



Control measure: disinfectant sprays have been used for a century to stop the spread of foot-and-mouth disease.

## Death on the farm

Is the control of foot-and-mouth worse than the disease?

### A Manufactured Plague: The History of Foot-and-Mouth Disease in Britain

by Abigail Woods

*Earthscan*: 2004. 224 pp. £19.99, \$35

Matthew Baylis

The 2001 epidemic of foot-and-mouth disease (FMD) in Britain will long be remembered by the farming community. But why? Because of the terrible suffering and high death rate of animals unfortunate enough to be infected? Or is it little to do with the disease itself and more to do with the reaction to it?

In this excellent book, Abigail Woods presents a compelling case that during FMD epidemics in Britain over the past century or so, it was the action taken by the agencies charged with controlling the disease that caused suffering in the farming community, rather than FMD itself. The disease is not, Woods argues, as fearsome as it is widely perceived to be. Foot-and-mouth disease is not a 'natural plague' of animals like, for example, rinderpest, which can spread rapidly and has, in the past, killed millions during pandemics. Rather, it is a manufactured plague — the suffering associated with it is largely of our own making.

How did this come about? Woods provides a fascinating account of the history of

FMD in Britain, from its first discovery in 1839 to its most recent appearance in 2001. She shows how the disease was transformed from being a minor affliction to one of the most feared of all livestock diseases.

A key event in this transformation was the 1865–67 rinderpest epidemic in Britain, which killed one out of every 15 cattle. Traditional control measures failed and the disease was finally checked by slaughtering all the infected animals and their contacts, and placing restrictions on cattle movements. These control measures were found to reduce the spread of FMD as well. However, at the time FMD was considered to be a mild disease and, accordingly, the UK government's Contagious Diseases (Animals) Act, 1869, laid out more lenient control measures for FMD than for rinderpest; notably, FMD-infected animals needed only to be isolated until their recovery, not slaughtered.

These measures failed to control an epidemic of FMD that, coincidentally, arose in 1869. Opinion was divided over whether FMD was a serious disease that merited stringent control measures, including a ban on live-animal imports, or whether it was largely inconsequential. The former view was held by upper-class farmers of pedigree stock and Tory members of parliament (MPs), whose own animals would increase in value should live animal imports be stopped. The

latter view was supported by Liberal and urban MPs, who were concerned about maintaining the meat supply to the working classes and the principle of free trade.

Opinion gradually settled on FMD being a serious disease. All livestock imports were banned in 1884 and, in 1892, an act of parliament ordered the slaughter of animals infected with FMD. Woods attributes this transformation to several factors, including the greater influence of pedigree breeders and Tory MPs; the greater susceptibility of new breeds of livestock developed in Britain at that time; and the growing importance of meat and milk to British agriculture, which meant that losses from FMD were felt more keenly. But the most important factor, Woods contends, was the legislation used to control the disease. She writes: "FMD-as-plague wasn't always 'out there' in nature, awaiting discovery by enlightened individuals. It was a new creation, a by-product of the processes involved in its control. And as this new vision of FMD grew in strength, its social origins were gradually obscured, until it came to be viewed as an incontrovertible fact of nature."

The control measures were successful and, after 1885, Britain experienced nearly 40 years with only a handful of FMD outbreaks. Woods thinks that the agency responsible for British farming acquired a taste for freedom



from FMD that, subsequently, it could not give up. Small outbreaks were easily controlled by the slaughter of infected animals and their contacts. Large outbreaks tested this approach to its limit, often with no sign of disease control in sight, despite the culling of large numbers of livestock. In all cases, however, wholesale slaughter remained the principal control method, and alternatives, such as letting the epidemic take its course or, since the 1950s, vaccination, were ignored. In Woods' view, this stubborn approach, which has cost the lives of millions of animals, is mistaken.

*A Manufactured Plague* is a delight to read. Too many popular-science books today seem to be little more than adverts for the erudition and breadth of knowledge of the author, or are the work of a non-specialist with a good idea. Woods, a graduate of both veterinary medicine and the history of medicine, has written a book that resounds with her depth of knowledge of the subject matter. This account of the history of FMD in Britain, and its political context, will be enjoyed by anyone interested in the disease, whether scientist or student, legislator or farmer.

Woods provides detailed accounts of most of Britain's FMD outbreaks over the past hundred years, but the one disappointment is the relatively short shrift given to the 2001 epidemic: it receives only six pages, compared with 20 or more for the epidemics of 1922–24 and 1967–68. It is the 2001 epidemic, more than any other, to which the concept of a 'manufactured plague' can be most readily applied. In 2001, fewer farms were affected than in the two aforementioned outbreaks, but 20–30 times as many animals were slaughtered. Woods alludes briefly to the role of mathematical models in directing this control policy but, regrettably, steers clear of detailed analysis. ■

Matthew Baylis is at the Institute for Animal Health, Pirbright Laboratory, Ash Road, Pirbright, Surrey GU24 0NF, UK.

## Hitting the right note

### Nature's Music: The Science of Birdsong

edited by Peter Marler & Hans Slabbekoorn  
Elsevier: 2004. 504 pp. £49.95, \$74.95

#### Fernando Nottebohm

*Nature's Music* is a remarkable book in many ways — the breadth of its coverage, the blend of field and laboratory studies, and the balance between facts and speculation. It describes how the sounds produced by birds develop in individuals, what information they convey, how they are repre-



Sing when you're winning: the male western meadowlark uses song to defend its territory.

sented in the brain, how they fit in their natural settings, and how they have been studied. This may seem like a provincial subject, but because it touches on so many issues, the book reaches into much that is fundamental to the study of learning and animal languages.

Another factor that makes the book special is that it encompasses the life and work of two individuals. It was developed from presentations at a symposium to celebrate the life of Luis Baptista, recently deceased and a superb naturalist with a passion for birds and their vocalizations. He was one of the first to demonstrate the importance of social context in vocal learning in songbirds, and was the first to provide an experimental demonstration of vocal learning in hummingbirds.

The book is also about the discipline's father figure, Peter Marler, who, together with Hans Slabbekoorn, is the editor of *Nature's Music*. Marler has produced other good books, but the choreography of this one deserves comment. He wrote two of the 14 chapters, and the work and thoughts of Marler and his many disciples permeate much of the text. Each of the remaining 12 chapters was produced by a different author or group of authors. And each chapter includes short vignettes by a third tier of authors, who focus on single aspects of the larger story. This approach could have resulted in a cacophony of voices and styles, yet through first-class editing the book remains unified. The quality of figures is excellent, as are the two CDs that convert many of the

sounds illustrated as sound spectrographs back into an impeccably clean soundtrack. In all these ways, this book is a labour of love.

The book suggests that birdsong is not just about aesthetics, although it can charm female birds and human aficionados of both sexes. Birdsong, we learn, is a vehicle for cleverly encoded information about species and individual identity, about health and age, about the willingness to defend a territory, about genetic fitness, and about suitability as a mate. In addition, because birdsong is so easily recorded, quantified, altered and reproduced, it lends itself well to experiments on animal communication.

For historical reasons, the book does not give equal weight to the sounds of all birds, and there is a strong bias towards those that are learned. This aspect of vocal ontogeny offers parallels with vocal development in humans, and this is why birdsong has attracted so much basic research. Vocal learning in mammals is rare — it is found only in humans, some cetaceans and possibly some bats — but it occurs in half of all living birds, who acquire their song by imitating that of older conspecifics.

One of the most interesting chapters deals with the information conveyed by calls, rather than song. The calls that signal the presence of a predator are often similar for local resident species. Thus homeland security in nature benefits from a diversity of sentinels, each watching from its special vantage point and sounding the alarm in a universal code.

I was mesmerized in the 1960s when I heard Marler lecture on vocal communication in birds. This book brings back the charm of 'the good old days', recounted by Marler in the first chapter, and presents the excitement of the ensuing 40-year harvest. Who would have guessed that there was so much to come?

This book will make fine reading for all those drawn to birds and their songs, and will provide a sturdy backbone for courses on animal behaviour, animal communication and learning. Those who labour all day in concrete jungles or in the confines of a laboratory may find in this book an incentive to strap on the binoculars, step outside and follow nature's music. ■

Fernando Nottebohm is at the Field Research Center, Rockefeller University, 495 Tyrrel Road, Millbrook, New York 12545, USA.

#### More on birdsong

*The Singing Life of Birds* (Houghton Mifflin, \$28) is a personal account by Donald Kroodsma of the art and science of listening to birdsong. It comes with a CD of sample sounds.

*Birdsong* by Don Stapp (Scribner, \$24) is an accessible account of the history of birdsong research and the author's encounters with two leading birdsong researchers.