

Soap, Science, and Flat-Screen TVs

A History of Liquid Crystals

David Dunmur, University of Southampton (retired), and Tim Sluckin, University of Southampton

The terms 'liquid crystal' or 'liquid crystal display' (LCD) are well-known in the context of flat-screen televisions, but the properties and history of liquid crystals are little understood. This book tells the story of liquid crystals, from their controversial discovery at the end of the nineteenth century, to their eventual acceptance as another state of matter to rank alongside gases, liquids and solids. As their story unfolds, the scientists involved and their works are put into illuminating broader socio-political contexts. In recent years, liquid crystals have had a major impact on the display industry, culminating in the now widely available flat-screen televisions; this development is described in detail over three chapters, and the basic science behind it is explained in simple terms accessible to a general reader. New applications of liquid crystals in materials, bio-systems, medicine and technology are also explained.

November 2010 | 368 pages | 70 b&w line and halftone illustrations; 4pp colour plates section

978-0-19-954940-5, HARDBACK

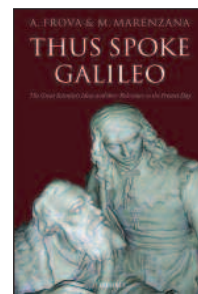
£29.95/\$53.95



NEW IN PAPERBACK

Thus Spoke Galileo

The great scientist's ideas and their relevance to the present day



Andrea Frova, Università di Roma "La Sapienza", and Mariapiera Marenzana, Liceo Coreutico at the National Dance Academy

'The book is remarkable for its clarity, precision and historical accuracy. Numerous drawings, figures and photographs help the reader pick a path through the historical and scientific reconstruction.'

Nature

May 2011 | 512 pages | 62 line drawings and 15 halftones

978-0-19-960682-5, PAPERBACK

£19.99/\$34.95

978-0-19-856625-0, HARDBACK

£26.50/\$55.00

Higher Speculations

Grand Theories and Failed Revolutions in Physics and Cosmology

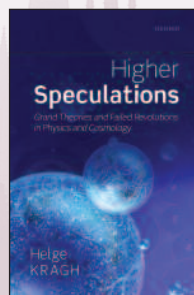
Helge Kragh, University of Aarhus, Denmark

A comprehensive account of highly ambitious attempts to understand nature in its totality, this book covers little known 'theories of everything' from the past as well as modern developments such as the theory of superstrings, the anthropic principle and ideas of many universes. These theories are presented in their historical contexts and used to problematize the limits of scientific knowledge. Do claims of theories of everything belong to science at all? Which are the epistemic standards on which an alleged scientific theory of the universe—or the multiverse—is to be judged? Such questions are currently being discussed by physicists and cosmologists, but rarely within a historical perspective.

January 2011 | 416 pages | 17 b/w line and halftone illustrations

978-0-19-959988-2, HARDBACK

£35.00/\$63.00



Conceptions of Cosmos

From Myths to the Accelerating Universe: A History of Cosmology



Helge S. Kragh, University of Aarhus, Denmark

'Kragh...writes with engaging clarity and insight. His book is thought-provoking and enlightening, a joy from beginning to end. Essential reading...'

Times Higher Education Supplement

2006 | 288 pages | numerous line drawings | tables halftones and mathematical examples

978-0-19-920916-3, HARDBACK

£39.95/\$85.00

NEW IN PAPERBACK

Time Restored

The Harrison timekeepers and R.T. Gould, the man who knew (almost) everything



Jonathan Betts, National Maritime Museum, Greenwich

'Betts has produced a finely crafted biography full of lovingly observed insight into Gould's character, including his many personal failings. But the book is much more than a biography.'

Lisa Jardine, Nature

May 2011 | 480 pages | 54 b/w halftones | and 16pp colour plate section

978-0-19-960671-9, PAPERBACK

£25.00/\$45.00

978-0-19-856802-5, HARDBACK

£45.00/\$95.00



Big Ben: the Great Clock and the Bells at the Palace of Westminster

Chris McKay, Horologist

'A very good book ... a work which holds the interest of the reader whilst imparting knowledge of both the history and technology of the clock, the tower, and bells; an impressive feat. It is also a book which tells enough to stimulate interest while not being too heavy. If you have only one book on turret clocks, it should probably be this one.'

Colin Fergusson, Horological Journal

This book covers the history of 'Big Ben', the great clock and bells at Westminster, from the origins of Westminster as the seat of government right up to the celebrations of the Great Clock's 150th anniversary in 2009. The book is richly illustrated, and will appeal not only to clockmakers and horologists, but to bell enthusiasts, and those with an interest in our rich Victorian heritage.

May 2010 | 296 pages | 260 b/w halftones | plus 8pp colour plate section

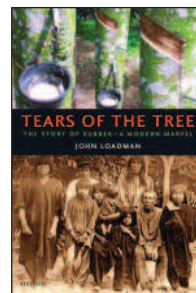
978-0-19-958569-4, HARDBACK

£42.50/\$75.00



Tears of the Tree

The Story of Rubber - A Modern Marvel



John Loadman, Tun Abdul Razak Research Centre, Hertford, UK (Retired)

This unique book tells the fascinating story of four thousand years of rubber as seen through the lives of the adventurers and scientists who promoted it, lusted after it and eventually tamed it into the ubiquitous, yet crucial material of our lives today.

2005 | 356 pages | numerous halftones and line drawings

978-0-19-856840-7, HARDBACK

£32.50/\$50.00

HAVE YOU SEEN?

Saunders: *Many Worlds?* on page 47 in Philosophy of Science

NEW IN PAPERBACK

No Time to be Brief*A scientific biography of Wolfgang Pauli*

Charles P. Enz, University of Geneva

'It is a fascinating read, indeed, the life of this famous physicist, the evolution of his thinking, the world of his dreams, ideals, accomplishments and failures. Highly recommended to all those working in the field, and, equally of lovers of good literature!'

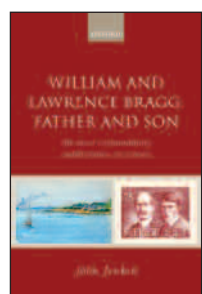
Zentralblatt MATH

May 2010 | 584 pages | 39 b&w halftones

978-0-19-958815-2, PAPERBACK

£29.95/\$55.00

NEW IN PAPERBACK

William and Lawrence Bragg, Father and Son*The Most Extraordinary Collaboration in Science*

John Jenkin, La Trobe University, Victoria, Australia

'A valuable and thoughtful book...I highly recommend Jenkin's biography to all readers interested in the history of 20th century physics and to those interested in the history of condensed matter physics or crystallography.'

William Evenson, Physics Today

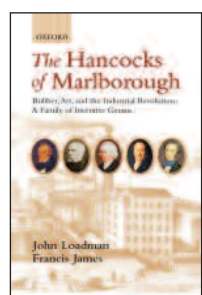
May 2011 | 480 pages | 57 b/w line drawings and halftones

978-0-19-960670-2, PAPERBACK

£25.00/\$45.00

978-0-19-923520-9, HARDBACK

£42.50/\$85.00

The Hancocks of Marlborough*Rubber, Art and the Industrial Revolution - A Family of Inventive Genius*

John Loadman and Francis James

'A treasure house for anyone interested in inventors and how they managed their intellectual property prior to the reform and consolidation in 1852 of the UK's patent system.'

Physics Today

2009 | 296 pages | 112 b&w halftone illustrations

978-0-19-957355-4, HARDBACK

£25.50/\$49.95

The Mental Aftermath*The Mentality of German Physicists 1945-1949*

Klaus Hentschel, University of Stuttgart

'A well-researched, well-written, well-translated [and] fascinating insight into the lives of some of the giants of the 20th-century physics'

Times Higher Education Supplement

2007 | 212 pages | 2 b&w line drawings and 16 b&w halftones

978-0-19-920566-0, HARDBACK

£36.50/\$60.00

The Many Worlds of Hugh Everett III*Multiple Universes, Mutual Assured Destruction, and the Meltdown of a Nuclear Family*

Peter Byrne

'Peter Byrne's meticulously researched biography provides a detailed and intimate look at one of the most seminal figures in 20th century physics and mathematics ... it is a remarkable and long-overdue biography.'

Ian T. Durham, The Quantum Times

'Offers a valuable source of primary information about Everetts life and work, with much material not available elsewhere ... this book fleshes out an important part of the quantum physics story.'

Tom Siegfried, ScienceNews

'The many worlds theory is still garish after all these years. Nevertheless, it is fascinating to read the story of its creator, himself too obsessed with models to intersect effectively with the real world.'

Robert P. Crease, Nature

'Byrne does an excellent job of explaining the theory, why it is necessary and the difficulties it solves (and doesn't). Byrne does not patronise his readers with superficial pen portraits of his characters. We get to know the characters by what they say and what they do. And they say and do some truly remarkable things. This is a strangely beautiful story, expertly told with the dignity, candour and attention to detail it deserves.'

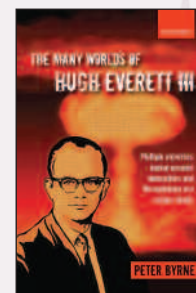
New Scientist

Peter Byrne tells the story of Hugh Everett III (1930-1982) who invented a theory of multiple universes that has had a profound impact on physics and philosophy. Everett strove to bring a 'rational' order to the interlacing worlds of nuclear war and physics, even as his personal world disintegrated because of his indulgent lifestyle. Using Everett's unpublished papers and dozens of interviews, the book paints a detailed portrait of a man who influenced foundational thinking in quantum mechanics by inventing a way of viewing the universe from inside (known as the universal wave function). The papers on which this book is based create a fascinating record of his life, including correspondence with the leading scientific minds of the day, that illuminates the often bitter struggle over the interpretation of the mystery of measurement at the heart of quantum mechanics.

May 2010 | 456 pages | 50 b/w photographs

978-0-19-955227-6, HARDBACK

£25.00/\$45.00

**Wireless and Empire***Geopolitics, Radio Industry, and Ionosphere in the British Empire, 1918-1939*

Aitor Anduaga, Basque Museum of Science and Medicine History, Basque Country, Spain

'It is a classic of its kind and will, no doubt, keep students of the field busy for years to come.'

Physics World

2009 | 416 pages | 26 b/w illustrations and 4pp colour plates

978-0-19-956272-5, HARDBACK

£45.00/\$80.00

Ludwig Boltzmann*The Man Who Trusted Atoms*

Carlo Cercignani, Politecnico di Milano

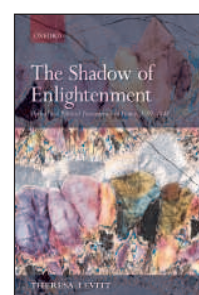
'Cercignani's book does sterling service in bringing much of Boltzmann's extraordinary achievement to life, and in sketching the ways in which it was indeed linked with the predicaments of his time.'

London Review of Books

2006 | 348 pages | 23 line drawings and halftones

978-0-19-857064-6, PAPERBACK

£28.50/\$55.00

The Shadow of Enlightenment*Optical and Political Transparency in France 1789-1848*

Theresa Levitt, University of Mississippi

'Like its subject matter, this fascinating book makes a mockery of the 'two cultures' debate, and should appeal to anyone with an interest in the history of science and the origins of the way we see our world.'

Physics World

This work examines the intersection of science and politics in the work of Francois Arago and Jean-Baptiste Biot, the principle architects of the optical revolution of early nineteenth-century France. Their disagreement over the optical accessibility of the world played out across a wide range of French culture.

2009 | 200 pages | 21 halftones

978-0-19-954470-7, HARDBACK

£44.50/\$70.00

Worlds of Flow

A history of hydrodynamics from the Bernoullis to Prandtl

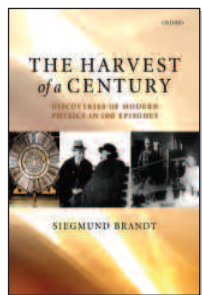
Olivier Darrigol, University of Paris VII, France

This book provides the first fully-fledged history of hydrodynamics, including lively accounts of the concrete problems of hydraulics, navigation, blood circulation, meteorology, and aeronautics that motivated the main conceptual innovations. Richly illustrated it will become a standard reference for any interested in fluid mechanics.

2008 | 376 pages | numerous halftones and line drawings
978-0-19-955911-4, PAPERBACK £22.50/\$40.00
978-0-19-856843-8, HARDBACK £47.50/\$109.99

The Harvest of a Century

Discoveries in Modern Physics in 100 Episodes



Siegmund Brandt, University of Siegen, Germany

'The book is profusely illustrated with photographs of the main players and respective apparatus, often complemented by pedagogical diagrams, and includes detailed references to original publications. It provides a stimulating way of learning about the

basic concepts of modern physics and how they were brought to life. Once you start reading this book, it is difficult to stop.'

CERN Courier

2008 | 520 pages | 250 line drawings and 350 photographs
978-0-19-954469-1, HARDBACK £37.50/\$70.00

AVAILABLE IN PAPERBACK

Revolutionaries of the Cosmos

The Astro-Physicists

Ian Glass, South African Astronomical Observatory

Galileo, Newton, Herschel, Huggins, Hale, Eddington, Shapley and Hubble: these astronomers applied ideas drawn from physics to astronomy and made dramatic changes to the world-pictures that they inherited. This book contains their biographies and outlines their greatest discoveries.

2008 | 336 pages | 53 b&w halftones and 11 line drawings
978-0-19-955025-8, PAPERBACK £19.50/\$39.95
978-0-19-857099-8, HARDBACK £50.00/\$99.00

Astrolabes at Greenwich

A Catalogue of the Astrolabes in the National Maritime Museum

Koenraad van Cleempoel, University of Hasselt, Belgium

'The catalogue has been beautifully presented, with the information clear and accessible'

Hester Higton, *British Journal for the History of Science*

2006 | 352 pages | 16 pp colour plates | numerous halftones and tables | OUP/National Maritime Museum
978-0-19-853069-5, HARDBACK £145.00/\$240.00

Holographic Visions

A History of New Science

Sean Johnston, University of Glasgow

'Although I have been active in holography for over 40 years, I learned much about my field's history from *Holographic Visions*. Indeed, I suspect no-one knows the story of holography better than Johnston... I would recommend this insightful and scholarly work not only to my colleagues, but also to aspiring young scientists and students in the history and sociology of science, plus the general reader who wants to see how one field developed through its early phases.'

H. John Caulfield, *Physics World*

2006 | 540 pages | 77 halftones and 15 line drawings
978-0-19-857122-3, HARDBACK £105.00/\$199.00

Cosmic Anger

Abdus Salam - The First Muslim Nobel Scientist

Gordon Fraser



'Fraser's well researched contribution provides a transparent description on the creation of the standard model that merits attention from physicists and historians alike. *Cosmic Anger* is highly recommended.'

Optics Journal

'Gordon Fraser...has produced a rich and varied biography...in this sensitive

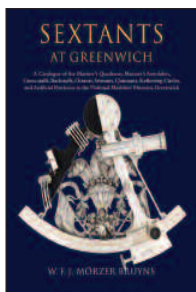
account. Salam's contributions on the international scene shine out.'

Simon Mitton, *Times Higher Education Supplement*

2008 | 320 pages | 16 page colour plate section and 2 b/w line drawings
978-0-19-920846-3, HARDBACK £27.50/\$49.95

Sextants at Greenwich

A Catalogue of the Mariner's Quadrants, Mariner's Astrolabes, Cross-staffs, Backstaffs, Octants, Sextants, Quintants, Reflecting Circles and Artificial Horizons in the National Maritime Museum, Greenwich.



W.F.J. Mörzner Bruyns, National Maritime Museum, Greenwich, and Richard Dunn

In *Sextants at Greenwich* the history and development of navigating instruments is described. Before satellite navigation these were used to measure the altitude of the sun and stars above the horizon, to determine the ship's position at sea. The

book also contains a catalogue of 347 mariner's astrolabes, cross-staffs, backstaffs, and octants, sextants and artificial horizons preserved in the National Maritime Museum, Greenwich.

2009 | 336 pages | 76 line drawings | 694 photographs 22 colour images | OUP/National Maritime Museum
978-0-19-953254-4, HARDBACK £125.00/\$240.00

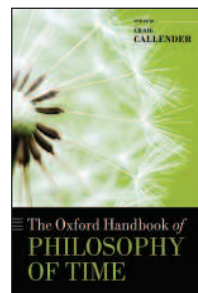
Interpreting Quantum Theories

Laura Ruetsche, University of Michigan

Philosophers of quantum mechanics have generally addressed exceedingly simple systems. Laura Ruetsche offers a much-needed study of the interpretation of more complicated systems, and an underexplored family of physical theories, such as quantum field theory and quantum statistical mechanics, showing why they repay philosophical attention.

May 2011 | 336 pages
978-0-19-953540-8, HARDBACK £40.00/\$75.00

The Oxford Handbook of Philosophy of Time



Edited by Craig Callender, University of California

This is the first comprehensive book on the philosophy of time. Leading philosophers discuss the metaphysics of time, our experience and representation of time, the role of time in ethics and action, and philosophical issues in the sciences of time, especially quantum mechanics and relativity theory.

Oxford Handbooks in Philosophy
April 2011 | 600 pages
978-0-19-929820-4, HARDBACK £95.00/\$150.00

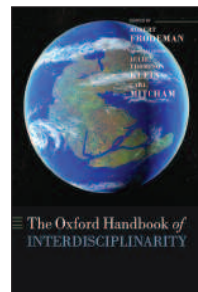
Geometric Possibility

Gordon Belot, University of Michigan

Relationalism seeks to ground all claims about the structure of space in facts about actual and possible configurations of matter. Gordon Belot elucidates the prospects for this view of the nature of space by investigating the key notion of geometric possibility in relation to philosophical notions of physical possibility.

April 2011 | 200 pages
978-0-19-959532-7, HARDBACK £30.00/\$55.00

The Oxford Handbook of Interdisciplinarity



Edited by Robert Frodeman, Center for the Study of Interdisc

Associate editors: Julie Thompson Klein, Wayne State University, USA and Carl Mitcham, Colorado School of Mines

Taking stock of interdisciplinarity as it nears its century mark, the *Oxford Handbook of Interdisciplinarity* constitutes a major new reference work on the topic of interdisciplinarity, a concept of growing academic and societal importance.

Oxford Handbooks in Biology
June 2010 | 624 pages | 30 illustrations
978-0-19-923691-6, HARDBACK £90.00/\$150.00