand on its own. This has necessitated some repetition, but hopefully not too much. Where the same subject is dealt with in more than one chapter, one is usually abbreviated with cross reference to the other.

Finally, while this book is about prevention of cancer, much of it applies as well to the prevention of all occupationally induced disease. Most measures which effect reduction of exposure to carcinogens will reduce exposure to all toxic substances, be they carcinogens, mutagens, teratogens, or general toxins. In fact, as we shall learn in these chapters, the same material could have all four such effects.

From reading this book, one might conclude that cancers are caused only by chemicals. There are of course two other classes of carcinogenic agents: radiation (ionizing radiation, ultraviolet light), and viruses. There is only one known human cancer which is virally induced, the Burkitt's lymphoma, rare in this country but fairly common in Africa. Ionizing radiation causes several human cancers, mainly of the blood-forming tissues, while UV causes skin carcinoma. Most of the general preventive principles apply as well to these two classes of carcinogens. Virology laboratories and workplaces involving ionizing radiation have certain special protective measures, but these are beyond the scope of this book.

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THE EDITOR

The editor is both a biologist and a psychiatrist, and works actively in both fields. He is on the faculty of the University of Texas at Houston, as a Professor of Biology and Associate Professor of Pediatrics in the University Cancer Center, Professor of Environmental Biology in the School of Public Health, and a Clinical Associate Professor of Psychiatry in the Medical School. Dr. Shaw received his M.D. degree from New York University–Bellevue Medical Center in 1946, had residency training in internal medicine at Cornell University Infirmary, and after an interval of several years, psychiatry residency training at University of Michigan Medical Center. The interval between the two residencies was occupied with research in nutrition at Cornell as an Assistant Professor of Nutrition, followed by two years of service in the U.S. Air Force during the Korean War. He was stationed at the Arctic Aeromedical Laboratory in Alaska conducting research in cold weather nutrition and physiology.

Following psychiatry training, Dr. Shaw joined the staff of a new children's psychiatric hospital, Hawthorn Center, near Ann Arbor, Michigan, where he did clinical research in child psychiatry and then became interested in metabolic aspects of certain children's emotional disorders. This work led to an interest in biochemical genetics and he did research in this field for several years. The research concerned genetic variation, both within and between species, in the structure of enzymes, with emphasis on the extent of genetic divergence in speciation. He founded the journal *Biochemical Genetics* and was its first editor.

In 1967, Dr. Shaw moved to the University of Texas M.D. Anderson Hospital in Houston, a cancer institute, where he continued the work on genetic variation in ezymes. However, his interest gradually turned toward those enzymes which metabolize chemical carcinogens, with emphasis on the role played by variations in these enzymes in effecting susceptibility or resistance to carcinogenesis.

More recently, he has been interested in application of knowledge of carcinogenesis to the field of environmental effects in causation of cancer. He co-chaired, with A.C. Griffin, the 1978 annual M.D. Anderson symposium on cancer research entitled Carcinogenesis: Identification and Mechanisms of Action. This was published as a book under the same title, Griffin & Shaw, editors (Raven Press, 1979). Because of his being conversant with both the fields of carcinogenesis and behavior science, Dr. Shaw was appointed Chairman of a National Academy of Sciences committee on public information in the prevention of occupational cancer in 1975. This led to his growing involvement in occupational health.

Dr. Shaw is a diplomate of the American Board of Psychiatry and Neurology, and a member of numerous professional societies and organizations including Sigma Xi, the American Psychiatric Association, the American Group Psychotherapy Association, the American Society of Human Genetics, the Genetics Society of America, the Society of Toxicology, the Environmental Mutagen Society and the American Society of Preventive Oncology. In addition to over 100 research articles, he has published a textbook of child psychiatry, *The Psychiatric Disorders of Childhood*, by C.R. Shaw and A.R. Lucas, Appleton-Century-Crofts, 1972, and a book for the general public about cancer, *When You Need Help with Cancer*, C.R. Shaw and A.C. Griffin, William Morrow and Company, 1973.

His background in psychiatry led him to become interested in the emotional problems of cancer patients, particularly children, and he has worked with pediatric patients and their families at the M.D. Anderson Hospital. He has also become involved in the hospice movement and is Medical Director of the recently organized New Age Hospice in Houston.

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