Cambridge History of Medicine

Science and empire

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Science and empire

EAST COAST FEVER IN RHODESIA AND THE TRANSVAAL

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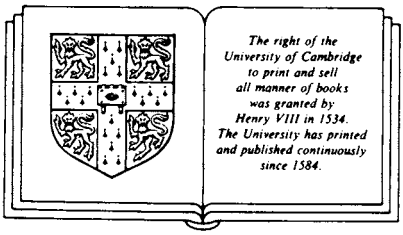

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To the memory of far too
many friends I had
hoped would read this book:

Erwin H. Ackerknecht
Drew Middleton
Michael L. Powell
Charles B. Schmitt

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Preface

The appearance of a new disease is a rare event, as is the identification of a previously unrecognized disease. A serious new disease, whether it affects human beings or affects animals of economic importance, presents challenges to the public, to its government and to scientists. East Coast fever, which can wipe out a herd of cattle in three weeks, was first identified in Rhodesia between 1901 and 1903. It caused problems for various governments, it caused something close to panic in the Rhodesian public, and it presented a challenge to the scientists who investigated it in the hope of finding its cause and a way to treat it or to prevent it by immunization. The scientists did discover the parasite that causes East Coast fever and they did discover the tick that transmits that parasite, but no one has yet discovered a cure or a preventive vaccine.

East Coast fever appeared at an interesting time. Modern methods of publication and communication were in place, but they had not been in place for very long. It was the age of the telegram, when long discussions, detailed analysis and thoughtful letters had their final effect only after being condensed to a few dozen words.[1] Although the foundations of modern bacteriology and parasitology were in place, East Coast fever appeared early enough to be studied by the first or second generation of bacteriologists, by the Cape of Good Hope's first government entomologist, and by one of the two founders of scientific bacteriology, Robert Koch. And yet it occurred at a time when its spread and the investigation of it were so extensively documented that it is possible to study its history in considerable detail.

No great scientific systems were overthrown in the course of the study of East Coast fever. But that study does provide a well-documented example of what Butterfield called "those cases in which men not only solved a problem but had to alter their men-

tality in the process." It is also a "detailed study of . . . scientific workers whose names have been comparatively unknown." The best work on East Coast fever was done by two scientific workers, Charles Lounsbury and Arnold Theiler, who are far less well known than Robert Koch and their work was hampered by their reliance on the earlier work of that "great figure." I have tried, again in Butterfield's words, "to discuss the particular intellectual knots that had to be untied" by Lounsbury and Theiler, knots that had been tied by Koch.[2]

The fact that East Coast fever is a disease of cattle rather than of human beings adds to its interest, as does the fact that it is a disease of the tropical and subtropical parts of the world. What Kenneth Warren[3] has called "the great neglected diseases of mankind" are, by and large, diseases caused by parasites. They are also particularly common in tropical and subtropical areas and in developing countries. As John A. Pino points out,[4] the "neglected diseases of livestock" are of equal or greater economic importance. Not only have those diseases been neglected, so has the study of their history.

Historians of medicine will note another feature of the history of this disease of cattle. By 1900 nearly all studies of diseases that affect human beings were published in scientific or medical journals. But that was not true of the publication of the results of studies of diseases of animals. The classic study of Texas fever by Smith and Kilborne appeared, in 1893, as a report of the U.S. Department of Agriculture. East Coast fever, another disease of cattle, was also studied under the auspices of governmental departments of agriculture. As a result, although most of the early studies of East Coast fever eventually appeared in scientific journals, they were initially published as government documents or as annual reports, which are much harder to locate than are most scientific journals.

Although several of the men who played a role in the early story of East Coast fever later played an important role in advancing scientific agriculture in Great Britain, the title *Science and Empire* should not lead the reader to expect a profound enquiry into the social and economic implications of the role of the British Empire in the conduct of scientific research.[5] That title does, however, capture some essential features of the story of East Coast fever. Although the disease had long been present in German East Africa (now Tanzania) it was first seen by a European scientist

when Robert Koch observed it in Dar-es-Salaam while on a tour of duty for the German government. The massive outbreak which is the subject of this book began in 1901 when cattle were shipped from Dar-es-Salaam to restock the herds of Rhodesia, where colonial settlers had begun to arrive only eleven years earlier. The discovery of the disease and of its cause took place in three British colonies, Rhodesia, the Transvaal and the Cape of Good Hope. Important decisions had to be taken in London, either by the Colonial Office or by the British South Africa Company. None of the twenty or so government officials, scientists and practical veterinarians who played an important role in the story of East Coast fever was educated or trained in either Rhodesia or South Africa, and only one was born in South Africa. Even J. G. Kotzé, who was born in South Africa, studied law in London. The rest were immigrants, or like Koch and his assistants, visitors. The men who coped with East Coast fever were born and educated in Ireland, Scotland, England, Germany and Switzerland; one, educated in Massachusetts, was actually born in Brooklyn, N.Y. Many of them thought of and referred to the United Kingdom as "home." Even in the post-colonial era East Coast fever has attracted international interest: the most important internationally supported center for research on diseases of animals in Africa, the International Laboratory for Research in Animal Diseases (I.L.R.A.D.), directs much of its attention to the study of East Coast fever. As that suggests, the history of East Coast fever is of interest for yet another reason, which is that the disease is still a major burden on the economy of large parts of Africa.

In 1982 the government of Zimbabwe published two stamps to commemorate the centenary of Robert Koch's discovery of the tubercle bacillus. When I bought a first-day cover in Harare in 1984, I found that the official insert[6] contained a brief history of the importance of tuberculosis, of the importance of Koch's research on it, *and*, in passing, a remark that Koch had conducted research in Rhodesia. That remark made me wonder what had brought Koch to Rhodesia: the present book is the result. If I had, at that time, known of Dr. Deborah Dwork's excellent article[7] on some aspects of Koch's visit to Rhodesia my curiosity might have been satisfied, but by the time that Dr. Vivian Nutton called it to my attention I was already surrounded by photocopies of various source materials.

Because I have tried to write both a study and a story, I have included not only things that struck me as being either interesting or important but also a few things that seemed to me to be amusing. I have not hesitated to document the foibles and idiosyncracies of some of the individuals who played a role in the story. I have also resorted to fairly extensive direct quotation to convey the views of the scientists and the officials of the various governments in their own words and to convey the flavor of the time and place.

Most of this book deals with events that occurred in 1902, 1903 and 1904; I have followed Arnold Theiler's work on certain parasites through to 1910. The chapter on the eradication of East Coast fever in South Africa and Rhodesia deals with events between 1904 and the 1950s. Chapter 11 reviews one aspect of the scientific study of East Coast fever between 1910 and 1988 and shows that animals that suffer from East Coast fever develop both a condition that resembles leukemia and a condition that resembles AIDS.

I ordinarily use the place name that was in use during the colonial period, and often add the present-day name in parentheses. In this I have followed D. N. Beach:[8] "for colonial centres and colonial titles, colonial terminology has been retained." The place names of the colonial period that appear most frequently are Rhodesia (Zimbabwe), Salisbury (Harare), Fort Victoria (Masvingo), Gwelo (Gweru), Melsetter (Chimanimani), and Umtali (Mutare). I sometimes use "South Africa" loosely to describe the four colonies that did not, in fact, become the Union of South Africa until 1910, and I sometimes refer to Rhodesia as a colony. In early reports each initial letter in the name of a disease was often capitalized, as in Redwater, Rhodesian Redwater or Texas Fever. I have followed the style of the source in direct quotations and in passages where it is clear that an indirect quotation is being made. Elsewhere I retain initial capitals only for geographical names, e.g. Rhodesian redwater, Texas fever, East Coast fever.

Most of the material that I cite from the National Archives of Zimbabwe is from the extensive records of the British South Africa Company, often incorrectly said to have been destroyed during the Second World War. As Baxter pointed out, most of the departmental records of the B.S.A.C. remained in Rhodesia after it became independent of the Company in 1923 and a large quantity of additional material was returned from London in 1936.[9] It was the 23,000 files that remained in London that were destroyed by an

air raid in 1941. Much of the material in the files of the British South Africa Company is also found in the Colonial Office files at the Public Record Office, but some material of crucial importance is found only in the National Archives of Zimbabwe. For that reason I am much indebted to the staff of that archive, as well as to those who created it and those who have done an excellent job of maintaining it and its facilities since Zimbabwe became independent in 1980.

I have consulted two bibliographies which are not cited elsewhere in the text, one by B. A. Matson[10] and one by Robert Uskavitch[10]. Another useful secondary source has been P. J. Posthumus's compilation of biographies of South African veterinarians.[11]

I have been helped by the patient and expert typing and retyping of a frequently revised manuscript by Ms. Nalayini A. Fernando. I am deeply obligated to The Rockefeller University and I cannot close without mentioning that my office and laboratory at that University are in Theobald Smith Hall. It was Theobald Smith who discovered that the serious disease of cattle known as Texas fever is caused by a parasite and transmitted by ticks: the first problem that confronted the early investigators of East Coast fever was to decide whether it was a new disease or merely a virulent form of Texas fever. In addition, one of the great figures in the study of East Coast fever was Arnold Theiler, and it was in Theobald Smith Hall that his son, Max Theiler, developed the vaccine against yellow fever.

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My special thanks go to Mrs. Paddy Vickery, head of the Historical Reference Collection of the Bulawayo Public Library. I wrote to her in July 1985 to enquire whether there was any material on Koch in the Bulawayo Public Library. Her three-page long, single-spaced reply, the result of hours of work, listed enough material to convince me that my project was worthwhile. Without Mrs. Vickery's letter of August 2, 1985, I might have gone no further.

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Consolidated for permission to reprint Figure 3; Professor Ralph Steinman, for reading and commenting on chapter 11; Professor Hao Wang, for many stimulating discussions; Professor Victor J. Wilson, for his advice on various translations of articles written in French; Dr. Michael Worboys, for lending me a copy of his doctoral dissertation; Dr. Conrad E. Yunker, for advice on tick-borne diseases in modern Zimbabwe; and three anonymous referees whose comments on an earlier draft of the book provided many helpful suggestions.

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