



Book reviews

Dioxins and Health, Second Edition

Arnold Schecter, Thomas A. Gasiewicz (Eds.), Wiley, New York, 2003, US\$ 150.00, 968 pp., ISBN: 0-471-43355-1

As I was reviewing this book, a news item concerning Agent Orange appeared in a local newspaper. The article noted the chemical's existence and the problems it causes persevere with dioxin being the contaminant of concern. My first encounter with this chemical (dioxin) in the literature was a chapter describing a chemical plant accident at Seveso, Italy, in 1976 (published in the *Hazardous Materials Spills Handbook* I edited). Chloracne was the major medical problem resulting from this accidental discharge. In this new book, it is noted that in the accident's aftermath, "Other health outcomes known to be possibly associated with dioxin exposure were investigated. An unusual pattern, either for the frequency or the type of outcome concerned, attributable to TCDD was not firmly established for any of them . . . the follow-up of small, selected groups, mainly chloracne in children, failed to show health impairment in these heavily exposed subjects up to 8–9 years after the accident. In addition, they showed that Chloracne is reversible and not necessarily associated, at least in the time span considered, with other systemic effects." However, chloracne is the least of the health concerns.

The book begins with an overview entitled "The Dioxin Debate" by Webster and Commoner. These writers are unequivocal in their concern for the health risks posed by dioxin. "In our opinion, the public fears are largely justified. The current scientific evidence argues not only that dioxin is a potent carcinogen, but also that the noncancer health and environmental hazards of dioxin may be more serious than believed previously. Indeed, dioxin appears to act like an extremely persistent synthetic hormone, perturbing important physiological signaling systems. Such toxic mimicry leads to a host of biological changes, especially altered cell development, differentiation, and regulation. Perhaps the most troubling consequence is the possibility of reproductive, developmental, and immunological effects at the levels of dioxinlike compounds now present in the bodies of the average person. Observation of such phenomena in wildlife suggests that the environmental is overburdened with these dangerous compounds."

There still is a debate, they note, whether TCDD causes cancer in humans. However, the authors are unequivocal in their opinion that it causes cancer in animals. More recently, they note, that recent data ". . . provide evidence for reproductive, developmental, and immunotoxic effects in humans." The opinion of these two writers is that dioxin is a very toxic chemical and they go to great lengths through their literature citations (316 in total) to support that conclusion.

Twenty-one well-written and like the first chapter, well-referenced chapters follow. Virtually no aspect of dioxin production, emission, contamination, and affect is left undiscussed.

In Chapter 5, Birnbaum and Farland of the U.S. EPA (in a chapter entitled "Health Risk Characterization of Dioxins and Related Compounds") note: "For cancer outcomes, the epidemiological evidence provides consistent findings of statistically significant elevations, with some showing dose-response for all cancers combined with lung cancer risk in occupational cohorts, along with evidence of possible additional tissue-specific cancer rate elevation."

The toxicity of related compounds also is discussed. For example, "Human Health Effects of Polychlorinatedbiphenyls" (PCBs) are the topic of Chapter 17 by Longnecker, Korrick, and Moisch. These authors review data on PCB exposure in relation to health effects in humans. In the summary of their chapter, they write "The epidemiological evidence supporting adverse effects of background-level PCB exposure is not strong. Nonetheless, the data are suggestive but inconclusive regarding alterations in thyroid economy, immune function, neurodevelopment, and non-Hodgkin's lymphoma. Evidence that workers occupationally exposed to PCBs have had life-threatening consequences is also not strong. Yet such exposure does appear to be related to altered hepatic function, adverse dermatologic effects, and possibly increased risk of selected cancers."

The final three chapters are devoted to accidents that resulted in (dioxin) environmental contamination. By title, these chapters are: Health Consequences of the Seveso, Italy Accident; The Yusho Rice Oil Poisoning Incident; and The Yucheng Rice Oil Poisoning Incident.

The editors are to be commended for authoring this second edition of a definitive work on the health effects of dioxin (the first edition was in 1994). The contributors they selected have done an excellent job at presenting the data on the health effects of dioxins and related chemicals.

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Misconceptions About the Causes of Cancer

Lois Swirsky Gold, Thomas H. Slone, Neela B. Manley, Bruce N. Ames (Eds.), The Fraser Institute, Vancouver, BC, 2002, 135 pp., US\$ 19.95 (plus US\$ 10.00 for shipping (US)), ISBN 0-88975-195-1

The very word cancer strikes fear in almost everyone but many misconceptions underlie this fear. Is cancer caused by dioxin, pesticide, foods, or other exposures, and what is the relative risk of those exposures? Are cancer risks increasing in North America? Would banning pesticides lead to an improvement in public health?

The above questions and others are answered by "leading scientists at the University of California, Berkeley" including Bruce N. Ames, professor of microbiology. Many of his rational articles on the topic are cited in the text. To address the many misconceptions about the causes and prevalence of cancer, the four scientists who wrote this book provide a comprehensive, though not exhaustive, review of the literature. The text notes that there are more than 7000 papers published on dioxin alone (see review of *Dioxins in Health* published in this journal).