*Nature Incorporated* explores the Industrial Revolution in New England from an environmental perspective. The advent of the industrial age brought about significant changes in gender and class relations, as well as in work and culture. But it also involved a fundamental change in the way the natural world was handled. Focusing on the legendary Waltham–Lowell-style mills, this book examines how these textile factories brought water under their exclusive control. It examines the social conflict that developed, and the legal issues that arose, in settling disputes over water. It also describes the far-reaching ecological consequences of industrial change. Steinberg offers a reinterpretation of industrialization that centers on the struggle to control and master nature.
Nature Incorporated
STUDIES IN ENVIRONMENT AND HISTORY

Editors
Donald Worster  University of Kansas
Alfred 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  Institute of Early American History and 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
Robert Harms  Games Against Nature: An Eco-Cultural History of the Nunu of Equatorial Africa
Warren Dean  Brasil and the Struggle for Rubber: A Study in Environmental History
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 South Atlantic Forests, 1500–1800
NATURE INCORPORATED
INDUSTRIALIZATION AND
THE WATERS OF NEW ENGLAND

Theodore Steinberg
University of Michigan, Ann Arbor
To Helen and Madeline
and in memory of Seymour
CONTENTS

List of Figures, Maps, and Tables  page ix
Preface  xi
Abbreviations  xv

Introduction  1

Part I Origins
1 The Transformation of Water  21
2 Control of Water  50
3 Company Waters  77

Part II Maturation
4 The Struggle over Water  99
5 The Law of Water  135
6 Depleted Waters  166
7 Fouled Water  205

Part III Decline
8 The Productive Value of Water  243
Epilogue  269

A Note on Sources  272
Index  277
FIGURES, MAPS, AND TABLES

Figures

1.1 The Boston Manufacturing Company’s factories

1.2 View of the Old Slater Mill in 1840

2.1 Rafts on the Merrimack River

2.2 East View of Lowell, Mass.

3.1 Workers building the Lawrence Dam in the summer of 1847

4.1 A view of Meredith, New Hampshire, 1848

4.2 A steamboat plying the waters of Lake Winnipesaukee near the town of Centre Harbor

6.1 A view of the Lawrence Dam

6.2 The mammoth Pacific Mills and Print Works

6.3 A proposed plan for a Brackett-style fishway to be built at Amoskeag Falls

7.1 View of Lowell, Mass.

7.2 The same view of Lowell as in Figure 7.1 fifty years later

8.1 Lady of the Lake

8.2 The Lake Village Dam

Maps

Henry Thoreau’s map of his 1839 journey

1.1 The Charles River showing dams built along the lower river and the Mother Brook diversion into the Neponset River

2.1 The Merrimack River valley

2.2 Plan of the Town of Lowell and Belsidere Village

4.1 The New Hampshire Lakes Region showing the major lakes feeding the Merrimack River
x \hspace{1cm} Figures, Maps, and Tables

Tables

4.1 Occupational structure: Meredith and Gilford, New Hampshire, 1850 
4.2 Occupational structure: Meredith, Gilford, and Laconia, New Hampshire, 1860 
7.1 Number of waterpowered mills and workers: Fitchburg, Clinton, and Leominster, Massachusetts, 1850 and 1876 
7.2 Types of polluting industry: Fitchburg, Clinton, and Leominster, Massachusetts, 1850 and 1876 
7.3 Population of major Merrimack valley cities, 1850–80 
7.4 Percent population change in Merrimack valley cities, 1850–80 
7.5 Approximate population densities of Merrimack valley cities, 1850–80 
7.6 Typhoid fever mortality: Lowell, Massachusetts, 1860–80
PREFACE

Thus far, mine has been a metropolitan life, one spent in urban and suburban sprawl where the natural world is largely obscured by the asphalt, steel, and concrete that weigh down the American landscape. Nature seems mostly absent from this world. Every now and then it slips into view – a neatly manicured lawn, shrubs tucked next to aluminum siding, a huge palm tree looking lost amid the bustle of a shopping mall. For many, there is too little nature in the metropolis, and what little there is seems contrived, pathetic. In fact, nature is there, but it has been so thoroughly controlled and mastered that, in a sense, it ceases to exist. Members of the metropolis take the domination of nature for granted. Indeed, the conquest of nature is so central to American culture today that we hardly give the idea a second thought.

A great deal of arrogance surrounds this late-twentieth-century attitude toward the environment, and a great deal of history as well. This book explores the role of the Industrial Revolution in this aggressive stance toward the natural world. The transformation of nature is at least as old as our presence as a species on this planet. But the advent of the industrial age marked a shift in humankind's relations with the earth. I am concerned mainly with describing this shift as it was felt in New England, to journey back to a time when the task of subduing nature was full of hard-fought battles and much less arrogance.

This study began in 1984 as a research paper that I wrote while at Brandeis University. That paper expanded over the years into this book with nourishment from a number of people and institutions. I received generous financial support from the Irving and Rose Crown Fellowship, which I held while at Brandeis, and from the Museum of American Textile History, which granted me a Sullivan Fellowship and offered additional funds to support the publication of this book. The Michigan Society
Preface

of Fellows at the University of Michigan, Ann Arbor, offered aid during the last stages of this project.


My greatest debt is to my dissertation advisers: David Fischer, Morton Horwitz, and Donald Worster. For most historians, these names need no introduction. Together they taught me how to be a historian. Beyond that, they pushed me hard to think critically, write effectively, and speak my mind. And through it all, they showed me more patience than I perhaps deserved. I am proud to call them my teachers.

No one has endured more discussions about this book than Michael Clark. His warmth, unfailing support, and intellectual integrity have made this a vastly more successful, ambitious, and rewarding endeavor. Robert Cohen has been my dear friend and an incisive critic of my writing for some years now. Bruce Mizrach helped with that sharp mind of his, bringing nuance and subtlety to this work. Robert Hannigan and Jim O'Brien read the entire manuscript while it was still a dissertation and contributed invaluable insights and suggestions. Without Wynn Schwartz's sensitivity, without his kindness, his dedication, and most of all, without his interpretations, these last several years and this book would not have been the same.

I am also grateful to John Demos, Brian Donahue, Paul Faler, Thelma Fleishman, Michael Folsom, Richard Galdston, Gerald Gill, Hayes Gladstone, Kerstin Gorham, Paul Karon, Morton Keller, James Kloppenberg, Marcel La Follette, Arthur McEvoy, Gail Fowler Mohanty, Jeffrey Seidman, Deborah Steinberger, Jeffrey Stine, Joel Tarr, and Reed Ueda for the friendly advice and encouragement that they have offered over the years.

I enjoyed working with Frank Smith, who shepherded the book through its final stages. My thanks to Robert Racine and Mary Racine for their help with the editing of the manuscript. David Forman drew the maps with an eye for detail that I
Preface


My father never knew about this book, his life cut short before it even started. I like to think, however, that the values my mother and he instilled, the creativity they encouraged, and the honesty they expected fueled this enterprise.

Maria Del Monaco was always there for me. Always.
ABBREVIATIONS

AMC  Amoskeag Manufacturing Company
BCRD  Belknap County Registry of Deeds, Laconia, N.H.
BL  Baker Library, Harvard Business School, Boston
BMC  Boston Manufacturing Company
BSNH  Boston Society of Natural History
CDL  *City Documents of the City of Lowell*
EC  Essex Company
JMC  Jackson Manufacturing Company
Lake Co.  Winnepissequi Lake Cotton and Woolen Manufacturing Company
LET  *Lawrence Evening Tribune*
LVT  *Lake Village Times*
Mass. Archive  Massachusetts Archives at Columbia Point, Boston
MHA  Manchester Historic Association, Manchester, N.H.
MHS  Massachusetts Historical Society, Boston
MMC  Merrimack Manufacturing Company
MSBH  Massachusetts State Board of Health
NHSCN  New Hampshire Supreme Court Notes, New Hampshire Supreme Court Library, Concord
NMC  Nashua Manufacturing Company
ORHA  *Contributions of the Old Residents' Historical Association, Lowell, Mass.*
PLC  Proprietors of Locks and Canals on Merrimack River
SJC  Supreme Judicial Court
Henry Thoreau's map of his 1839 journey with small triangles marking where he and his brother camped overnight. Henry David Thoreau Collection (no. 6945). (Courtesy of the Clifton Waller Barrett Library, Manuscripts Division, Special Collections Dept., University of Virginia Library.)