



**Ole Peter Grell, Andrew Cunningham, Jon Arrizabalaga, eds.** *It All Depends on the Dose: Poisons and Medicines in European History*. The History of Medicine in Context Series. New York: Routledge, 2018. Illustrations. 258 pp. \$155.00, cloth, ISBN 978-1-138-69761-4.

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This edited volume, consisting of an introduction and twelve chapters as well as multiple black-and-white images, looks at the fraught boundary between medicines and poisons in medieval, early modern, and modern western Europe and the ancient world medical texts valued there. This volume both retreads familiar ground and traces a new path. Within the history of medicine, the “Western tradition,” as it is often termed, has attracted a substantial amount of attention, and this volume builds on that scholarship. Much work has recently been devoted to the issue of medical drugs, both within the Western tradition and elsewhere, and for those of us who work on that topic the idea that medicines and poisons are closely related substances is familiar. However, that idea is rarely examined directly, and a major contribution of this volume is to address this issue of the relationship between medicines and poisons in a variety of contexts and sources.

Andrew Cunningham’s introduction sets out the central concern of the volume: not just the close relationship between medicines and poisons but also the idea—encapsulated in Paracelsus’s quote used in the title of the book—that the difference between the two is more an issue of quantity than of quality. This issue of dose determining if a substance is a medicine or a poison is a major

theme of the book, in particular being directly addressed in Jeffrey K. Aronson and Robin E. Ferner’s chapter on the Law of Mass Action and modern ideas of graded concepts of medicines, which help pharmacists determine how much of a substance will help a patient versus how much will cause harm.

The book also introduces several other ideas about how the boundary between medicines and poisons has been understood. Toine Pieters’s work on poisons in medicine cabinets deals with the so-called strong medicines, medicines that can cause harm as they act to heal the body (such as chemotherapy). In examining his strong medicines, Pieters shows how certain medicines are so strong they can only be medicines in carefully controlled environments, like the hospital; when used elsewhere they are poisonous. The chapter by Helen King on snake poison in Galen’s writing instead highlights how process is important: snake poison is a poison, but if carefully prepared as the ancient world remedy theriac, it can transform into a medicine. Cunningham’s chapter on mercury shows how this one substance was interpreted and used differently in different periods, crossing the boundary between medicine and poison over time.

Readers find several familiar substances, like mercury and arsenic, and well-known figures, like Galen, but also are introduced to less-well-known chapters in the history of drugs and poisons. Paracelsus not only gives the volume its title but also appears repeatedly throughout, most prominently in Georgiana D. Hedesan's chapter, which examines his views on poisons as a fundamental quality of all-natural objects. In contrast, Alisha Rankin shows us that relatively unknown women, a group often stereotyped as poisoners, took part in early modern experiments relating to antidotes, and José Ramón Bertomeu-Sánchez demonstrates a link between the development of toxicology and nineteenth-century poisoning trials through the biography of the understudied figure of Mateu Orfila.

Many of the chapters present a very literal take on what constitutes a poison, such as Alessandro Pastore's chapter contextualizing Italian Renaissance political assassinations within a broader trend of poisonings among other social groups, and Montserrat Cabré and Fernando Salomón's close reading of a medieval Spanish text on miracles including an autopsy of an accidentally poisoned woman. Other chapters subvert the concept of the volume and consider how other substances, and even other actions, have been discussed as "poisons." Jon Arrizabalaga shows how both literal poisonings and the idea of a "manufactured plague" in medieval Europe were linked by a common belief in human agency in such disasters. Anne Hardy examines modern ideas of food poisoning and demonstrates that certain toxins seen to be key in such poisonings (such as botulism) made the jump to also be used as medicines. Most inventively, Ole Peter Grell's chapter examines the views of Martin Luther on sex, demonstrating that he saw sexual abstinence as a kind of poison negatively affecting the body.

As a whole, this volume presents a broad range of perspectives on the history of poisons and drugs from across western Europe, providing

a welcome addition to existing histories focusing on other aspects on the history of medicine and the history of medical drugs. It will be of use to any scholar interested in situating the history of medicine within other historical concerns, from legal proceedings to religious literature.

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