

Vaccination Rediscovered New Light in the Dawn of Man's Quest for Immunity

Patrick J Pead. *Timefile Books*, 2006. ISBN 0 9551561 0 6 (A5 paperback).
128 pp. £7.99.

Disease manifests itself in many ways and at many levels of severity, from subclinical to the most devastating in terms of morbidity. Physicians and researchers constantly search for the 'magic bullet' that might quell and hold in check a disease, with the hope that final and total eradication can be achieved.

Such a breakthrough occurred on the 8 May 1980, when the WHO General Assembly accepted that smallpox had been eradicated worldwide. The basic tool that achieved this, namely vaccination, has been reported on numerous occasions and in numerous publications. Here, in *Vaccination Rediscovered*, is a well-researched and fresh approach to the often-overlooked history that eventually leads to the recognition of an event begun previously by others.

The author had been drawn to the history of smallpox vaccination by his awareness of an account, by Edward Jenner, of the vaccination of two children, William and Mary Pead, who bear no family connection to the author, and by reading a book entitled *The First Vaccinator*, which recorded Benjamin Jesty's use of cowpox to protect his family from smallpox in 1774 – some 22 years prior to Jenner's monograph.

Patrick Pead's background, as a biomedical scientist, coupled with his enthusiasm for the historical correctness of medical science, is clear in his precise account and interpretation of events in this story. Even to the extent of drawing the reader's attention to the location of the Vaccine Pock Institution being directly opposite the infamous water pump that was to become the focus of Dr John Snow's search for the source of the cholera epidemic in 1854.

The notion that cowpox protected against smallpox was not an uncommon observation with country folk in the late 18th century. Benjamin Jesty gave it more thought than most at the time and Chapter 4 is compiled meticulously, giving an important narrative of country life at that time and an insight into the character of the Jesty family. It was no casual decision to vaccinate his family, with the exception of baby Betty, who was considered too young. This is an interesting consideration, made in the 18th century, when today's immunisation programme for the young has been challenged recently in some quarters.

Pead has given a fair and considered view of the role Edward Jenner played in the establishment of vaccination for the control of smallpox. The social standing of individuals at the time of Jesty and Jenner may have had an influence on who was recognised for whatever achievement. The story gives a factual account of these discrepancies and the eventual outcome that was to benefit mankind.

The final chapter poses 17 questions and answers, based on the title of the book, and draws to a close the fascinating story of smallpox vaccination. It is a compilation of facts that

has been drawn together, without prejudice to any of the contributors to vaccination, to put a record straight. It contains an excellent bibliography not cited in the text "to permit an even flow of my narrative" to quote the author. I regard it as a scientific storybook for both student and expert alike. □

J. R. Foster

Mechanisms of Epithelial Defense

D. Kabelitz, J.-M. Schröder (Eds). *Basel: Karger*, 2004. ISBN 3-8055-7862-8.
189 pp. Euro 63.50.

This book attempts to review the current state of research into antimicrobial mechanisms, with particular emphasis on the antimicrobial peptides and their role in the skin, lung and intestinal systems. Each topic is covered by a range of different authors, each contributing their own experience, expertise and interests in the area. There is certainly a need for such a worldwide review of this important area and the reviews here are both authoritative and comprehensive, and impressive reference sources are provided in all the chapters for anyone wishing to use the original research papers.

The book is divided into three sections, with the first covering the basic features of the antimicrobial peptides. This is wide ranging and covers not only human lung and skin, including the role of defensin peptides in Crohn's disease, but also the role of the peptides in *Drosophila*, indicating that epithelial defence is important throughout the animal kingdom. This section does, however, suffer in places from being more a catalogue of peptides than giving a single coherent concept of their importance and role.

The second section is concerned with the interaction of the host cells and the microbes. I found the first review in this section, 'Bacterial Evasion of Innate Defense', of particular use to me. The remaining two reviews covered mainly TOLL-like receptors, and I found the text on these topics rather dense and hard to comprehend. The final section covered 'The Contribution of T Cells to Epithelial Defense'. The inclusion of the adaptive immune system as a complement to the more constitutive peptide defence mechanisms is a useful concept, but the chapters never seem to fully exploit this potential.

This book is a useful resource for anyone who has an interest in this area, but it would be a rather hard read for anyone wanting an introduction to the topic. The individual reviews, all written by different authors, did not make for a text that would encourage one to read it from cover to cover. I could not, for example, see this being used as a student text. There is probably a need for such an accessible text in this area, but it would probably need a single author or more aggressive editorial control to achieve it.

This book would therefore seem better suited as a library resource for researchers in this area, with the readers simply accessing individual chapters to broaden and deepen their knowledge. □

J. Cook

Genetics and DNA Technology: Legal Aspects (2nd Edition)

Wilson Hall. Cavendish Publishing, 2004. ISBN 1-85941-893-7. 118 pp. £50.

Rarely a day goes by without a forensic evidence case featuring in the forefront of the news. Convictions in recent atrocities such as the suicide bombings and wartime ethnic cleansing have illustrated just what a powerful tool forensic biology has become and the reliance placed upon the forensic evidence. In today's society, forensic evidence is widely accepted in law and therefore it is more important than ever that the people who deal with this evidence should be aware not only of its power but also its limitations. In this, the second edition of *Genetics and DNA Technology: Legal Aspects*, the author once again aims the book as a resource for people who deal with forensic evidence or are interested in its use from a legal standpoint.

The initial chapter contextualises forensic science, from its infancy in the late 1800, highlighting key figures and discoveries, up to the present day. The author explores the evolution of the use of fingerprints for personal identification, to the work of Alec Jeffreys and the subsequent advent of DNA profiling. The book then moves on to discuss the rationale behind what constitutes an ideal sample, with reasons given for the use of various techniques, and how to ensure accuracy. I found this chapter particularly thought-provoking, as it explains the limitations inherent in forensic methodology and gives attention to the (worrying) increase in the malicious placing of forensic material to implicate innocent parties.

This section, to me, summarises a key element of the book; that is, to give information to key users of forensic data to enable them to comprehend the data with which they are presented and to make judgements with an appreciation of both their reliability and limitations. A simple illustration of this lies with the commonly held belief that fingerprints are unique to a single individual. Identification relies on certain marker patterns, of which there is a finite number; therefore,

it is possible for people to appear to share the same fingerprint. Can two people share the same set of fingerprints? The answer is unlikely, but having an appreciation of the methodology highlights the flaw in this line of questioning.

Chapters 3 and 4 deal with the use of blood groups as an important part of identification. In light of the cost and time involved in DNA analysis, blood grouping remains a key tool in the initial inclusion or exclusion of an individual from an investigation.

By Chapter 5 the author assumes that the reader is now comfortable with the techniques behind forensic identification and explores, in some depth, its real uses in paternity and criminal cases. These two categories constitute the majority of cases involving DNA forensic evidence; however, its practical uses extend far beyond these. We are introduced to the use of DNA analysis in food technology to perform what might seem like menial tasks (e.g., ensuring the authenticity of Skipjack Tuna) or to assess, for example, the claim that an individual was the daughter of Tsar Nicolas II.

As scientists we are often asked to consider the ethical implications of our actions, and this is dealt with extremely well in the final sections of the book. The author explores some of the legal and ethical considerations that might arise from having certain forensic information in our possession, and finishes with a brief discussion about how data should be presented to a court.

With recent concerns over the use of so-called expert evidence in some high-profile court cases, never has it been more important for the legal profession, as well as the forensic scientist, to be aware of the power of forensic data and the harm they can cause if applied incorrectly.

The book is concise and well written. While it makes few assumptions in terms of previous knowledge, it is sufficiently detailed to be of use to the target audience. As such it is a 'must read' for lawyers in contact with evidence obtained from forensic laboratories, but it may not be of adequate interest to the lay reader to justify its price tag. □

D. Mernagh