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Histories of the Electron: The Birth of Microphysics

THE BOOK

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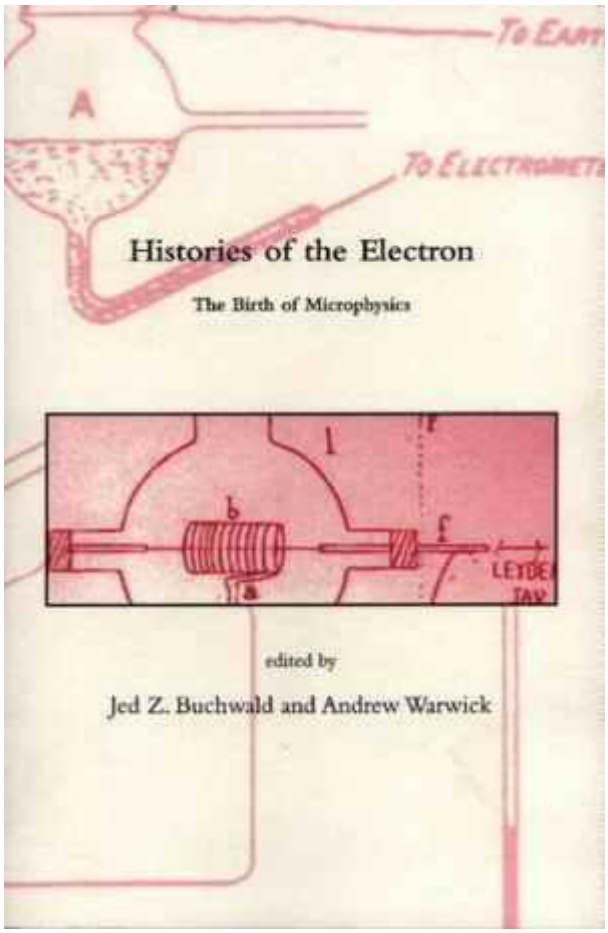
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> *...IMPRESSIVE ...the book is crammed with an impressive amount of material ... on the discovery of the electron and its intellectual impact on human affairs. This book is essentially a book on the history of science...*

Histories of the Electron: The Birth of Microphysics *by* edited by Jed Z Buchwald and Andrew Warwick, soft cover, 6" x 9".
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In the mid to late 1890s, J. J. Thomson and colleagues at Cambridge's Cavendish Laboratory conducted experiments on what were then called "cathode rays".

In the stream of current flowing through a rarefied gas, Thomson identified negatively charged 'corpuscles' that were substantially smaller than atoms. When he measured their ratio of charge to mass, he found a value that agrees with that is now accepted for the electron.

As a result Thomson has mistakenly been credited as the Father of the Electron. At least that is what this book says. However, it is clear that Thomson was largely responsible for promoting the particulate theory of cathode rays. He received the Nobel Prize for his efforts.

Also according to this book the electron, it turns out, can tell us a great deal about how science works. The volume addresses the "discovery" of the electron, and the microphysical world that it ushered in. It also tackles a host of associated issues.

Jed Z. Buchwald is Director of the Dibner Institute for the History of Science and Technology and Bern Dibner Professor of the History of Science at the Massachusetts Institute of Technology. Andrew Warwick is a Lecturer in the History of Science at the Imperial College, London. There are contributions from 19 contributors from places far apart as Toronto, Athens and Australia.

The book had its origins in the discussions at two meetings held in 1997 to celebrate the centenary of the discovery of the electron.

The book is divided into four parts. The first part, Corpuscles and Electrons, considers the varying accounts of Thomson's role in the experimental production of the electron. Historians are likely to be interested in this part.

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The second part, What Was the Newborn Electron Good For? examines how scientists used the newly discovered particle in physical and chemical investigations. The third part, Electrons Applied and Appropriated, explores the application or lack of application, of the electron in nuclear physics, chemistry, and electrical science. It follows the electron's gradual progress from cathode ray to subatomic particle and finally the greatest contribution of all, electronics.

The fourth part, Philosophical Electrons, again addresses the question "Who really discovered the electron?"

Although the going is rather heavy for readers with no strong interest in physics, the book is crammed with an impressive amount of material, some seemingly trivial, on the discovery of the electron and its intellectual impact on human affairs.

This book is essentially a book on the history of science.



-Gyan Fernando
Dr Gyan Fernando is the Home Office Forensic Pathologist for Devon & Cornwall, and an inveterate reader, book reviewer, traveller and commentator. He has a deep interest in natural sciences and especially in their historical aspects. Dr. Gyan Fernando may be contacted via Email by clicking here.

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-Editor-in-Chief