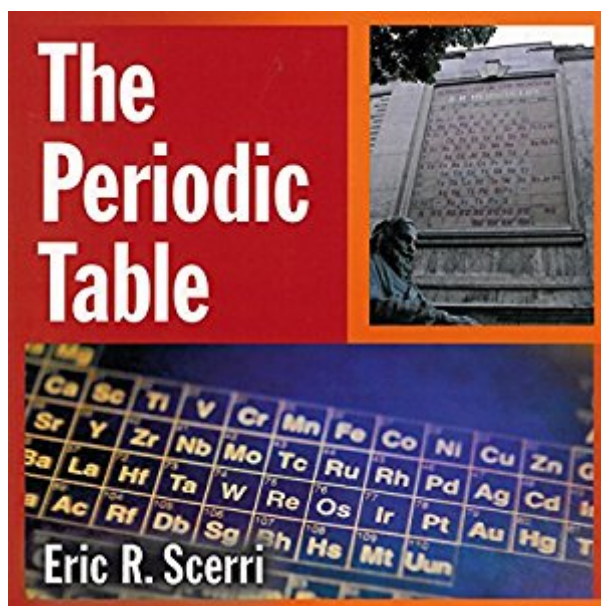


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The Periodic Table: Its Story And Its Significance



Synopsis

The periodic table is one of the most potent icons in science. It lies at the core of chemistry and embodies the most fundamental principles of the field. The one definitive text on the development of the periodic table by van Spronsen (1969), has been out of print for a considerable time. The present book provides a successor to van Spronsen, but goes further in giving an evaluation of the extent to which modern physics has, or has not, explained the periodic system. The Periodic Table is written in a lively style to appeal to experts and interested lay-persons alike. It begins with an overview of the importance of the periodic table and of the elements and it examines the manner in which the term "element" has been interpreted by chemists and philosophers. The book then turns to a systematic account of the early developments that led to the classification of the elements, including the work of Lavoisier, Boyle, and Dalton and Cannizzaro. The precursors to the periodic system, like Dobereiner and Gmelin, are discussed. In chapter 3 the discovery of the periodic system by six independent scientists is examined in detail. Two chapters are devoted to the discoveries of Mendeleev, the leading discoverer, including his predictions of new elements and his accommodation of already existing elements. Chapters 6 and 7 consider the impact of physics, including the discoveries of radioactivity and isotopy and successive theories of the electron, including Bohr's quantum theoretical approach. Chapter 8 discusses the response to the new physical theories by chemists, such as Lewis and Bury, who were able to draw on detailed chemical knowledge to correct some of the early electronic configurations published by Bohr and others. Chapter 9 provides a critical analysis of the extent to which modern quantum mechanics is, or is not, able to explain the periodic system from first principles. Finally, chapter 10 considers the way that the elements evolved following the Big Bang and in the interior of stars. The book closes with an examination of further chemical aspects, including lesser known trends within the periodic system, such as the knight's move relationship and secondary periodicity, as well as attempts to explain such trends.

Book Information

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Customer Reviews

Eric takes one through the trenches of how the periodic table has been developed and how it has evolved. It is a grind I appreciated when having completed the book. I now know and appreciate the numerous issues involved in how the table is constructed. I just wish Eric would have devoted a section of this book to outlining the nature of all the types of relationships that do occur between the elements. We get it in bits and pieces.

good

Not for the casual lay reader. I thought I was going to learn all about the elements, their discovery history and gain a deeper insight into the link between physics and chemistry. But if you don't already know all the elements well, and have a pretty good foundation in physics, then much of what is stated is about abstruse arguments between physics and chemistry that can't be of interest to a casual reader. While his scholarship is unquestioned, as other reviewers and the author himself has pointed out to me, his writing didn't help this beginner to understand the Periodic Table.

While reading this book I realized how little I knew about the periodic table. You learn that in the chemistry lessons at school then at the university, but I think this book is a good complement for those seeking clearing some concepts. And lot of concepts and data flow in this book, explaining all the minds that in some way tried to get -and later obtained- the final and accepted periodic table.

Well written, wealth of information.

Scerri's work is amazing. He put the perfect proportion of history background and chemical knowledge. A vey nice and useful book to appreciate the big science behind these piece of knowledge.

The Periodic Table is one of the most iconic symbols in our culture. Every person interested in the physical world in which we live will want to read this book. It is also a masterful history of the people involved in the establishment of the periodic law of chemistry. The gradual growth in awareness of the regularities of the elements is the main theme of this work. It is already a classic in its first year in print!

This is a readable, current book about the history of the periodic table, defining organizing tool for chemistry. It should be of interest to students as well as professional chemists. It is right sized for cover to cover reading or it can be sampled using a well done index and table of contents.

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