

BOOK REVIEW

Episodes in the History of Medical Science: Discovery Meets Orthodoxy **by Anthony R Rees**

Paperback, 294 pages
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In this book, emeritus professor of biochemistry Tony Rees, who has written authoritative accounts of the development of molecular immunology and therapeutic antibodies in *The Antibody Molecule* (2014) and of vaccines in *A New History of Vaccines for Infectious Diseases* (2022), focuses on the science behind a selection of key medical advances. His account reveals the uneven and sometimes chaotic ways in which new discoveries are translated into practice, the delays that can be caused by resistance from the medical establishment, and the potential negative consequences of orthodoxy.

Episodes in the History of Medical Science is a large-format book divided into twelve chapters. Each chapter comprises between 15 and 40 pages, ending with a list of about 50 to 100 references. There are extensive quotations from primary sources, additional explanatory notes within the text, and well reproduced black and white and colour illustrations. For the most part, the writing is clear and leavened in parts by touches of humour. The editing throughout appears to be of high standard but, as is to be expected for a work of this size, there are occasional typographical errors.

The first two chapters cover the origins of medical theory and practice (Hippocrates, Galen, Islamic medicine, plague and quarantine) and new diseases and medical voices (Paracelsus, the 'seeds' of disease, Vesalius, Harvey). Chapters 3 and 4 consider smallpox, the origins of variolation and its spread, Jennerian vaccination and its reception and development, and issues of vaccine efficacy and safety. The next chapter looks at scepticism over the role of microbes in fermentation and disease (Simmelweis, Pasteur, Lister, tuberculosis and Koch's tuberculin). Subsequent chapters focus on genes and heredity, penicillin, thalidomide, the antibody revolution, and treatment of peptic ulcers.

The penultimate chapter, the longest and most comprehensive in the book, concerns vaccination in the modern era. It reviews the efficacy and safety of vaccines developed in the 20th century, vaccine hesitancy and antipathy, concerns about vaccines, splits in scientific consensus regarding vaccines to SARS-CoV-2, evidence of the cardiac side effects of Covid vaccines, the importance of vaccine education to correct disinformation, and the challenge of anti-science sentiment.

The final chapter seeks to draw lessons for the 21st century. Rees advocates for the importance of 'verified, and scientifically trustworthy, medical science' and concludes that professional scientists, physicians, health organisations and responsible governments must 'speak out with authority' to nullify bad science and act to counter amateur and pseudo-scientific messaging on social media and other public platforms.

A strength of the book is its focus on the scientific details of discoveries and their interpretation. This approach works especially well in the case of specific and noteworthy instances such as Fleming's discovery of penicillin and proof of the role of *Helicobacter* in the causation of peptic ulcer by

Warren and Marshall, examples which are spoken about often but rarely examined critically. Such detailed analysis is necessarily more selective in the case of topics such as the antibody revolution which involved a series of discoveries over the course of more than a century.

The book is ambitious in reviewing medical science from antiquity, before the experimental method had become an established part of what we now understand as rigorous scientific practice, through to recent events which can only be judged from a current perspective. This broad treatment inevitably limits the number of episodes that can be reasonably included. Some readers may be disappointed by not finding anything about John Snow and cholera, human immunodeficiency virus and AIDS, or prions and neurodegenerative diseases, to give a few pertinent examples.

The history of medicine is replete with challenges to orthodoxy in which new scientific findings threatened the beliefs of scientific and medical elites. As *Episodes* richly reminds us, reaching a scientific consensus is not always straightforward and the integrity of the scientific and medical establishment is crucial to the public acceptance of medical advances, not least in the face of heightened scrutiny and challenge.

Episodes in the History of Medical Science can be recommended to anyone interested in the scientific basis of important medical advances and is likely to serve as a useful reference work, especially when read in conjunction with conventional histories of medicine that focus on wider societal, professional or institutional influences.

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