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Magick, Mayhem, and Mavericks - The Spirited History of Physical Chemistry

THE BOOK

Author	Cathy Cobb. Illustrations, References, Index
Publisher	Prometheus Books
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Email Dr. Fernando by clicking here

> *...A GOOD READ ...This is a good read for anyone who wants to cut through the tough, unpalatable outer skin of mathematics and get to grips with the succulent bits of physical chemistry. I would particularly recommend this book to school libraries and to students about to embark on a study of physical chemistry. It just might help you to understand the infamous Law of Mass Action particularly if you suffer from maths blindness!...*

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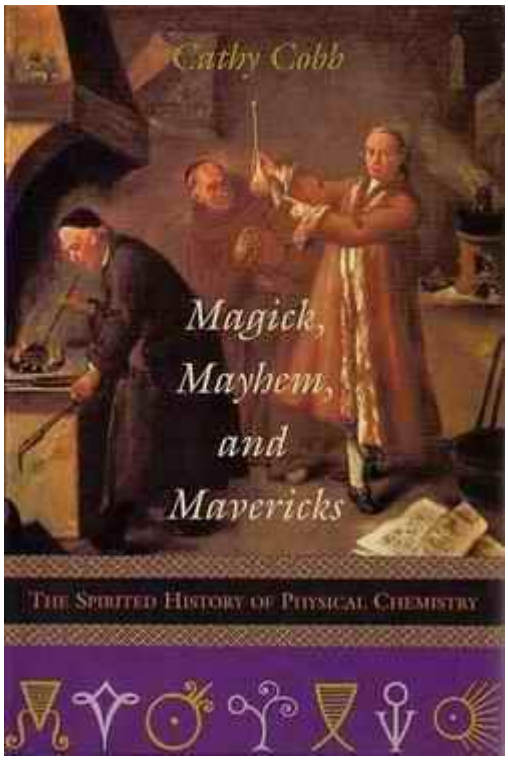

This is **not** a book of **Physical Chemistry.** Neither is it a book on the **History of Physical Chemistry.** As the rather glitzy cover of the book announces it is **The Spirited History of Physical Chemistry!**

I expect that whilst most people would know about Physics and Chemistry, very few people would know anything about Physical Chemistry. Some of us, unfortunately, had to endure Physical Chemistry in order to enter University. My own recollection of this discipline is somewhat marred by the fact that I was never good at mathematics and the rather formidable equations in Physical Chemistry threw me off completely. I can remember well how I struggled with the **Law of Mass Action.** It was therefore a relief to find that there are no equations in this book!

Chemistry of course has its origins in alchemy where potions were mixed sometimes with spectacular results but often without. It was all a little bit slapdash and steeped in myth and superstition. Early chemistry needed a little bit of help from mathematics and physics. Physical chemistry is to do with careful measurements, mathematical models and scientific predictions.

The concepts are complex, but Cobb has a knack for finding apt analogies to illustrate them. She writes with an infectious enthusiasm and in a somewhat racy and sweeping style.

The author, Cathy Cobb, was once a teacher of Chemistry at Augusta State University and is now a teacher of physics and chemistry at Aiken Preparatory School. Her teaching experience has probably helped her a lot in writing this book. She uses analogy and example rather than mathematics, which make the whole subject palatable and interesting.

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Following a short introduction Cobb starts off by looking at **'The Ancients'**, notably the ancient Greeks. This is followed by Aristotle whom Cobb describes as 'a major player in the history of physical chemistry'. The next chapter deals with **'The Arabs'** and their contributions. Noteworthy amongst their contribution is the adaptation of the Hindu numeral system and the concept of zero. The word algebra of course has Arabic origins.

The book then moves on to the **European Scientific Revolution** followed by the rapid development of Physics and Chemistry.

Cobb leads the reader through Dalton 's Atomic Theory, spectroscopy, electromagnetism and Quantum physics, all of which follow in a logical sequence. The tail end of the book covers nanotechnology.

The book is not all about science and Cobb takes the reader through the colourful human characters and their struggles to understand the workings of the material world.

Galileo, Boyle, Newton , Avogadro, Lavoisier, Bernoulli, Bohr, Fermi, Fraunhofer, Franklin (Rosalind), Geiger and Hawking (Stephen) are all there. Many of the characters profiled in Magick, Mayhem, and Mavericks were self-educated and quite a few were not even educated in the field they ultimately excelled in. The colourful and often idiosyncratic characters portrayed in this book range from mavericks and downright rogues to Nobel Prize winners.

> *...The concepts are complex, but Cobb has a knack for finding apt analogies to illustrate them... For the first time in my life I understood the Law of Mass Action, I think! This is a good read for anyone who wants to cut through the tough, unpalatable outer skin of mathematics and get to grips with the succulent bits of physical chemistry.... Might help you to understand the infamous Law of Mass Action particularly if you suffer from maths blindness!...*

The book is complete with an epilogue and bibliography. It is nicely illustrated with photographs as well as with reproductions of engravings by Albrecht Dürer and others.

Like other books from this publisher this book is well presented and is in hardback.

This of course is a popular science type of book and aimed at a largely lay audience in an effort to popularise and demystify physical chemistry. For the first time in my life I understood the Law of Mass Action, I think! Cobb has the knack of finding spicy stories which standard lectures and books on the subject somehow manage to omit. For instance not many people would know that Bunsen's enthusiasm in the laboratory not only cost him an eye but his fiancee as well. Bunsen never married but he did discover spectroscopy!

I suspect that the scientific community might look down upon this book but that shouldn't matter. This is a good read for anyone who wants to cut through the tough, unpalatable outer skin of mathematics and get to grips with the succulent bits of physical chemistry. I would particularly recommend this book to school libraries and to students about to embark on a study of physical chemistry. It just might help you to understand the infamous Law of Mass Action particularly if you suffer from maths blindness!



-Gyan Fernando

Dr Gyan Fernando is the Home Office Forensic Pathologist for Devon & Cornwall, and an inveterate reader, traveller and commentator. He is an avid fan of chemistry and had a kitchen lab of his own when in his school. He still likes to dabble in chemistry experiments. Dr. Gyan Fernando may be contacted via Email by clicking here.

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-Editor-in-Chief