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## Book Reviews

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*Smallpox: The Fight to Eradicate a Global Source.*  
By D. Koplow, University of California Press, 2003.  
Pp. 265. \$24.95 (£17.95).

When Frank Fenner and his colleagues published their definitive account *Smallpox and its Eradication* in 1988, they acknowledged the possibility that remaining, perhaps hidden, stocks of smallpox virus might be mis-used. Strategies to counteract this were discussed, and the possible consequences of bioterrorist attacks were modelled, before 11 September 2001. Much has been written on bioterrorism since then. This book, by a US lawyer specializing in biological conservation and environmental issues and who advised the Pentagon on bioterrorism until 1999, looks at the smallpox problem from an unusual perspective. One might think that the book describes the Smallpox Eradication Campaign. Not so; the title highlights an unfortunate ambiguity that pervades the book, which in fact deals with the destruction of smallpox *virus*. The failure to deal consistently and clearly between smallpox/variola (the disease) and smallpox/variola virus (its cause) requires many paragraphs to be re-read.

Apparently the book is intended for the general reader, although readers of this journal will find much of interest. Not however, the first two chapters (on 'The Rise and Fall of Smallpox', and 'The Biology of Viruses'), which are best avoided. Indeed, laypersons should find more reliable information on these introductory topics. This would avoid exposure to, e.g. a poor description of an autoclave, protein chains composed of genes, an irrelevant discussion on whether viruses are 'alive', and a misleading and incomplete account of the Birmingham outbreak of 1978; a lawyer author should know that the statutory prosecution of Birmingham University, which relied heavily on the official inquiry, was dismissed by the magistrates.

The book comes into its own when the author deals with his own areas of expertise: legal, administrative and environmental issues. The author takes every opportunity to place smallpox (and its virus) in the general context of biological and chemical warfare, and sensibly takes a less alarmist view of smallpox than some other recent commentators. However, perhaps the most chilling thought here is that, historically, warmongers and terrorists have generally considered and even developed a capability for biological/chemical warfare, even if they have not always used it.

This brings us to the heart of the author's discussion; should the surviving (known) stocks of smallpox virus, currently held in the US and Russia, be destroyed? Here, the changing views of the USA and WHO are discussed particularly in the context of 11 September. The author presents a series of thoroughly-argued proposals and rebuttals for retention and destruction. Although most are fairly obvious, it is useful to have them all collected and discussed in some detail. Perhaps the most important point is that destruction of known stocks would then leave any existing stocks in unsafe hands. This is probably a more serious scenario than the risk that known stocks might 'escape', or be stolen. Perhaps less relevant to readers of the journal, but still of considerable interest, is the author's debate with himself about the rights and wrongs of deliberately destroying any species. These arguments are placed in the general context of international concern and what legislation now exists, particularly in the US, on biodiversity and conservation. At present such legislation does not appear to be relevant to smallpox virus which however does present a particular paradox. It is an 'endangered' species, not through pressure on or mis-use of the environment, but because there are positive moves to destroy it because it is itself dangerous. On balance the author concludes that stocks of smallpox virus should be retained; such a conclusion can be reviewed periodically in the light of future developments whilst destruction is final.

A short chapter on the role of WHO is of interest. It reminds us that WHO can only advise and recommend. So, if the US and/or Russian governments choose to destroy or retain their stocks of smallpox virus there is little or nothing that WHO can do about it. Ironically, because these surviving strains came from diverse origins there is even debate about the ownership of these surviving stocks. So, this could involve the destruction of other peoples' property. A nice, though abstruse, point of law.

Inevitably one returns to the possible mis-use of smallpox virus and the role of vaccination in smallpox control. As indicated above the author keeps discussion of nightmare scenarios within bounds, nor does he advocate mass vaccination. Although he uses data which almost certainly underestimate the morbidity and mortality of mass vaccination, he concludes that President Bush's aim to vaccinate the entire US population shows 'excessive zeal'.

On the 'technical' side the book is well-produced, but would have benefited from some illustrations. There are references and notes to each chapter and a bibliography at the end, the latter divided into books, 'academic' articles and

newspaper items. The citations are generally well chosen, but one might have expected more to be used to guide readers to further information; this might not unduly worry the general reader.

In summary: This book represents a well-balanced account of the current smallpox 'problem', and the perspective in which it is placed should be of interest to readers of the journal who will recognize the deficiencies of the first two chapters. The general reader particularly should note these reservations, but those interested in the subject and who have read, understood and appreciated the limitations of the books by, e.g. Ken Alibek and Richard Preston, will find this volume of value.

DERRICK BAXBY  
*Liverpool University*

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*Probiotics and Prebiotics*. Ed. G. W. Tannock, Caister Academic Press, 2002. Pp. 333. £90.00.

This book has ten chapters which cover a range of topics beginning with an overview by the editor on recent developments in research on probiotics and prebiotics. There are chapters on methodologies and on the potential impact of

probiotics and prebiotics on disease processes including inflammatory bowel disease and atopic disease. The chapters have been selected by the editor and do not follow a distinct plan. The editor specifies in the preface an emphasis on the possible application of probiotics and prebiotics for human diseases. Despite this emphasis there is no chapter dealing with the methods of investigating host-bowel flora interactions. Although results of animal and human studies are mentioned in several of the chapters, there is very little information on the limitations of current research methods in this area and in particular animal models for the study of mucosal interactions or specific diseases such as inflammatory bowel disease or atopy.

Perhaps the best way of viewing the methods-orientated chapters is that they position the methods within a current research agenda for probiotics and prebiotics. Chapters on the relationship between gut microflora and specific diseases are particularly orientated towards microbiologists.

The chapters are generally well-written and referenced and could be easily followed by anyone with a basic knowledge of microbiology. The clarity and succinctness of the writing makes the book eminently readable.

This is a useful book of interest to anyone wishing to learn more about current research in probiotics and prebiotics.

M. MILLAR  
*Barts and the London NHS Trust*