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Book review

BOOK REVIEW

THE PERIODIC TABLE Its story and its significance

Author: ERIC R. SCERRI

Published by Oxford University Press, 2007. ISBN 0-19-530573-6

(Received 8 October 2008)

The book was written on the jubilee of the 100 years of the death of Dimitrii Mendeleev.*

The book has 346+12 pages, including an Index and Notes collected at the end of the book. The text is divided into ten chapters, covering a very broad selection of facts and ideas.

Eric Scerri is a well known historian and philosopher of science. This book is a large achievement in his work, covering both of his interests. The philosophy and history of chemistry and physics are interlaced throughout the book. It is shown how the abstract definitions of substance and element influenced the advent and subsequent development of the Periodic Table. To the same extent, the underlying information in the Periodic Table prompted a change of philosophical paradigm, too.

For the chemist's community, the book has multiple significances. As a history book, it presents in great details several less successful attempts to organize knowledge about chemical elements. It may give the impression that the works of Charles Gerhardt, Alexandre Emille Beguyer de Chancourtois, John Newlands, William Odling, Gustavus Hinrics and Julius Lothar Meyer are presented in too much details. However, at the end, they serve to emphasize the importance of the philosophical standpoint of Mendeleev, as a key factor that enabled his successful building of the Periodic Table and his marvelous predictions of yet undiscovered elements. The definition of elements as the Basic Substances (not Simple Substances), accepted by Mendeleev, was in recent history challenged several times but it has proved its value.

For all chemists, it will be of interest to find a very simple account of the basic facts in quantum mechanics, which are highly exploited in the explanation of chemical findings. In majority of chemistry (text)books, the presentation of

*2007 was also the jubilee year of the Serbian Chemical Society – 110th anniversary.

quantum mechanical theories concerning bonding, and structure of atoms and molecules is usually given as a set of bare statements. In a concise manner, all of it is here truly explained. After reading this book, many will reconsider their understanding of orbitals, the Pauli principle, *etc.*

In this book, I admire the interesting passages about the (non)reduction of chemistry to physics. The underlying conclusion is that this question belongs to philosophy, not to science. It is also shown that the chemist's view that elements exist in compounds cannot be denied on experimental grounds.

The book is easy to read for anyone who has elementary knowledge of chemistry and physics. Hence, it can be of interest to anyone who wants to know more on the significance of the Periodic Table. It is valuable for students and teachers in sciences, as well as in the philosophy, and any other discipline that has some reference to chemistry.

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