

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. ■

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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-

IMAGE UNAVAILABLE FOR COPYRIGHT REASONS

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. ■

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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.