

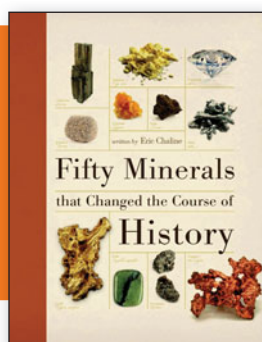
lasers are explained along with laser oscillations produced by a variety of micro-cavity methods. Metallodielectric and liquid-crystal photonic lasers are equally well illustrated. Chapter 7 introduces logic devices based on photonic crystals. This chapter clearly explains, with the help of simple illustrations, how to obtain AND, OR, and XOR logic gates. Chapter 8 concludes the book by presenting possible applications, including gas, chemical, fluid, and cell sensing; their workings are very well described from a fundamental point of view.

The diagrams and illustrations are appropriate and eye catching. There are ample references; thus readers are able to find more detailed information to satisfy their curiosity if the book does not suffice.

Even though the introduction provides basics of these photonic crystals, I do get the impression that the bigger picture is missing. A nonexpert may not understand the direct application of such materials right from the beginning of the book. A flowchart or a diagram of these photonic crystals, illustrating applications in daily life at the beginning of the book, could

attract a broader readership. In this regard, I believe that this book is most adapted to physicists with a materials science background or vice versa. However, one should take into consideration that the principles of photonic crystals cannot be explained without physics, and therefore the quality of this book remains intact and could very well serve as a textbook for future physicists.

Reviewer: Protima Rauwel works at the Institute of Physics, University of Tartu, Estonia.



Fifty minerals that changed the course of history

Eric Chaline

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224 pages, \$29.95
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Any chemist would be upset finding steel or ivory in the index of a book devoted to the 50 minerals that changed the course of history. A word of caution is therefore needed, urging a little flexibility and a broader interpretation of the term “mineral” to be generally intended as “something which is neither animal nor vegetable.”

This book is part of an appealing project: telling the history of human civilization by focusing on iconic plants (*Fifty plants that changed the course of history*), animals (*Fifty animals that changed the course of history*), and materials (*Fifty minerals that changed the course of history*). The completion of the triad “animal, plant, mineral” is thus the reason for the poetic license that was brought to the title of this book, which is a very enjoyable and informative read.

The text is organized into 50 chapters,

naturally, each devoted to a material that played a substantial role in the history of humankind. From alabaster to zinc, the author guides us through the ages, highlighting the importance of each substance for the development of art, culture, science, economy, and technology.

The entries are indexed in alphabetical order by the name that was first used to describe them. The book then starts with diamond (adamas) and ends with zinc. Some schematic information is given on each substance’s appearance, source, and chemical formula, with an indication of the reasons (industrial, cultural, commercial, or scientific) for which it deserved citation in this collection of notable minerals. The chapters are short, between two and eight pages, and tell in a compelling anecdotal form how that particular material played a role in history. In-page boxes add to the main

text with side stories, curiosities, and notable facts. Elegant and meaningful illustrations embellish and complement the book.

The focus in the text is on history, so the reader should not expect many technical details on the metallurgy of iron or on the radioactivity of radium, but rather a narration of what advancement the discovery of these elements meant for humankind. The author is particularly adept at treating lightly very controversial issues such as the socio-economic consequences of the exploitation of certain minerals. For example, the chapter on petroleum lightly touches on the future challenge of shifting from petroleum to a more sustainable mix of energy sources, concentrating on the different uses petroleum had across the centuries, from fuel to boiling seawater in the production of salt in ancient China until modern day internal-combustion engines. This distance from divisive contemporary disputes allows the author to adopt a very amusing prose that makes this book suitable for anyone with an interest in science and technology who is seeking some informative enjoyment.

Reviewer: Valerio Causin works at the University of Padova, Italy.

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