

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

This book is about the biological conquest of the New World. It explores the idea that the transformation of the biological regime associated with the introduction of Old World species into New World ecosystems enabled the conquest of indigenous populations and the domination of vast areas of rural space. It uses the sixteenth-century history of a region of highland central Mexico as a case study and focuses on the changes associated with the introduction of Old World grazing animals. The study spells out in detail the processes by which the grazing animals and their human minders entered and dominated a semiarid New World region, in the process transforming the physical environment and, as a result, the traditional natural resources of the indigenous communities. It demonstrates how these processes aided the Spanish takeover of land, and clarifies the role of environmental change in the evolution of the colonial society. Deterioration of the soil–water regime, marginalization of the indigenous majority, and the formation of latifundia were reflected in the formation of an archetypically New World landscape that has mystified the history both of the land and its inhabitants, and led to policies that treat the symptoms of environmental degradation rather than the cause.

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

STUDIES IN ENVIRONMENT AND HISTORY

A Plague of Sheep

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

STUDIES IN ENVIRONMENT AND HISTORY

Editors

Donald Worster *University of Kansas*

Alfred W. Crosby *University of Texas at Austin*

Advisory Board

Reid Bryson *Institute for Environmental Studies, University of Wisconsin*

Raymond Dasmann *College Eight, University of California, Santa Cruz*

E. Le Roy Ladurie *Collège de France*

William McNeill *Department of History, University of Chicago*

Carolyn Merchant *College of Natural Resources, University of California, Berkeley*

Thad Tate *Commonwealth Center for the Study of American Culture, College of William and Mary*

Other Books in the Series

Donald Worster *Nature's Economy: A History of Ecological Ideas*

Kenneth F. Kiple *The Caribbean Slave: A Biological History*

Alfred W. Crosby *Ecological Imperialism: The Biological Expansion of Europe, 900–1900*

Arthur F. McEvoy *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850–1980*

Robert Harms *Games Against Nature: An Eco-Cultural History of the Nunu of Equatorial Africa*

Warren Dean *Brazil and the Struggle for Rubber: A Study in Environmental History*

Samuel P. Hays *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985*

Donald Worster *The Ends of the Earth: Perspectives on Modern Environmental History*

Michael Williams *Americans and Their Forests: A Historical Geography*

Timothy Silver *A New Face on the Countryside: Indians, Colonists, and Slaves in the South Atlantic Forests, 1500–1800*

Theodore Steinberg *Nature Incorporated: Industrialization and the Waters of New England*

J. R. McNeill *The Mountains of the Mediterranean World*

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

A Plague of Sheep

Environmental Consequences
of the Conquest of Mexico

Elinor G. K. Melville



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge CB2 1RP

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, United Kingdom
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 1997

This book is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without
the written permission of Cambridge University Press.

First published 1994
Reprinted 1997
First paperback edition 1997

Library of Congress Cataloging-in-Publication Data is available.

A catalog record for this book is available from the British Library.

ISBN 0-521-42061-X hardback
ISBN 0-521-57448-X paperback

Transferred to digital printing 2003

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

*In Memory of my mother, Helen,
and my teacher, Charles Gibson*

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

“God struck and chastened with ten terrible plagues this land and all who dwelt in it, both natives and foreigners . . .

The first was a plague of smallpox . . .

The second was the great number of those who died in the conquest of New Spain . . .

The third plague was a very great famine which came immediately after the taking of Mexico . . .

The fourth plague was that of the calpixques or overseers, and the negroes . . .

The fifth plague was the great taxes and tributes that the Indians paid . . .

The sixth plague was the gold mines . . .

The seventh plague was the building of the great city of Mexico, which, in the first years employed more people than the building of Jerusalem . . .

The eighth plague was the slaves whom the Spanish made in order to put them to work in the mines . . .

The ninth plague was the service of the mines . . .

The tenth plague was the divisions and factions which existed among the Spanish of Mexico . . .”

Motolinia (Toribio de Benavente),

History of the Indians of New Spain

Elizabeth Andes Foster, translator and editor

“Your sheep,” I answered, “which are usually so tame and so cheaply fed, begin now, according to report, to be so greedy and wild that they devour human beings themselves and devastate and depopulate fields, houses, and towns.”

St. Thomas Moore, *Utopia*

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

CONTENTS

	Illustrations and Tables	<i>page</i> viii
	Preface	xi
Chapter 1	Introduction	1
Chapter 2	Alien Landscapes	17
Chapter 3	The Australian Experience	60
Chapter 4	The Mexican Case	78
Chapter 5	The Conquest Process	116
Chapter 6	The Colonial Regime	151
Appendix A	Sub-Areas	167
Appendix B	Population Estimates	171
Appendix C	Sources for Land Holding and Land Use	178
	Abbreviations	183
	Glossary	184
	Bibliography	187
	Index	197

ILLUSTRATIONS AND TABLES

Maps

2.1	Geographic reference map: The Valle del Mezquital showing sub-areas and <i>cabeceras</i>	page 26
3.1	Geographic reference map: New South Wales, Australia	63
4.1	Topographic map: Valle del Mezquital	89

Figure

2.1	Stages of an irruptive oscillation	48
-----	------------------------------------	----

Tables

2.1	Annual precipitation and average temperatures	28
4.1	Area of land converted to pastoralism expressed as a percentage of the total surface area of each sub-area	79
4.2	Estimated number of head of sheep per square kilometer of the total surface area of each sub-area expressed as a level of grazing intensity	80
4.3	Grazing rates on common pasture	82
4.4	Estimated number of sheep per decade (in thousands)	83
5.1	Land takeover: 1530–9	128
5.2	Land takeover: 1540–9	131
5.3	Land takeover: 1550–9	132
5.4	Siting of sheep stations	133
5.5	Siting of agricultural holdings	134
5.6	Land takeover: 1560–5	135
5.7	Land takeover: 1566–9	140
5.8	Land takeover: 1570–9	141

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

<i>Illustrations and Tables</i>		ix
5.9	Land takeover: 1580–9	142
5.10	Land takeover: 1590–9	143
5.11	Total area of land transferred to Spanish land tenure by 1599	144
5.12	Complaints filed by Indian communities concerning problems with animals	145
B.1	Tributary population by <i>cabecera</i> and decade	171
B.2	Changes in the tributary population in twelve <i>cabeceras</i> , 1560–99	175

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)

PREFACE

This is a study of the environmental consequences of the European invasion of the New World. It uses the sixteenth-century history of the Valle del Mezquital, Mexico (1530–1600) as a case study and focuses on the changes associated with the introduction of Old World grazing animals into New World ecosystems. It attempts to show how the ecological and social changes associated with this process brought about the conquest and domination of territory.

The study builds on Alfred Crosby's insight that the conquest of the New World was as much a biological conquest as a political one, and involved the transformation of New World environments. But whereas Crosby is interested in the processes by which Europeans came to dominate the temperate latitudes, I am interested in the nature of the conquest in the tropics, where the indigenous populations have remained to shape landscapes, society, and culture. At first sight these "indigenous" landscapes appear to reflect a continuity of ecosystems, as well as culture and society. But this apparent continuity is misleading: the presence of chickens, pigs, donkeys, goats, sheep, cattle, horses, and mules are all evidence of an ecological revolution brought about by the European invasion, and while the persistence of Indian culture and society is remarkable, a profound shift in the modes of production from horticulture to some form of agropastoralism occurred in almost all parts of the New World as a result of the European invasion. It has long been argued that the development of pastoralism in the New World was a major factor in the evolution of the distinctive colonial regimes; in this study I explore the idea that the expansion of pastoralism enabled the conquest of the indigenous populations and the domination of vast areas of rural space, as well as the corollary to this idea – that the evolution of colonial society itself constituted the conquest.

Topics I deal with in the following chapters, such as the expansion of Spanish modes of land use, the development of Spanish landholding, and the formation of the hacienda system, are staples of the

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)xii *Preface*

tradition of Mexican rural history. But the approach taken to these topics falls within the genre of environmental history: the physical environment itself is the object of study. I draw on the biological literature dealing with plant–herbivore systems, especially the introduction of herbivores into new ecosystems, grazing ecology, and soil–water relationships, in order to understand the nature of the changes brought about by the introduction of Old World grazing animals. Further, I propose that the natural resource base was not simply a passive constraint on initial choice, but an active variable in the process of social change. This is not sociobiology, however, where biological imperatives are thought to drive human behavior. Nor is it environmental determinism, where human society is determined by its physical environment. Rather, it is an exploration of the reciprocal nature of environmental and social change within the context of the European conquest of the New World.

This book has been many years in the making, and I have accumulated debts along the way that I am very pleased to acknowledge. I have been most fortunate in the help I have received from people who have read various drafts of the manuscript. William Taylor's detailed critique of the first draft of the original dissertation provided me with ideas I have tried to address in this final version, and much needed encouragement – his generous advice to an unknown graduate student was much appreciated. Charles Gibson, Juan Carlos Garavaglia, and John Frederick Scwhaller read the completed thesis and encouraged me to publish it. Recent drafts have benefited immeasurably from Joseph Ernst's critical reading, Mary Hodge's help with the Introduction, and Sam Lanfranco's comments on market formation in the final chapter. Any omissions are, of course, my own responsibility.

The support extended to workers in the field of Latin American history by established scholars and students is extraordinary. It would be impossible to acknowledge all those who took time to suggest a source, an alternative analysis, or who simply listened. I would, however, like to acknowledge some people with whom I have had a continued dialogue over the years: Christon Archer, Adán Benavides, Dawn Bazely, Elizabeth Brumfiel, Charles Frederick, Elizabeth Graham, Mary Hodge, Herman Konrad, Colin MacLachlan, Roberto Salmón, John Schwaller, Rebecca Scott, William Taylor, and Eric Van Young. I would also like to thank Richard Tucker for introducing me to the world of environmental history.

The staff of the Archivo General de la Nación (Mexico) have made

Cambridge University Press

052157448X - A Plague of Sheep: Environmental Consequences of the Conquest of Mexico

Elinor G. K. Melville

Frontmatter

[More information](#)*Preface*

xiii

my work in their archive a pleasure and I would especially like to thank the *porteros* of Galeria 4, Armando Juárez, Jesús López Martínez, Arturo Librado Galicia, Serafín Villagómez Zavala, and Joel Zúñiga Torres, who have brought me endless volumes with unfailing courtesy; and the Department of Technical Support, directed by Lic. Leonardo González and aided by Alejandro Pérez Santiago and Alejandro Barrera, who have provided me with excellent microfilm. I would also like to acknowledge the work of the staff of the Archivo General de Indias (Seville), the Mitchell Library in Sydney, Australia, the library at the Commonwealth Scientific and Industrial Research Organization in Canberra, Australia, the Nettie Lee Benson Library at the University of Texas at Austin, and last but not least, the librarians in the Department of Inter Library Loan at York University. I would especially like to thank the editors of Cambridge University Press; they have reduced the trouble of revisions and corrections to the bare minimum, and made the whole process a fascinating education in the minutiae of publishing. I am indebted to Charles Frederick for the maps and Susan Rainey for the tables.

My heartfelt thanks go to the groups who have supported me through the long period of research and writing. Canada Council doctoral fellowships supported the first three years of dissertation research, and the Centre for Continuing Education of Women, the Rackham School of Graduate Studies, and the Alumni Association of the University of Michigan all provided much-appreciated support. During the period of rewriting I have been supported by post doctoral and Canada research fellowships from the Social Sciences Research Council of Canada.

Finally, I would like to thank my neighbors in Tlayacapan, Morelos, Mexico who have come to know much more about sheep grazing and the Valle del Mezquital than they probably ever thought they would – or perhaps even wanted to.