

Book review: modern poisons: a brief introduction to contemporary toxicology

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A book review on

Modern Poisons: A Brief Introduction to Contemporary Toxicology

Edited by Alan S. Kolok, Washington: DC: Island Press, 2016. pp. 1–208.

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The 1900s witnessed multitudinous advances in the fields of medicine and technology. Paradoxically, this progress resulted in both the prolongation of life expectancy and increased variability in factors contributing to morbidity and mortality. Currently, the sensationalized media coverage surrounding environmentally-driven health outcomes is disconnected from the underlying academic literature. In *Modern Poisons*, Alan S. Kolok, the Director of the Center for Environmental Health and Toxicology at the University of Nebraska, utilizes his 20-plus years in the field to bridge this divide. Kolok's book examines and historically situates toxicology as a discipline and provides a credible and accessible account of present day themes and approaches within the field.

Kolok begins by introducing and elaborating on concepts foundational to toxicology such as the dose-response curve and the relation between solubility to toxicity, a connection that admittedly took him some time to realize. He then summarizes the three main routes of contaminant absorption: skin, lungs, and digestive tract and lends insight into the body's physiological defense responses, sequestration and biotransformation. Importantly, Kolok presents an account of the mechanisms and cyclical nature of chemical and biological transport through the environment to

elucidate and explain contaminant ubiquity and the subsequent relevance to individuals worldwide.

The book then journeys through various classes of chemicals, from naturally occurring poisons and venoms to anthropogenic pesticides and pharmaceuticals. Along the way, Kolok focuses on the conditions giving rise to their prevalence as well as the process by which they result in adverse health outcomes to an individual directly, and their offspring transgenerationally. Further, he shatters the misconception that low-dose exposures pose minimal health risk by describing the indiscriminate and transistor-like process of hormonal signaling as well as touching on the processes of bioconcentration and synergism. Throughout this process he carefully inserts information suggestive of dysfunctional regulatory oversight and a shifting of the burden proof to opponents of such contaminants.

While the author adeptly and passionately utilizes personally recognizable and relevant examples to facilitate a greater understanding of the concepts and methodological concerns of the field of toxicology, sections get bogged down in overly scientific technicality. Despite this, Kolok most often time treads the fine line between under explained and exceedingly scholarly wonderfully, filling a necessary void in environmental health and toxicology literature. The major success of this work lies in its ability to impart a fascination in the field while simultaneously situating itself as scientifically grounded.

Finally, the book provides a starting point for individuals interested in the field, enabling them to more easily traverse the toxicological landscape.

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Overall, the book should be incorporated into upper level undergraduate or graduate coursework as an introductory or exploratory piece that contributes a level of sophistication beyond surface-level, pop culture toxicology.

Author Contributions

JC is the sole author and contributor to the book review.

Conflict of Interest Statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.