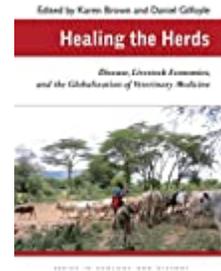


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Livestock Disease and Veterinary Medicine: Toward a Global Perspective

Interest in the history of livestock disease, the veterinary sciences, and livestock economies has grown in recent years, and *Healing the Herds* adds much to the discussion. The fourteen contributions included in the volume stem from a three-day, thirty-nine-paper conference organized by the editors at St. Anthony's College, Oxford, in June 2005. Five additional papers from the meeting not included here were published in a special 2007 issue of the *South African Historical Journal* also edited by Karen Brown and Daniel Gilfoyle. In addition to the collections coming out of the 2005 conference, the editors have collaborated on other projects, including *Frontiers of Knowledge: Veterinary Science, Environment and the State in South Africa* (2009).

The fourteen papers in the volume are preceded by an introduction and succeeded by a conclusion, short biographies of the contributors, a bibliography of important works, and a very handy appendix/glossary covering the etiology and epidemiology of livestock diseases addressed in the essays. Notwithstanding the strong South African focus of their own research, Brown and Gilfoyle

present a geographically diverse collection, with papers addressing Africa (three), Asia (four), Australasia (two), the Caribbean (one), Europe (Europe), and the United States (one). The central themes of the papers are less varied. Indeed, as Brown and Gilfoyle demonstrate in their concise and effective introduction, the majority of the papers, despite their disparate spatial foci, can be assessed thematically: ten papers address the institutionalization of veterinary medicine and the instrumental place of veterinary medicine in European state building and colonial governance; eight consider the dissemination of Old World pathogens associated with European expansion and the growth of international trade in livestock and animal byproducts; six assess the connections between veterinary medicine, colonial economies, and the employment of veterinary medicine by colonial administration to control indigenous populations; and two concentrate foremost on the pathological repercussions of the transmission of Old World domesticates and intensive commercial pastoralism to foreign environments and the scientific methods employed to face new disease realities.

Several of the papers expand upon the work of Alfred Crosby and incorporate livestock disease into his conception of Old World portmanteau biota and ideas of ecological imperialism.

The editors set the collection in the context of recent occurrences of bovine spongiform encephalopathy (BSE/Mad Cow), foot-and-mouth disease (FMD), and concerns about pandemic avian influenza, as well as emphasize the modern historian's neglect of livestock disease and veterinary medicine. In their helpful discussion of the historiography, Brown and Gilfoyle draw out the above-mentioned themes, place the collected papers in their greater historical context, and provide several avenues for future research, a matter that Brown returns to in her conclusion.

The collection's first and fourth papers stress the instrumental place of veterinary medicine in early modern European state building. Peter Koolmees, in fact, provides an overview of epizootic disease in the Netherlands from the early eighteenth century to the early twenty-first, with a focus on preventative measures and public responses to those measures. He convincingly argues for the growth of state interference in the control of communicable stock diseases, considerable continuity in the methods employed to curb the spread of communicable diseases, and dramatic changes in public responses to those methods, beginning really in the last half of the twentieth century as the number of urban consumers grew and became increasingly disconnected from countryside producers and factory farming. Dominik Hänniger, drawing upon sixty-eight police ordinances, examines the methods employed to combat cattle panzootics in eighteenth-century Schleswig-Holstein and, like Koolmees, illustrates how closely associated the control of epizootic disease was with the authority of the early modern state. In highlighting the repeated attempts to enforce cattle quarantines, and restrictions on livestock trade and slaughtering, Hänniger craftily draws parallels with early modern efforts to control "plague" in humans—more comparative work of this nature would be much appreciated. While little critical work has appeared on this topic, as the author stresses, Hänniger appears to be unaware of Reinhold A. Dorwart's work which deals with similar issues in the nearby German northeast.[1]

The second and third papers address the progress of the veterinarian and the place of veterinary medicine in the modern West. Ann Greene explores the history of Penn's School of Veterinary Medicine, one of the few

vet schools to survive the crisis in veterinary medicine c.1915-25, in the context of a growing demand for more university-trained veterinarians, a growth in livestock populations (in particular the horse, which powered the industrial revolution), and increased incidence of (and concern for) animal disease. Via this case study, Greene illuminates the nineteenth- and twentieth-century progression of the American veterinarian from a lowly "horse-doctor" to respected university-educated professional. With Abigail Woods the focus shifts to the role of the veterinarian in twentieth-century British agriculture. Woods argues that only with the advent of the Second World War, and the associated decline of food imports and move away from a "low input-low output" agriculture, did the vet become central to British livestock production, as the state sought to augment the productivity of dairy herds and to address, with new vigor, diseases of production and reproduction. With its wartime contributions to milk production, British veterinarians earned, as Woods writes, the respect of farmers and the state.

Martine Barwegen, Daniel Doeppers, Rita Pember-ton, and Robert John Perrins consider veterinarian medicine's instrumental role in colonial state building, and, with the exception of Perrins, the dissemination of Old World pathogens associated with international trade. Barwegen examines the history of rinderpest in late nineteenth-century Dutch-governed Java. In the late 1870s, that virus, and the European measures employed to contain it, devastated western Javanese agriculture, laying low or restricting the movement of thousands of draft animals, provoking food shortages, and forcing many to sell their property. Perhaps most interesting about Barwegen's contribution is her focus on the better results the Javanese seemed to have attained in curbing livestock disease prior to Dutch veterinary involvement. For instance, losses of bovines in RPV outbreaks appear to have climbed 30 percent (from 50 to 80 percent) following Dutch interventions in the late 1870s, and the Javanese appear to have recognized that flies transmitted surra (*Trypanosoma evansi*) long before professionally trained vets. Clearly, traditional knowledge and medicine should not be hastily considered futile or inferior to modern veterinary science. Doeppers's examination of the methods employed to curb the three great late nineteenth- and early twentieth-century RPV outbreaks in Spanish-governed Philippines, works well alongside Barwegen's. He argues that in the Philippines, as in Java, imported virulent disease repeatedly destroyed bovine stocks and the agricultural economy until the colonial government developed adequate means to curb

the spread of disease. Doeppers articulates the evolution of slow and inadequate ad hoc measures employed in the first and second outbreaks, which were characterized by personnel shortages and, notably, without the preemptive culls common to European control efforts, into more successful efforts involving vaccination. As several of the collected papers emphasize, European policies and practices proved unsuitable to colonial economies and environments, and had to undergo a process of adaptation. Notable in Doeppers's paper is his consideration of the consequences that large bovine mortalities have for the human disease experience. The incidence of malaria may increase, as he notes, in the wake of epizootics, as mosquitoes turn increasingly, by necessity, to people.

With Pemberton the focus shifts to the development of veterinary services in late nineteenth- and early twentieth-century British Trinidad and Tobago, in an attempt to augment stock productivity and to curb the growing threat of animal disease, following the importation of more, and a greater variety of, domesticates in the late nineteenth century. Pemberton highlights the significant economic incentives at the root of the government's fostering of veterinary services; as in so many other regions, veterinary science was endorsed to protect and strengthen the agricultural economy of the colonizers. For instance, in his study of the modern veterinary services of Japanese Manchuria, where veterinarians and scientists combated a range of devastating stock diseases, Perrins demonstrates that efforts to control livestock disease and enhance stock productivity were geared toward the advancement of the economy of the incoming, not indigenous, population. Modern veterinary sciences were considered vital to the success of the early twentieth-century Japanese occupation of the region.

John Fisher and Robert Peden concentrate primary on the pathological consequences of the transfer of Old World domesticates and commercial pastoralism to foreign environments, and the methods employed to curb resulting outbreaks of disease. Fisher examines the economic impact of sheep scab on Australian pastoralism and the associated rise of farmer-led efforts to control the disease in the late nineteenth century. Though historians have by and large left livestock disease out of the pastoral history of the Australian colony, pastoral expansion was, as Fisher argues, seriously troubled not only by aboriginals but animal disease. In the second half of the nineteenth century, stock branches, funded primarily by livestock producers and staffed by farmers, not veterinarians, developed dips and regulations on the movement and handling of stock in order to combat

the scab, the threat of which had grown considerably as flocks grew and pastoralism expanded. Peden brings our attention to colonial Canterbury and, like Fisher, ovine diseases. A long-time sheep rancher, Peden argues that virulent footrot, in addition to the demand for an animal that could supply wool and meat, was a primary impetus for the crossbreeding experiments conducted by late nineteenth-century sheep farmers. Through selective breeding, the Corriedale was developed, a variety of sheep tailored to wet grazing lands ("heavy country" in Peden's words) and far less susceptible to footrot, a devastating bacterial infection that had plagued the Merino, New Zealand's previously dominant breed, following the intensification of sheep production in the mid nineteenth century.

In his survey of the veterinary services and both tropical and non-tropical diseases that afflicted equines in Southeast Asia, William Clarence-Smith, like several of the aforementioned, pays attention to trade and conflict's role in disseminating pathogens. Clarence-Smith also briefly charts, on a country-by-country basis, the rise of modern veterinary services, and in suggesting that ethnic hierarchies undercut the effectiveness of veterinary services, he describes the slow ascent of indigenous peoples in the veterinary services of Southeast Asia. Like Barwegen, he does not overlook traditional knowledge and medicine, and like Greene he emphasizes the growing importance of equines in the nineteenth and twentieth centuries.

Lotte Hughes, Saverio KrÄtli, and David Anderson examine the uses of veterinary medicine by colonial governments to control indigenous populations. Hughes integrates East Coast Fever (ECF) into the popular political history of the forced movements of the Maasi in early twentieth-century British East Africa. Drawing upon Maasi oral testimonies, Hughes argues that the tick-borne disease was central to the "freeing up" of the valuable highlands, which Hughes argues were either free of ECF or of a variant virulent to Maasi stock, for white settlers. The Maasi were relocated to "dirty" or "unclean" reserves where ECF ravaged their cattle. KrÄtli's contribution shifts the focus to French involvement in the pastoral economy of colonial Niger. He argues convincingly that in an attempt to make sedentary farmers out of the nomadic WoDaaBe pastoralists, the French tried to replace the West African group's drought- and shortage-resistance Bororo cattle, which European administrators considered unproductive, with Azawak cattle which were thought more capable of generating milk and meat for urban markets. By "sedentarizing" the cattle

the French sought to settle the WoDaaBe and, in doing so, more effectively exert their influence over them. In the last essay, Anderson brings us back to British Kenya, in the interwar period, and, like KrÅtli, addresses veterinary incursions into the “uneconomic” and “irrational” husbandry practices of the colonized. Veterinary services were primarily directed toward settler livestock in an effort to foster a beef industry geared toward European export. In fact, quarantines administered to protect British animals adversely affected the trade and movement of African cattle. As Anderson argues however, European efforts to rework traditional stock management practices failed.

The value of this collection to the nascent field of veterinary science and livestock disease cannot be overstated. While critiques of individual papers must be left to specialists in the regions and periods covered, overarching concerns are not uncommon of collections and proceedings. For example, though the introduction demonstrates the many themes the papers share, the papers are not arranged in any particular way. That the papers relate thematically on multiple levels may account for this. Additionally, few of the contributors relate their topics, methods, or conclusions to one another, which is unfortunate considering the ample opportunity available here for comparative study (Doeppers’s reference to HÅ¼nniger and Barwegen’s contributions [pp. 112, 126] appears to be the sole exception; HÅ¼nniger [p. 88] also refers vaguely to other studies in the volume). A lack of communication between papers and with the appendix also produces some repetition. Many of the papers provide summaries of the etiology and epidemiology of the pathogens and diseases covered in the individual papers, which, although more detailed and in some ways preferable, are not that different from those found in the appendix. A lack of communication between papers also leaves room for some confusion. In the case of RPV, for instance, Barwegen states that outbreaks were sporadic in eighteenth-century Europe and Doeppers remarks that RPV outbreaks characterized seventeenth-century Europe, while Koolmees and HÅ¼nniger clearly demonstrate that the virus took on major panzootic proportions in the eighteenth century, killing upwards of 200 million cattle in a period of 50 years alone (p. 23); Doeppers also notes (p. 112) that RPV was eradicated in the Netherlands in 1866, while Koolmees rightly observes (p. 27) that a severe outbreak of the virus persisted in the Netherlands until late 1867. Additionally, there is some variation in terminology: for instance, Doeppers refers to FMD as “hoof-and-mouth disease”; Hughes, Perrins,

and Anderson, in contrast to the editors and several other contributors, refer to CBPP simply as “bovine pleuropneumonia”; and Koolmees and Pemberton employ “classical swine fever” and Greene and Perrins “hog cholera” when presumably referring to the same disease caused by *Pestivirus flaviviridae*.

More generally, a few contributions are not particularly argument-driven (cf. the thesis-focused work of Woods and Fisher with that of Barwegen and Clarence-Smith) and others do not adequately set the issues they address in their greater cultural, economic, or political context (although Perrins does this admirably well). The latter observation is of some importance here considering the historical and geographical diversity of the papers. With this diversity in mind, more maps would have also been appreciated, indeed only Koolmees, Barwegen, and Anderson provide a map.

As disease is of central importance to most of the papers, more attention in the introduction or individual contributions should have also been paid to the practice of retrospective diagnosing. Though the identity of several twentieth-century disease occurrences is not in question, many others are, including the RPV and CBPP diagnoses of the great eighteenth- and nineteenth-century bovine panzootics. Several authors acknowledge these limitations, and opt to use the contemporary or “local” names for the outbreaks: Clarence-Smith does not attempt to diagnose the “incomprehensible” disease that afflicted equines in Borneo in the 1830s, or Sulawesi in the 1840s and ’50s, and remarks generally that “unscientific” Southeast Asian accounts of disease complicates attempts to retrospectively diagnose (p. 139); Hughes comments on the incommensurability of a modern Western scientific understanding of disease with the traditional descriptions of the Maasi; Fisher refrains from superimposing a modern label on the virulent ovine disease which early nineteenth-century Australian pastoralists referred to as “catarrh” (p. 184); and HÅ¼nniger employs “hornvieh-seuche”—horned cattle plague—instead of rinderpest in discussing eighteenth-century European panzootics (pp. 76-77; though he hastily labels premodern plague “bubonic,” pp. 78, 82). Many diagnoses, however, are applied seemingly without much deliberation. Historians of veterinary medicine and livestock disease in general need to pay more attention to the ins and outs of the diagnosing of pre-laboratory, pre-germ theory disease, as medical historians such as Andrew Cunningham and Jon Arrizabalaga have.[2] Some arguments in *Healing the Herds* regarding the role of trade in the dissemination of disease, for example, hinge on pathogenic identi-

ties that are not yet concretely established, and several diagnoses may have to be reconsidered. For instance, Barwegen's emphasis on widespread mortalities of goats and sheep in the epizootics in the 1860s and '70s may complicate her RPV diagnosis of these pestilences, as the Organisation Mondiale de la Santé Animale, among other leading authorities, considers ovicaprids "susceptible but epidemiologically unimportant" to RPV.[3]

While the volume clearly addresses a wide range of topics and the veterinary history of many regions, the editors are careful to point out what it overlooks. Consideration alone of the regions, diseases, and periods not addressed in this book demonstrates clearly how young is the historical study of veterinary medicine and livestock disease. Indeed, several countries and even continents are altogether missing, most notably Central and South America. Canada, India, the Middle East, eastern and southern Europe, and Russia receive scant attention. More attention to central Asia and Russia in particular would be welcome considering the supposed long history and enzooticity of RPV in these regions.

Many diseases also remain to be studied. Indeed, though livestock disease is central to most of the papers, RPV receives the bulk of the attention. Other diseases of bovines are treated sparingly: for example, CBPP, which is thought to have caused devastating losses in various parts of the world in the eighteenth, nineteenth, and twentieth centuries, is only addressed in some detail by Koolmees. Diseases of non-bovine domesticates garner little attention outside of the work of Clarence-Smith, Fisher, and Peden, and zoonoses too are generally overlooked, somewhat surprisingly, considering the scholarly and popular attention some zoonotic pathogens have received recently.[4] Though bovine tuberculosis, tapeworm infestations, brucellosis, and rabies are mentioned briefly in several papers, the considerable impact zoonoses can have on human health and economy goes generally unnoticed. The same could be said of arthropod- and soil-borne pathogens, which, with the exception of Hughes's paper on East Coast Fever, are referred to only briefly. In general, the less spectacular, and less acute, baseline of enzootic disease is in need of further attention. As Woods's contribution demonstrates, pathogens need not disseminate rapidly and cause large mortalities to be of demographic, medical, veterinary, or socioeconomic relevance. Indeed, illnesses that produce anemia, emaciation, and a loss of condition can entail significant production losses.

The majority of the articles address the modern, post-

1800 history of veterinary medicine and livestock disease, with the exception of Koolmees and Hänniger who expand their purview to include the eighteenth century. The veterinary and livestock disease of earlier periods is in dire need of more study. A wealth of evidence exists for the study of veterinary (or "pre-veterinary") services and livestock disease in the classical and medieval periods, and mass mortalities of stock certainly did not first occur in the eighteenth century, as recent work demonstrates.[5] Lastly, and in addition to the topics Brown and Gilfoyle identify as overlooked, more attention to the economic and medical aspects of the disposal of diseased animals, a subject uniformly dealt with in passing here, and the consumption of diseased meat, is needed. It should not be presumed that the flesh of diseased animals was not consumed. Certainly, bans on the consumption of "infected meat" indicate that diseased animals were on some occasions eaten.

The essays collected in *Healing the Herds* are most welcome additions to the existing scholarship on the history of veterinary medicine and livestock disease. The volume should be mandatory reading for specialists in these fields. Those concerned with eighteenth- through twentieth-century colonialism, European state building, and the ecological dynamics of Old World expansion will also find much on offer here. Brown and Gilfoyle's excellent introduction and conclusion provide a great base for those just beginning to explore the history of these topics as well as a wide array of new directions for the more seasoned scholars, and the individual contributions will no doubt act as springboards for future research.

Notes

[1]. Reinhold A. Dorwart, "Cattle Disease (Rinderpest?)—Prevention and Cure in Brandenburg, 1665-1732" *Agricultural History* 33 (1959): 79-85.

[2]. Andrew Cunningham, "Identifying Disease in the Past: Cutting the Gordian Knot" *Asclepio* 54 (2002): 13-34; Jon Arrizabalaga, "Problematizing Retrospective Diagnosis in the History of Disease" *Asclepio* 54 (2002): 51-70.

[3]. http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_world/docs/pdf/RINDERPEST_FINAL.pdf.

[4]. To start see Keir Waddington's *The Bovine Scourge: Meat, Tuberculosis and Public Health, 1850-1914* (Woodbridge: Boydell, 2006).

[5]. For example, Mireille Mousnier, ed., *Les ani-*

maux malades en Europe occidentale (Vie-XIXe siècle) (Toulouse: Université de Toulouse-Le Mirail, 2005); Louise Hill Curth, *The Care of Brute Beasts: A Social and Cultural Study of Veterinary Medicine in Early Modern England* (Leiden: Brill, 2009); Timothy P. Newfield, "A Cattle Panzootic in Early Fourteenth-Century Europe," *Agricultural History Review* 57 (2009): 155-190; Philip Slavin, "The Fifth Rider of the Apocalypse: The Great Cattle Plague in England and Wales and its Economic Consequences, 1319-1350," in Simonetta Cavaciocchi, ed., *Le interazioni fra economia e ambiente biologico nell'Europa preindustriale, secc. XIII-XVIII* (Florence: Firenze University Press, 2010), 165-179.

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