SECTION

I

Approaching Environmental History

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Travels with George Perkins Marsh: Notes on a Journey into Environmental History

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George Perkins Marsh died in 1882, so I never travelled with him in the conventional sense. Metaphorically speaking, however, he has been a regular, if not entirely constant, companion in my journey to and through environmental history these last three, going on four, decades. I found Marsh in the words he left behind, in an important book he published in 1864, and I came to know him better over the years by revisiting that volume, by engaging with several shorter pieces of his writing, and by reading and listening to what others have had to say about him. Thus this essay is a reflection on two intertwined intellectual voyages, one traced by a set of insights and claims articulated in the 19th century, the other a more autobiographical journey from neophyte graduate student to aging professor. Together, these passages constitute a story about ideas and influences, about the ways in which we (as students, scholars, and individuals) frame and trace our routes through the world, and about the roles of time, space, and chance—or history, geography, and serendipity—in the shaping of academic disciplines and scholarly careers. The essay also points to the importance of contexts in the interpretation of texts, and suggests why history is a lively, contested discipline, rather than a catalogue of dreary facts. So it helps to explain why historians are forever re-envisioning and rewriting the past. This is a lot of ground to cover and it is as well to recognize at the outset, in words written by one of the travellers and taken almost as his own by the other, that "in these pages, as in all I have ever written or propose to write, it is my aim to stimulate, not to satisfy curiosity, and it is no part of my object to save my readers the labour of observation and thought."[1]

Converging Paths

Born in 1801 in Woodstock, Vermont, George Perkins Marsh led a remarkably full and varied life. Sheep farmer, lawyer, teacher, lumber dealer, mill owner, newspaper editor, businessman, railroad speculator, founder of the Smithsonian Institution, politician, statesman, traveller, and nature lover, he was competent in 20 languages and perhaps the most impressive American scholar of his generation. Indeed, the poet, literary critic, and social commentator Matthew Arnold described him, with all the hauteur of his position among the English cultural elite, as a "rare bird"—an unusually "well-bred and trained American." Into his 60s, Marsh's scholarly reputation rested on his work in linguistics and on the history and philology of the Scandinavians and Goths of northern Europe. Erudite visitors from these areas made special trips to meet Marsh in Vermont, and at least one considered him "the most eminent Scandinavian scholar" and perhaps "the most learned man" in the United States.[2] But most of this has been completely forgotten, overshadowed by his book *Man and Nature; or, Physical Geography as Modified by Human Action,* published in 1864 and described by Marsh's biographer, David Lowenthal, as "the most important and original American geographical work of the nineteenth century."[3]

Begun in Burlington, Vermont, in the spring of 1860 and completed in Italy, where Marsh served as the American envoy for some 20 years before his death, *Man and Nature* was imagined as "a little volume" that would challenge the prevailing conviction that "the earth made man" by showing that "man in fact made the earth." But Marsh soon recognized that he was producing a "burly volume," the "object of which," he wrote tongue-in-cheek some three years into his task, was "to tell everything I know & have not told" elsewhere.[4] In the end, the first edition of the book ran to 465 pages (later editions were longer and included a good deal of additional material). Here Marsh brought together an astonishingly diverse array of sources: the book is a heady, and often difficult, brew of quotations from classical texts, from the works of engineers and foresters, from newspapers and plays, from dictionaries and personal letters, all of which are blended in a "stylistic mélange" with data from censuses and accounts from life.[5]

Four years in the writing, *Man and Nature* is clearly the product of a lifetime of experience and observation. Indeed, David Lowenthal suggests that Marsh began his study of human–nature relations as a five-year-old child, when he learned from his father about different species of trees and the pattern of watersheds in the Green Mountains of his home state. Years of working and exploiting the land, watching sheep crop the grass on steep slopes, recognizing the growing scarcity of wood in once heavily timbered New England, and charting the erosion of hill slopes bared of their vegetation in the sand and gravel spread over floodplains and the sediment deposited behind mill dams–these were robust foundations upon which to assemble an account of the disturbing agency of humans that turned "the harmonies of nature" into discords. Travels in "Asia Minor," in Turkey, Egypt, Palestine, Lebanon, and Syria in the 1850s, when Marsh served as the United States minister to Turkey, were another source of detail about and understanding of environmental change.

A diligent diarist (he stressed "the extreme importance of keeping a most full and minute record of every observation and every noteworthy occurrence" especially when in places "where all—nature, art, man—is new"), Marsh rivalled the great geographer Alexander von Humboldt in his dedication to collecting data (on winds, altitude, temperatures, rainfall, stream flows, etc.) and

specimens (plants, insects, animals, birds, fish) during his excursions.[6] But he was also impressed by the antiquity of eastern Mediterranean landscapes. Temples and tombs marked the presence of ancient peoples, but no more than did "the meadows levelled and the hills rounded . . . by the assiduous husbandry of hundreds of generations." In Marsh's eyes, the contrast between old world and new, between the ancient scrubland and desert of the Levant and the lush but unstable hills of New England, between the "hoary" Middle Eastern landscape suggestive of a "worn-out planet" and "the thousand fresh existences of the new world" was stark—and ultimately telling.[7]

This is to say that Marsh came gradually to the central argument of *Man and Nature.* In 1847, he had commended members of the Vermont Agricultural Society for filling "with light and life, the dark and silent recesses of our aboriginal forests," but urged them to recognize that the signs of industry and improvement evident in their local landscapes were "mingled with tokens of improvident waste."[8] The conversion of forests to farms had quickened runoff, increased the violence of spring freshets, and threatened the loss of productivity as soils were carried downslope and sand and stones were deposited across valuable meadows. Six years later, after his travels in the Levant and to other countries on the Mediterranean littoral, Marsh lamented that he lacked "the knowledge of *nature* that every traveller . . . ought to have." Seeing "strange stones, plants, animals, [and] geographical formations," he found himself gazing "vacantly at them" and wondering at their significance. Back in the United States in 1856, the meaning of what he had seen became clearer, and he used his observations of the old world to frame a cautionary lecture for citizens of the new. Americans should heed the environmental calamities that had beset ancient civilizations, limit their assault on nature, and emulate the efforts of those in Tuscany and other places who had worked to restore soils and landscapes "once used, abused, exhausted, and at last abandoned."[9] A year later, Marsh advocated European approaches to restocking and sustaining fisheries to remedy the ravages of economic growth that had led to the depletion of fish stocks and the destruction of fish habitat by the construction of dams, the deforestation of riparian zones, and the dumping of sawdust into streams.

By 1864, the implications of the evidence had been refined; the lesson had become clearer and the tone of its delivery was more stentorian. Forty-two pages into Marsh's magnum opus, a general discussion of "the ravages committed by man" conjures images of the Green Mountains of Vermont, the deserts of Sinai, and the marshes of the Italian piedmont without mentioning these locales. By removing the forest, humans opened the land to desiccation and erosion. "[T]he well-wooded and humid hills are turned to ridges of dry rock, which encumbers the low grounds and chokes the watercourses with its debris, and . . . the whole earth . . . becomes an assemblage of bald mountains, of barren turfless hills, and of swampy and malarious plains." There are, continued a now impassioned and clear-sighted author,

> parts of Asia Minor, of Northern Africa, of Greece and even of Alpine Europe, where the operation of causes set in action by man has brought the face of the earth to a desolation almost as complete as that of the moon. . . . The earth is fast becoming an unfit home for its noblest inhabitant, and another era of equal human crime and human improvidence . . . would reduce it to such a condition of impoverished productiveness, of shattered surface, of climatic excess, as to threaten the depravation, barbarism and perhaps even extinction of the species.[10]

This was not the only message offered by *Man and Nature,* but like many similarly apocalyptic visions, it captured attention and focused minds, not least because it echoed through some of the most direct and evocative writing in an often long-winded book. Pithy, incisive variants on the theme of human destructiveness drew the attention of readers working through convoluted sentences and lengthy paragraphs: "Man has too long forgotten that the earth was given to him for usufruct alone, not for consumption, still less for profligate waste"; "man is everywhere a disturbing agent. Wherever he plants his foot, the harmonies of nature are turned to discords"; "we are, even now, breaking up the floor and wainscoting and doors and window frames of our dwelling for fuel to warm our bodies and seethe our pottage, and the world cannot afford to wait until the slow and sure progress of exact science has taught it a better economy."[11] Despite Marsh's fear that his effort would bring ruin to his publisher, *Man and Nature* sold more than 1,000 copies within months of its release. Within a decade, suggests Lowenthal, the book "was a classic of international repute." A contributor to *The Nation,* reviewing the enlarged but not greatly changed second edition, described it as "one of the most useful and suggestive works ever published" and thought that it carried "the force of a revelation."[12]

Marsh's words had their strongest impact on those anxious about the future of America's forests. Large expanses of the northeast had been denuded of trees by the 1860s, and in Boston, New York, and other major cities, the prices of fuelwood and lumber were rising. The consequences that flowed from the destruction of the woods were central to the apocalyptic arguments of *Man and Nature,* and leaders of the nascent North American forestry movement were quick to utilize Marsh's insights. Franklin B. Hough, the first United States forestry commissioner, hoped that Marsh might lead the foresters' campaign against indiscriminate clearing. His successor, N.H. Egleston, credited Marsh with identifying "our destructive treatment of the forests and the necessity of adopting a different course."[13] In the last quarter of the 19th century, a few prescient Americans were recognizing the limits of their country's resources and praising Marsh for teaching them "to attribute unwelcome [environmental] changes to our restless disturbance of the equilibrium of nature."[14] Even Gifford Pinchot, widely regarded as the founder of the American forest conservation movement, described Marsh's book as "epoch-making," although (ever anxious to portray himself as "breaking new ground") he elsewhere insisted that few Americans had read it and that it had little impact upon popular opinion.[15]

Beyond the United States, *Man and Nature* similarly influenced scholars and foresters in the decade or two after its publication. In France, Elisee Reclus incorporated its insights into his *La Terre,* published in 1868; geologists Charles Lyell and Arnold Guyot acknowledged its importance; and Italian legislators incorporated references to the book in forest laws approved in the 1870s and 1880s. From distant India, Hugh Cleghorn of the Imperial Forest Service wrote Marsh in 1868 to say that he had "carried . . . [*Man and Nature*] with [him] along the slope of the Northern Himalaya and into Kashmir and Tibet."[16] A third edition of the book was published in 1884, and reprinted as late as 1907, but by 1889 Harvard Professor and public intellectual Charles Eliot Norton believed that Marsh's warnings had fallen "upon deaf ears," and less than two decades later Charles S. Sargent, an eminent botanist and director of Harvard University's Arnold Arboretum lamented that "the younger generation" seemed to know nothing of Marsh's book.[17]

Perhaps this is the fate of most books and ideas: to burst or creep into being, to have their moment in the sun, and to fade, having had greater or lesser impact, from public consciousness. A few views and volumes avoid this transitory fate, and others sink below the horizon of popular consciousness for a while, only to be resurrected at some future date. Such was the destiny of *Man and Nature.* Brought to the attention of the American historian of cities and technology Lewis Mumford by the Scottish thinker Patrick Geddes, *Man and Nature* was characterized by the former, early in the 1930s as "the fountainhead of the conservation movement." Almost 25 years later, when Mumford and geographer Carl Sauer convened a symposium to consider "man's role in changing the face of the earth" it was dedicated to Marsh. A year earlier, Sauer's student Andrew Hill Clark had described Marsh as "among the first, and . . . one of the greatest of, our historical geographers"—although, he had to add, "all too few modern geographers" think of him "as one of their own."[18]

I knew nothing of this in 1968, when I first came to Canada with a good and broad grounding in geography, signalled by a newly minted B.A., and additional courses in history and geology. Three years before, fate and good fortune rather than deliberate, knowledgeable choice had made me a student at the University of Sheffield when its department of geography was among the best in Britain. There, the discipline's traditional emphases were honoured, but the new seed of quantification, fruitfully and famously transplanted from a handful of American institutions, was also being nurtured.[19] Physical geography, geomorphology, biogeography, climatology, statistics, social, historical, urban, agricultural and economic geography, spatial analysis, and regional studies (complemented by field trips) formed the core curriculum and tutorials exposed us to the history of geographical thought. I learned a good deal about geographical practice as well as geography's traditions, about geomorphological mapping and chi square tests and urban morphological analysis as well as environmental determinism, possibilism, and genres de vie. I learned the names and contributions of many stars in the geographical firmament—Humboldt, Ritter, Davis, Strahler, Semple, Taylor, Tatham, Vidal de la Blache, Fleure, Jones, Evans, Barrows, Hartshorne, and Sauer among them—but Marsh remained invisible.[20] No matter. Like many undergraduates, I was convinced that the future of geography lay with the new rather than the old, in the identification, description, and analysis of spatial patterns using quantitative techniques. Pointed this way, encouraged to venture to North America for further study, and steered north by a Commonwealth scholarship, I arrived at the University of Toronto, the Canadian hotbed of the quantitative revolution in geography.[21]

These were invigorating times. Early in the 1970s, William O'Neill titled his informal history of America in the 1960s *Coming Apart,* and popular historian Mark Kurlansky would later call 1968 the year that rocked the world.[22] Americans were deeply divided over the war in Vietnam. Student protests disrupted many campuses in France, the United States, Germany, Mexico, Italy, and Argentina. In April 1968, Martin Luther King was assassinated and Pierre Elliott Trudeau's was elected prime minister of Canada. In midsummer, Trudeaumania swept Canada, and in August, Warsaw Pact troops invaded Czechoslovakia to put an end to the political liberalization movement at much the same time as police confronted militant opponents of U.S. domestic and foreign policies at the Democratic Convention in Chicago. The University of Toronto campus was also a lively place. Discussions of the Vietnam War, of the counterculture, of student governance, and of

political philosophies ran long and late. Thanks to Marshall McLuhan, who held almost legendary status in some corners of the campus, many discussed the implications of "over-extending" technology, and (echoing McLuhan's 1964 claim that "the medium is the message") grew skeptical about the ways in which ideas are framed and communicated, and about the changes in the scale, pace, and patterns of life produced by new technologies.[23] Before the year ended, an experiment in alternative student-run education and co-operative living began at Rochdale College, on the edge of the campus. Nearby Yorkville was the city's bohemian cultural centre and a major centre of the hippie movement. Probably inspired by Rachel Carson's much-talked-about book *Silent Spring*, a series of articles on pollution in the student newspaper, *The Varsity*, early in 1969 asked, "Is there a future for our generation?"[24] The response led a small group of Toronto students and faculty to found Pollution Probe and begin a campaign for the environment that quickly secured reductions in the use of DDT and restrictions on the use of phosphate in detergents.[25] The organization's widely noticed mock-funeral for the Don River, and other attention-grabbing events, have come to be regarded as precursors of "an environmental ethic that would energize renewed public commitment."[26] Later that year, Jane Jacobs, celebrated author of *The Death and Life of Great American Cities*, arrived in Toronto fresh from a battle against the Lower Manhattan Expressway in New York City and added weight to the growing grassroots protest against the Spadina Expressway.[27] At much the same time, I also encountered reform-minded architects Jack Diamond and Barton Myers at informal "drop-in" seminars promoting new visions for the city.

In this context, I soon began to wonder whether I wanted to spend the rest of my life immersed in the matrix algebra, Fortran programming, and Central Place Theory upon which my graduate courses focused. "Models are undeniably beautiful," as Chorley and Haggett claimed with the opening quotation of their influential *Models in Geography*, but they are also simplifications and abstractions, and the buzzing, howling world beyond the elegant, equation-filled classrooms of U. of T.'s Sidney Smith Hall seemed much more insistently interesting to me.[28] Urban reform and environmental concern were in the air, and the university campus was abuzz with the possibilities of change. Among my fellow students, there was a good deal of interest in the phenomenology of Edmund Husserl and Maurice Merleau-Ponty, well-thumbed copies of Aldo Leopold's *Sand County Almanac* were in circulation, and when Ian McHarg's *Design with Nature* appeared in 1969 its "personal testament to the power of sun, moon, and stars, the changing seasons, seedtime and harvest, clouds, rain and rivers, the oceans and the forests, the creatures and the herbs" struck a resonant chord. There was much that attracted us in its claim that "our eyes do not divide us from the world, but unite us with it. . . . Let us then abandon the simplicity of separation and give unity its due. Let us abandon the self-mutilation which has been our way and give expression to the potential harmony of man-nature. The world is abundant, we require only a deference born of understanding to fulfill man's promise. Man. . . . must become the steward of the biosphere."[29] Seeking escape from the path on which I had embarked, and recognizing, belatedly, that I was more at ease seeking understanding in the past than in prescribing the future, I sought solace in historical geography.

In a course on American cities taught by Jim Lemon, I encountered David Ward's work and learned of the "Wisconsin School" of historical geography led by Andrew Hill Clark.[30] I found much that interested me in their approach to the past, although friends who were focused on

contemporary issues showed little mercy in twisting a common phrase to sardonic purpose by suggesting that the best a historical geographer could hope for would be an understanding of "where it *was* at." It was a joke that worked on several levels. The spatial-analytical tide still ran strong, and its proponents believed that they were carrying geography to new analytical respectability. Self-styled radical geographers were demanding "relevance"—engagement with urgent current issues—of the field. So historical geography was the subject of trenchant criticism from several quarters of the discipline, some of which prompted Cole Harris to essay an important response, and all of which generated a great deal of lively debate.[31] As the 1960s gave way to the 1970s, the Toronto department of geography offered a wonderfully dynamic, challenging intellectual environment in which to be a student.

Finding Marsh in Canada

As I sought to reconcile my interest in historical geography with the clamour of the times, someone suggested I read George Perkins Marsh. His was a historical treatment of environmental issues, and *Man and Nature* was back in the limelight. Harvard University Press had reprinted the book just a few years before, to mark the centenary of its initial publication and David Lowenthal was quick to endorse Mumford's view of Marsh as "the fountainhead of the conservation movement" in his introduction to the now readily available volume. Attention was also drawn to Marsh's work by former U.S. Secretary of the Interior Stewart Udall's characterization of it as "the beginning of land wisdom in this country" in his widely read and influential *The Quiet Crisis. Man and Nature,* announced the back cover of the Belknap Press edition, was "the first book to attack the American myth of the superabundance and the inexhaustibility of the earth."[32]

By this time I had become interested in the migration of New Englanders to the lands from which the Acadians had been removed by *le grand derangement* of 1755, and was both intrigued and informed by Marsh's account of "land artificially won from the Waters," which seemed to me to add important dimensions to the discussion of Acadian diking (land reclamation) on the Bay of Fundy in Andrew Clark's recently published *Acadia.*[33] But therein lay a dilemma that I neither fully understood nor had the capacity to transcend at the time. Despite my flirtation with spatial analysis as an undergraduate, I had relished geography's capacity to integrate the human and the biophysical. Rather unsuspectingly, I had been beguiled by what little I had read of those who worked across this interface early in the 20th century to develop a material-ecological perspective on human-environment interactions, and I had produced my best undergraduate essays on topics related to this theme. But as I encountered it, historical geography in North America paid little attention to ecological and environmental questions. For all of the discipline's lip service to the importance of the "man-land tradition," members of the "Wisconsin school" focused, fairly resolutely, upon the spatial patterns of ethnic group settlement and economic activity.[34]

Only later did I recognize the reasons for this. The story is a complicated one, but it has much to do with Richard Hartshorne's efforts to identify and codify the field in *The Nature of Geography* (1939) and its sequel, *Perspective on the Nature of Geography* (1959).[35] Taking his lead from a particular reading of early German geographers, Hartshorne argued that geography was the study of areal differentiation (the variation in phenomena from place to place) on the surface of the

earth and that it had two major component parts: systematic studies (of particular phenomena: climate, vegetation, agriculture, cities) and regional description.[36] Initially, Hartshorne allowed no place for time in geography. As he saw it, the field was concerned with patterns and places; processes and people were for others to investigate.[37] Some, including Sauer and Clark, resisted this narrow formulation, and in 1959 Hartshorne begrudgingly conceded the possibility of certain limited forms of historical-geographical study, focused on small isolated territories and concerned with the geography of areas at particular times in the past. Ultimately, however, it was the widely honoured division of the subject into systematic and regional branches that spelled the end, as the English geographer Jack Langton later noted, of the earlier materialist-ecological conception of "geography as an integrative discipline concerned with the ways in which [hu]mankind, through work, is related" to the environment. Such a view of the field, essentially humanistic in its search for "understanding" of complex circumstances and intertwined relationships, is incompatible with the view developed by Hartshorne and enshrined and elaborated by others that "geography is concerned with the explanation of spatial patterns."[38]

When I moved the focus of my scholarly interests from the marshlands of the Bay of Fundy to the forests of New Brunswick, I agonized again over the tension created by my interest in human modification of the environment and the prevailing emphases and expectations of the field into which I was writing. Marsh's long disquisition on "the woods" (it accounts for about a third of *Man and Nature*), full of arcane facts and striking insights, was a continuing source of challenge and inspiration. So too was Roderick Nash's *Wilderness and the American Mind,* published in 1967.[39] But no one I knew ever uttered the phrase "environmental history." Although retrospective accounts of the emergence of this new historical field frequently point to Nash's book as foundational, it was seen in the late 1960s and early 1970s as a contribution to the then vibrant field of intellectual history. Although I spent many weeks in the botany and forestry libraries of the University of Toronto, reading about the spruce-fir forests of Maine, the relation of grey birch to the regeneration of white pine, the place of fire in the ecology of pines, the effects of wind on the vegetation of Chignecto and other fascinating things, I was ever-conscious, as I wrote the dissertation, of disciplinary norms and the sharp editorial pens of my advisors. The result was a compromise.[40] I thought of my project as a work in historical geography, designed to document the imprint of the timber trade on the landscape, and concerned with the transformation of the colonial environment. There was a certain amount of both forest ecology and intellectual history in the finished dissertation, but not enough, in retrospect. When I came to revise this rather sprawling, multifaceted work, the route to probity and coherence turned the central argument of *Timber Colony* in a different direction again, to elucidate the relations between people and place as they were affected by the spreading tenets and technologies of early industrialism.[41]

As I look back on the making of the dissertation, I recall being influenced, at the outset, by Marsh's brief discussion of the "Principal Causes of the Destruction of the Forest" in the new world, which alluded both to agricultural clearing and the basic cost-price equation of the timber market, particularly the observation that because the value of trees "increases with [their] dimensions in almost geometrical proportion" the "tallest, most vigorous, and most symmetrical . . . fall the first sacrifice," and that "the impatient lumberman contents himself with felling a few of the best trees, and then hurries on to take his tithe of still virgin groves."[42] I was also struck by his comments, essentially

en passant, about the micro-scale effects of shanty clearings, dams, and river driving, as well as his scattered ruminations on the importance of understanding systems of forest governance and his final observations on the instability of American life: "the landscape [was] as variable as the habits of the population" but it was, thought Marsh, time "for some abatement in the restless love of change" that made Americans an almost nomadic rather than sedentary people.[43]

I pursued most of the questions implicit in these observations, with more or less success, in the New Brunswick archives. Careful analysis of timber licence records revealed the rapidity of the lumberers' initial surge upstream and through the forest in search of "still virgin groves"; early efforts to administer new world forest resources according to ideas shaped by centuries of experience in very different English contexts proved fascinating (and yielded one of my earliest scholarly articles); the effects of logging and sawmilling on ecologies and landscapes intrigued me mightily, but a paucity of sources meant I could not say as much about these things as I wished.[44] In the end, I also came to realize that there was just too much in Marsh—ranging from speculation about the first forest clearing by humans and sections on the "electrical influence of trees" and "Trees as a Protection against Malaria" through pages and pages of detailed commentary on European trees and torrents and sediments and "sylviculture"—and that I had too little experience to discover definitive answers to some of the things he encouraged me to know in the thickets of the still barely organized provincial archives. Finding Marsh rich in facts and ideas but difficult to digest, I sought more direct help in the works of other scholars—such as J. Willard Hurst's pioneering inquiry into the legal history of the Wisconsin lumber industry; the Canadian "staples theorists"; the lively prose of A.R.M. Lower; and reflections on the practice of historical geography by H.C. Darby—which were more useful in addressing the very practical challenges entailed in shaping disparate fragments of archival evidence into a form both logical and familiar enough to gain the assent of dissertation examiners.[45]

Encountering Marsh in New Zealand (and New Zealand with Marsh)

After submitting "The Assault on the New Brunswick Forest" in two volumes to the University of Toronto in December 1973, I had not been long in my first academic job in New Zealand before the editor of the national geographical journal asked me to review a popular history of the country's forest industry. I had little local knowledge with which to do this, and I wondered, secretly, whether the editor believed that if I knew about one tree then I knew about them all. But in the pages of that book, *Kauri to Radiata,* I discovered that a series of lively speeches on the subject of forest conservation, delivered in the House of Representatives between 1868 and 1874, included several familiar (albeit often unattributed) phrases from *Man and Nature.*[46] Intrigued, I began to read my way through the record of New Zealand parliamentary debates, to track down contributions in related vein in various New Zealand publications and to trace the biographies of several of the main protagonists in the debates. Quickly I realized that Marsh had reached New Zealand long before I had, that his words had not only been carried along the slopes of the Himalayas and into Tibet, but also across the ocean to these isolated islands in the southern Pacific

in remarkably short order and with striking consequences. Indeed, one route of their passage was through the Imperial Forest Service in India, and in a way that seemed remarkable to me at the time, they were clearly critical in persuading legislators in a still sparsely settled young country to attempt to check the heedless destruction of trees and to decree the establishment of state forests.

The story, as I saw it, was this: in the late 1860s, a small but influential group of educated New Zealanders, lawyers, botanists, engineers, natural history enthusiasts, and so on, became aware of *Man and Nature*.[47] All about them, in this recently settled place (sealing, whaling, and missionary activity had brought Europeans to New Zealand long before it became an official British territory in 1840, but "organized" colonization gained momentum only later in that decade), they saw evidence of environmental instability. Forest and brush were being cleared for sheep and settlements. Braided rivers flowed through enormous beds of shingle; flooding seemed to occur more frequently than they were accustomed to. Reading Marsh and gazing out of their windows, they put words and landscapes together to echo *Man and Nature's* dark warnings. New Zealand offered a fine example of "the equilibrium arrived at [by nature being] disturbed with more or less violence when man appears as an actor in the scene"; the colony was "fast becoming an unfit home for its noblest inhabitant." Historians would conclude that New Zealanders had "received a fertile country, but by criminal want of foresight, transmitted to posterity a desert."[48]

In truth, many of these claims misread the New Zealand landscape. Large parts of the South Island are volatile country, in which recent orogenic uplift (associated with the movement of the earth's crustal plates) has generated active erosion and the downslope/downstream movement of enormous amounts of detritus. Here, at least, the claim that large rivers once ran placidly through the countryside before they were turned into raging torrents by the destruction of the forest, owed more to "theory" (the transference of Marsh's arguments from one environment to another) than to "fact." Whether they suspected as much or simply refused to see their prospects blighted by the imposition of restrictions on resources and development, some New Zealanders resisted the ready conclusions of those who adopted and adapted Marsh's ideas during the 1860s and 1870s. But in the short term, at least, they were unable to resist the tide. "The cogency of Marsh's illustrations, the irresistible weight of his conclusions and the sweep of his geographical insights," I wrote in an article reporting my first New Zealand encounter with Marsh, carried the day for those who enacted the *Forests Bill* in 1874.[49]

Drawn to further work by this encounter, I projected a larger study of the environments and forests of New Zealand, but it was substantially aborted by my return to Canada in 1976, and the accumulation of other demands on my time.[50] Still, my interest in this part of the world remained high, not least because it offered magnificent scope for investigation of the sorts of environmental historical geographical problems in which I was increasingly interested. To be sure, the rapid and radical human transformation of the New Zealand environment had already been noted, and explored in a preliminary way by historical geographers. As early as 1941 Kenneth Cumberland had captured the essential elements of this story in his article "A Century's Change: Natural to Cultural Vegetation in New Zealand." Andrew Clark's doctoral dissertation, completed at Berkeley, had charted some of the dimensions of this transformation in considering *The Invasion of New Zealand by People, Plants and Animals* and a few years on, Alfred Crosby, one of the standard bearers of the fast-emerging field styled environmental history, devoted a chapter of his widely noticed

and influential book *Ecological Imperialism* to New Zealand. But there was plenty of scope for further work.[51]

Marsh identified "The Transfer, Modification and Extirpation of Vegetable and of Animal Species" as one of the major means by which human actions altered physical geography in 1864, and in the 1990s I had opportunity to travel again in his company when invited to contribute to the *New Zealand Historical Atlas.* With Marsh's wonderful phrase "vegetable emigration" in memory, and his insistence that "whenever man has transported a plant from its native habitat to a new soil he has introduced a new geographical force to act upon it" in mind, I jumped at the chance to prepare a plate on "The Introduction of Species." In his "Transfer" chapter, as in other sections of *Man and Nature,* Marsh proceeded through the accumulation of detail: approximately 700 new species of plants had been introduced to the "lonely island of St Helena" in the 350 years since its European discovery in 1501; "the Canada thistle, *Erigeron Canadense [Cirsium arvense],* is said to have sprung up in Europe two hundred years ago, from a seed which dropped out of the stuffed skin of a bird." Exotics, "transplanted to foreign climates . . . often escape from the flower garden and naturalize themselves . . . among the pastures."[52]

Reading such phrases led me to recognize one of the great gaps in the study of the introduction of exotic species to New Zealand. Contemporary botanists and natural historians had been much interested in the phenomenon, but their interest began with the timing of plant or animal arrivals in the islands and largely stopped at the assignment of plants to the list of indigenous or exotic species. As a geographer, Andrew Clark had sought to chart the spread of introduced people, plants, and animals in the South island, but the scale of his analysis remained relatively broad—he mapped sheep and cattle numbers and the acreages of the leading grain crops from the census but said little about the detailed mechanisms of plant diffusion. To address this gap, I looked again at one of the most remarkable works of environmental history published in New Zealand, W. H. Guthrie-Smith's *Tutira.*[53] I had acquired a copy of this classic, lovingly detailed and entirely idiosyncratic natural history from a tiny bookseller in a small town near the Hawkes Bay sheep station that gives the book its title while travelling through the North Island in 1974. Now I reread it, and with Marsh in mind was able to mark new, detailed contours onto the map of plant and animal diffusions into this part of New Zealand. Fleshed out in an essay published in the *Journal of Historical Geography,* this proved to be one of my most satisfying pieces of research, and Tutira became one of those areas of the world for which I hold an abiding affection.[54]

Where We Have Been—and Where We Are Going

When I arrived in Toronto, budding concern about the environment had only just begun to seize the public imagination, and had not yet ripened into the consumer-oriented groundswell of environmentalism, differentiated from the earlier, producer-driven progressive conservation movement, the roots of which many traced back to *Man and Nature.*[55] When I bought my copy of *Tutira,* the book once familiar to most New Zealand schoolchildren had been largely forgotten. When I began my academic career, research on human transformations of the earth was regarded as part of a venerable but fading geographical tradition, and the euphonious term "environmental history" had hardly been used in its now-familiar sense. When the American historian Richard

White sought to inventory work in this new arena of scholarly endeavour in 1985, he adopted a catholic view of the field and spent a summer reading a couple of hundred pieces of writing.[56] When American scholar John McNeill was asked, early in the new millennium, to map environmental history on a global scale, he quipped that he would need a century of summers to repeat White's approach.[57] Since 1997, the story of Guthrie-Smith and Tutira station has been the subject of an effective display in the Hawkes's Bay Museum in Napier, and it has also been celebrated in a program prepared for NZTV's *Country Calendar*. *Tutira,* the book, has been reprinted as a Weyerhaeuser Environmental Classic by the University of Washington Press, along with a revised and expanded version of Lowenthal's *Versatile Vermonter,* now titled *George Perkins Marsh, Prophet of Conservation.* What a long way we have come. Environmental concerns that found small but contested voice at Pollution Probe meetings in the basement of Sidney Smith Hall of the University of Toronto have become global, urbane, and high profile (think of the Kyoto Accord and Al Gore's *An Inconvenient Truth*), and interest in environmental history has expanded beyond the wildest imaginings of many of those who were around at its inception. But this is no cause for complacency.

In his Foreword to *George Perkins Marsh,* William Cronon ranks *Man and Nature, Silent Spring,* and *A Sand County Almanac* as the three books by American authors "that have had the greatest impact on environmental politics and on the struggle to build more responsible human relations with the natural world."[58] It is hard to argue with this. But it is well, I think, to remember that books are read differently at different times and in different places, and that their reputations and influences are far from constant. Indeed, Cronon ranks Marsh's book ahead of works by Henry Thoreau and John Muir on the strength of its 19th-century impact and despite the fact that it "is today little read even by those who still remember it." These are murky waters. Much of the content of *Man and Nature* is, inevitably, dated; subsequent research has shown that several of its arguments are misguided and that many of its claims about human modifications of the earth need to be reconsidered. For all the stimulus, inspiration, and insight found in Marsh's ideas over the years, *Man and Nature* is now generally read (or at least discussed) with doubt in mind—especially doubt about the significance of the book's contribution and the accuracy of the claims made for it.

Was Marsh really "the fountainhead of the conservation movement" as Lewis Mumford suggested? Does he warrant the status of "prophet" accorded him by David Lowenthal? Just as I discovered that my English education had left me ignorant of George Perkins Marsh, others have argued that Marsh's importance has been inflated and that his reputation in these spheres rests upon a peculiarly limited American view of attitudes toward nature in the past. Oxford-, London-, and Cambridge-educated Richard Grove stands at the forefront among those advancing this line of argument. By his account, most readily accessible in *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860,* "western environmental concern and concomitant attempts at conservationist intervention" long predated the publication of *Man and Nature.*[59] Far from being unleashed upon the world with the force of revelation in 1864, "reasoned awareness of the wholesale vulnerability of the earth to man" as well as the idea of state-directed environmental (or resource) conservation emerged gradually from the experience of colonial encounters with tropical regions and island ecosystems well before the 19th century.

Grove's argument is complex, his research is impressive, and his conclusions are arresting. The ramifications of his work point far beyond the need to re-evaluate Marsh's contribution in a global context, to emphasize the importance, for all who would pursue environmental historical studies, of respecting local differences and avoiding easy assertions about the universal destructiveness of colonialism or the monolithic character of ecological imperialism.

Others have wondered whether Marsh was the prescient "great man" possessed of unanticipated and unparalleled insight (as Lowenthal and others have tended to see him), or a man of his time who simply gave vivid expression to ideas already in circulation. Richard Judd of the University of Maine has done most to advance this reconsideration, particularly in his book *Common Lands, Common People*, which argues that ordinary people living in the countryside and working the land of early New England developed grassroots strategies of resource conservation as integral elements of their local cultures well before the middle of the 19th century.[60] Elsewhere, Judd has extended his argument to insist that ecological principles were "common currency in early American natural history," and that many of Marsh's most cogent claims were foreshadowed in the writings of this amorphous group of people.[61] I have contributed my own mite to this process of re-evaluation, focusing upon the contribution (published in London, England, in 1835) of one Titus Smith of Halifax, Nova Scotia, who detailed human impacts upon the vegetation of that colony and foreshadowed the rhetorical gambit from which *Man and Nature* drew some of its potency by offering a telling comparison between his newly settled surroundings and some of the longest-settled, once-fertile but then desiccated and unproductive fringes of the Mediterranean.[62]

Lowenthal has responded to some of these efforts to "reposition" Marsh, particularly those that give credit for the origins of conservation to "unsung hoi polloi on the mainstream's margins." Dismissing them as "put-downs," he clings to the conviction first expressed in his introduction to *Man and Nature* that "anyone wielding a hoe or an ax knows what he is doing, but before Marsh no one had assessed the cumulative effect of all axes and hoes" and denies the credibility of arguments attributing the origins of conservation to "oceanic islands and Oriental mysticism," or the wisdom of "voiceless underlings."[63] These are lively and interesting debates, but insofar as they seek to identify the sources of particular insights or to assert primacy in the origin of ideas (or are read as doing so) they are ultimately futile and largely irrelevant. As the historical geographer and forest historian Michael Williams has rightly observed, all such efforts are as frustrating as they are fascinating. Clarence Glacken's compendious tome *Traces on the Rhodian Shore* notes that some inhabitants of the Ancient World understood humans to be geographical agents and that this idea gained adherents through the medieval period. Hints and allusions are everywhere, and depending upon the weight and significance one affords them it is possible to conclude that there is "nothing new under the sun."[64]

Rather than end there, it is important to ask why, how, and where ideas have gained currency and to excavate the different meanings attached to them in different circumstances. In this light, the recent debate about Marsh's contribution has much more to do with, and is more revealing of, current sensibilities than it is about his originality and influence. Few deny that *Man and Nature* was important in shaping attitudes toward the environment in the 19th century. But many radical environmentalists of the late 20th century have looked askance at Marsh's reputation as a wellspring of the conservation movement. Conservation is equated with management and many of

those active in the modern environmental movement are deeply distrustful of managerialism. Science and expert knowledge are regarded by many radical environmentalists as part of the problem rather than the solution to environmental problems, and earlier celebrations of Marsh's role in promoting awareness of the need for stewardship of the earth have made him "more an impediment than a role model" for the causes espoused by today's reformers.[65] The growing influence of "critical theory" has made work in the humanities much more reflexive and attentive to "difference." Sweeping claims, of authority or impact, are treated with suspicion and there is growing recognition that science and other forms of inquiry need to be "put in their place." Grove would not deny the influence of Vermont and the Mediterranean littoral in shaping Marsh's thinking, but argues that other places, other environments, other geographies led other observers to their own, and earlier, conclusions about human modifications of the earth. He also insists (and my experience suggests) that American commentators placed the American Marsh on a pedestal of their own making, and that his 20th-century reputation, much as it waxed and waned with changing American environmental sensibilities, was substantially an American one. Scholars have also grown uneasy with the traditional view that history is the biography of great men. Times have changed: social, women's, labour, postcolonial, and other hyphenated histories have let subalterns speak, and stressed the importance of listening to "voiceless underlings."[66] In doing so they have opened new windows on the past—while rendering it a whole lot more complicated and creating space for new stories that serve, as do all historical accounts, to (re)present the past and facilitate new visions of the future.

All of this bears upon the journey into environmental history that I have sketched in these pages. It is, of course a personal, even somewhat eccentric, story. But it does serve to illustrate a number of points that may be useful to those embarking on their own expeditions into new academic fields and their literatures. First, all of these subjects or disciplines are artificial and malleable; they are human inventions or "social constructions" and the preoccupations and procedures of their practitioners are ever-evolving. Some disciplines have claimed to study "naively given sections of reality"—history, time; geography, space—but the boundaries between such territories, and especially between history and geography, are blurred and indistinct, and increasingly disregarded.[67] Historical geography and environmental history explicitly seek to straddle this false frontier and are thus closely allied, even cognate endeavours. For all that (and second), disciplinary concerns, shifting though they may be, are not inconsequential. Insofar as historical geographers working in the human-environment tradition stand with historians in the interdisciplinary space of environmental history, their inquiries tend to fall more squarely within the realm of what John McNeill calls materialist environmental history (emphasizing changes in biophysical environments and their influence upon human societies) than the cultural/intellectual (considering "representations and images of nature") and the political (concerned with law and state policy) aspects of the field.[68]

Third, it is as well to recognize that although "environmental history" emerged as a distinct, named, subfield of inquiry in the United States in the 1970s and many attribute its development to the rise of environmentalism, the field developed later in Canada, and (like *Man and Nature*) had precursors and antecedents in both countries. The Kansas historian James C. Malin (1893–1979)—"perhaps the first historian to write as an ecologist"—and Manitoba-born William

L. Morton (1908–1980) certainly warrant inclusion in any longer pedigree of the field.[69] So too do a handful of geographers on both sides of the border, including Carl O. Sauer and J.G. Nelson, although for reasons discussed above, historical geographers largely abandoned work on the environment in the 1960s, just as public interest in environmental issues increased and historians found exciting new furrows to plough in human-nature relations.[70]

Fourth, the world unfolds in unpredictable ways: time and chance open unforeseen opportunities and challenges. Past and present, those who act in the world—whether wielding hoe or axe, shaping or resisting societal trends, seeking an education, campaigning for a cause, or interpreting circumstances—act in contexts shaped by particular events as well as by their times, places, pasts, and personalities. This was as true for Marsh and for me as it is for you the reader. Neither certainty nor autonomy is complete. As the 17th-century metaphysical poet John Donne had it: "No man is an island, entire of itself; every man is a piece of the continent, a part of the main." Although Marsh has been at my side for many a year, and his presence has shaped my journey, he never determined its direction or outcome. Other, often unforeseen, influences worked their effects in ways not entirely evident even to this moment. Never at any point along this trajectory could I have guessed with any degree of specificity what I would be engaged with five years into the future. Despite that (and fifth), historical scholarship is cumulative and collaborative. Although "every generation writes its own history" in reflection of the specific concerns of people (scholars and students, writers and readers) in a particular time and place, ideas and influences flow, from books, articles, and lectures, from generation to generation. Established ideas must be subject to critical scrutiny. They might be challenged, discarded, built upon, or refined. But they should not—indeed, cannot—be ignored. Even the most radical reinterpretation is by definition an engagement (in an ongoing conversation) with what has gone before, and what lies ahead will emerge from the past.

So let us then turn, finally, to bring Marsh into dialogue about the future. Decades ago, he argued that people were destroying their dwelling place and that the earth was "fast becoming an unfit home for its noblest inhabitant." Recent years have seen a dramatic resurgence of similarly apocalyptic rhetoric about the prospects for the future of humankind. Jared Diamond's *Collapse* is perhaps the best known of these contributions to public debate, but others, including Ronald Wright in his 2004 Massey Lectures offering *A Short History of Progress*, have argued similarly that "our civilization" is on a ruinous path and that, like the inhabitants of Rapa Nui (Easter Island), Norse Iceland, and ancient Sumeria before us, we are bound for destitution (or "impoverished productiveness" and "climatic excess" as Marsh had it). In this view, the past is littered with train wrecks offering eerie reminders that "humankind is . . . on a collision course with the natural world."[71]

Certainly, increasing numbers of technologically ever-more-powerful people have had an enormous impact on the biosphere. But should the future simply be envisaged (with little attention to questions of scale and intellectual and technological context) as a giant-screen replay of a past in which societies fail through naïveté or hubris? For all the sinister parallels Marsh drew between old world and new, he understood that not all the "physical revolutions . . . wrought by man" were "destructive to human interests" and he appreciated the need to act: "desolation . . . awaits . . . unless prompt measures are taken to check the action of destructive causes already in operation,"

he wrote in 1864. Although the message of *Man and Nature* has been interpreted in apocalyptic terms, a considerable part of this great book is devoted, as Marsh signalled in its first sentence, to suggesting "the possibility and the importance of the restoration of disturbed harmonies and the material improvement of waste and exhausted regions." For Marsh, "Man" the disturber was also "Man" the restorer. Convinced that "sight is a faculty; seeing an art," Marsh crafted his accounts of desiccation and decline in the Mediterranean basin as part of a larger story that would enable his contemporaries to see how dramatically the earth is modified by human action; how societies and environments interact; and how valuable an understanding of the past can be in defining a better future.[72] These remain among the most important goals of those interested in the history of human-environment interactions to this day.

Discussion Questions

1. Why does each generation rewrite history?
2. Why has environmental history emerged as a distinctive field of study?
3. Environmental historians sometimes claim that their field is distinguished by the fact that it "recognizes the agency of nature in human affairs." What does "agency" mean? Do you think that nonhuman entities or forces can be agents? Why or why not?
4. Can you provide additional examples (beyond those offered by environmental history and geography) of the ways in which academic disciplines are "malleable" and "social constructions"?
5. What is "environmental determinism" and how does Marsh's *Man and Nature* stand in relation to this conception of human-environment relations?
6. What is at stake in the debate over whether George Perkins Marsh was the "fountainhead of the conservation movement"?
7. Reflecting upon the narrowness of focus and extreme specialization evident in much research, some commentators have said that recent scholarship seeks to learn more and more about less and less. Is the broad sweep of *Man and Nature* simply a reflection of an earlier (less-specialized) era, or does environmental history encourage researchers and readers to "see the world whole" again?
8. Why is it important to remember that Marsh saw humans as capable of restoring as well as of disturbing nature?

Notes

1. George Perkins Marsh, *Man and Nature; or, Physical Geography as Modified by Human Action* [New York: Charles Scribner, 1864], David Lowenthal, ed., (Cambridge, MA: The Belknap Press of Harvard University Press, 1965): p. 15.

2. David Lowenthal, *George Perkins Marsh: Versatile Vermonter* (New York: Columbia University Press, 1958): p. 5.

3. Lowenthal, *Versatile Vermonter*, p. 246. Most of the detail in this and the following paragraphs can be found in this biography.

4. David Lowenthal, *George Perkins Marsh, Prophet of Conservation* (Seattle: University of Washington Press, 2000): p. 268.

5. Marsh, *Man and Nature*, p. xx (Introduction by Lowenthal).

6. Lowenthal, *Versatile Vermonter*, pp. 137–38.

7. Lowenthal, *Versatile Vermonter*, p. 141.

8. Lowenthal, *Prophet of Conservation*, p. 275. The "Address Delivered Before the Agricultural Society of Rutland County [1847]" is reprinted in Barbara G. Rosencrantz and William A. Koelsch, eds., *American Habitat: A Historical Perspective* (New York: Free Press, 1973): pp. 340–69. See also Marcus Hall, *Earth Repair: A Transatlantic History of Environmental Restoration* (Charlottesville: University of Virginia Press, 2005).

9. Lowenthal, *Prophet of Conservation,* p. 277.

10. Marsh, *Man and Nature,* p. 42.

11. Marsh, *Man and Nature,* pp. 36, 52.

12. Lowenthal, *Prophet of Conservation,* pp. 302–3.

13. Lowenthal, *Versatile Vermonter,* p. 269.

14. Lowenthal, *Prophet of Conservation,* p. 303.

15. Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace, 1947): pp. xvi–xvii; Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism* (Washington, DC: Island Press, 2001): pp. 55–56.

16. Lowenthal, *Prophet of Conservation,* p. 304.

17. Lowenthal, *Prophet of Conservation,* p. 305.

18. Andrew H. Clark, "Historical Geography," Preston E. James and Clarence F. Jones, eds., *American Geography. Inventory and Prospect* (Syracuse: Syracuse University Press, 1954): p. 81.

19. On this general point see L. T. Guelke, "Geography and Logical Positivism," D. T. Herbert and R. J. Johnston, eds., *Geography and the Urban Environment: Progress in Research and Application* I (Toronto: John Wiley and Sons, 1978): pp. 35–61. See also Peter Haggett, *Locational Analysis in Human Geography* (London: Edward Arnold, 1965); Trevor J. Barnes, "Lives Lived, and Lives Told: Biographies of Geography's Quantitative Revolution," *Society and Space: Environment and Planning D* 19 (2001): pp. 409–29; Trevor J. Barnes, "The Place of Locational Analysis: A Selective and Interpretive History," *Progress in Human Geography*, 27 (2003): pp. 60–95; and Trevor J. Barnes, "Placing Ideas: Genius Loci, Heterotopia, and Geography's Quantitative Revolution," *Progress in Human Geography* 29 (2004): pp. 565–95.

20. The contributions, interest, and approaches of these individuals can best be traced in the several histories of geography. Among these Ronald J. Johnston, *Geography and Geographers: Anglo-American Human Geography since 1945* (London: Edward Arnold, 1986, and subsequent editions through 2004) is perhaps the most useful; see also Ronald J. Johnston, *Philosophy and Human Geography: An Introduction to Contemporary Approaches* (London: Edward Arnold, 1986. David Livingstone, *The Geographical Tradition: Episodes in the History of a Contested Enterprise* (Oxford, UK; Cambridge, MA: Blackwell Publishers, 1993) is also highly regarded. One of the volumes with which I was familiar as an undergraduate was T. Griffith Taylor, ed., *Geography in the Twentieth Century: A Study of Growth, Fields, Techniques, Aims and Trends* [with chapters by Kenneth Hare, Donald F. Putnam, and George Tatham, all of whom

were significant contributors to the development of geography in Canada] (New York: Philosophical Library, 1957).

21. Ian Burton, "The Quantitative Revolution and Theoretical Geography," *The Canadian Geographer* 7 (1963): pp. 151–62.

22. William L. O'Neill, *Coming Apart: An Informal History of America in the 1960s* (Chicago: Quadrangle Books, 1971); Mark Kurlansky, *1968. The Year that Rocked the World* (New York: Ballantine Books, 2004).

23. The original message *was* transliterated in punning style to signify mass age and massage in the title of McLuhan's then latest book: Marshall McLuhan, *The Medium is the Massage: An Inventory of Effects* (New York: Bantam Books, 1967). As a measure of McLuhan's fame see the 1969 interview in *Playboy* magazine originally titled, "A Candid Conversation with the High Priest of Popcult and Metaphysician of Media," pp. 53–74, Eric McLuhan and Frank Zingrone, eds., *The Essential McLuhan* (New York: Basic Books, 1995): pp. 233–69.

24. Rachel Carson, *Silent Spring* (Greenwich: Fawcett, 1964); Sherry Brydson, "Pollution: Is There a Future for Our Generation?" *The Varsity* (24 February 1969).

25. Sarah Elton, "Green Power," *University of Toronto Magazine* http://www.magazine.utoronto.ca/99winter/green_power.asp (accessed October 26, 2007).

26. "Don River" City of Toronto website, http://www.toronto.ca/don/watershed.htm (accessed October 26, 2007).

27. Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961).

28. Richard J. Chorley and Peter Haggett, eds., *Models in Geography* (London: Methuen and Co., 1967): p. 19.

29. For the interest in phenomenology see Edward C. Relph, "An Inquiry into the Relations between Phenomenology and Geography," *The Canadian Geographer* 14 (1970): pp. 193–201; Aldo Leopold, *A Sand County Almanac and Sketches here and there* (New York: Oxford University Press, 1949); Ian L. McHarg, *Design with Nature* (Garden City, NY: Published for the American Museum of Natural History [by] the Natural History Press, 1969).

30. See Michael P. Conzen, "The Historical Impulse in Geographical Writing about the United States, 1850–1990," and Graeme Wynn, "The Writing of Canadian Historical Geography," Michael P. Conzen, Thomas A. Rumney, and Graeme Wynn, *A Scholar's Guide to Geographical Writing on the American and Canadian Past* (Chicago: University of Chicago Press, 1993): pp. 3–90, and 91–124.

31. Harris's response, triggered by a scathing review of Andrew Clark's *Acadia: A Historical Geography of Early Nova Scotia to 1760* (Madison: University of Wisconsin Press, 1968) by William Koelsch, first appeared as a University of Toronto discussion paper under the title "On the Fertility of the Historical Geographical Mule" and appeared in revised form as "Theory and Synthesis in Historical Geography," *The Canadian Geographer,* 19 (1971): pp. 157–72. My fellow student Leonard Guelke borrowed from R. G. Collingwood's "Idea of History" to mount his own defence of what he called "Idealism" in historical and human geography—see his "An Idealist Alternative in Human Geography," *Annals of the Association of American Geographers* 64 (1974): pp. 193–202, and his "Historical Understanding in Geography," *Annals of the Association of American Geographers* 64 (1974): pp. 193–202, and his *Historical Understanding in Geography: An Idealist Approach* (New York: Cambridge University Press, 1982).

32. Lowenthal, *Man and Nature*; Stewart Udall, *The Quiet Crisis* (New York: Holt, Rinehart and Winston, 1963).

33. The results of this work were summarized in Graeme Wynn, "Late Eighteenth-Century Agriculture on the Bay of Fundy Marshlands," *Acadiensis* 8 no. 2 (1979): pp. 80–89.

34. So, for example, Preston James asserted in the "Introduction" of James and Jones, eds., *American Geography,* that efforts to apportion knowledge among the natural sciences, the social sciences and the humanities "is intolerable for geographers, for that must deal with man as well as that which is not man (now commonly defined as nature), and the two are intimately intermixed wherever man has been on the earth . . . Actually there is just one kind of geography," p. 15—but then continues to say that practicing this unitary geography is impossible: "each individual scholar must define a subdivision or subdivisions of the whole for his own purposes. It is necessary to specialize both areally and topically," p. 16.

35. Richard Hartshorne, *The Nature of Geography: A Critical Survey of Current Thought in Light of the Past* (Lancaster, PA: Association of American Geographers, 1939); Richard Hartshorne, *Perspective on the Nature of Geography* (Chicago: Rand McNally, 1959).

36. For a critique of this aspect of Hartshorne see Joseph A. May, *Kant's Concept of Geography and Its Relation to Recent Geographical Thought* (Toronto: Published for the University of Toronto Department of Geography, University of Toronto Press, 1970).

37. These developments are reviewed in Conzen, "The Historical Impulse," and Wynn, "The Writing." The phrasing is an allusion to Graeme Wynn, ed., *People Places Patterns Processes: Geographical Perspectives on the Canadian Past* (Toronto: Copp Clark Pitman, 1990) to which the "Introduction" (pp. 1–37) also provides an annotated guide to relevant literature.

38. J. A. Langton, "The Two Traditions of Geography: Historical Geography and the Study of Landscapes," *Geografisker Annaler* Ser. B, *Human Geography* 70B no. 1 (1988): pp. 17–25; See also David Harvey, *Explanation in Geography* (London: Edward Arnold, 1969) for one of the landmark texts in the development of spatial-analytical approaches.

39. Roderick Nash, *Wilderness and the American Mind* (New Haven: Yale University Press, 1967).

40. Intrigued by Nash and intellectual history (a field I had not previously encountered), I mooted the idea of taking a graduate course in the field, but this was looked upon somewhat askance; as it happened, Carl Berger, whose tutelage I would have sought, was on leave that year. The work in the forestry and botany libraries was not in vain. The chair of my dissertation defence was from the Faculty of Forestry. When he asked me some pointed questions about the reproduction of pine trees and other such things, my geography committee members thought I was sunk, but I was able to muster responses sufficient unto the day (or my interrogator had a kindly disposition!).

41. Graeme Wynn, *Timber Colony: A Historical Geography of Early Nineteenth Century New Brunswick* (Toronto: University of Toronto Press, 1981).

42. Marsh, *Man and Nature,* p. 233.

43. Marsh, *Man and Nature,* p. 279–80.

44. Graeme Wynn, "Administration in Adversity: Deputy Surveyors and Control of the New Brunswick Crown Forest before 1844," *Acadiensis* 7 (1977): pp. 49–65.

45. James Willard Hurst, *Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836–1915* (Cambridge, MA: Belknap Press of Harvard University Press, 1964); On Innis, see Robin Neill, *A New Theory of Value: The Canadian Economics of H.A. Innis* (Toronto: University of Toronto Press, 1972) and Melville H. Watkins, "A Staple Theory of Economic Growth," *Canadian Journal of Economics and Political Science* 24 (1963): pp. 141–58. After failing to connect with Carl Berger and his

intellectual history course at Toronto I had the benefit of a year-long seminar on staples trades (or the "staples story" as Dales had it) in the Department of Political Economy, taught by John Dales and John McManus. For an introduction to Lower (as well as Innis) see Carl C. Berger, *The Writing of Canadian History: Aspects of English Canadian Historical Writing since 1900* (Toronto: University of Toronto Press, 1986): pp. 112–36 and 85–111. H. C. Darby, "Historical Geography," in H. P. R. Finberg, ed., *Approaches to History* (London: Routledge and Keegan Paul, 1962): pp. 127–56.

46. Thomas Simpson, *Kauri to Radiata: Origin and Expansion of the Timber Industry in New Zealand* (Aukland: Hodder and Stoughton, 1973); Review in *New Zealand Geographer*, 31 (1975): pp. 92–93.

47. Graeme Wynn, "Conservation and Society in Late Nineteenth Century New Zealand," *New Zealand Journal of History* 11 (1997): pp. 124–36; Graeme Wynn, "Pioneers, Politicians and the Conservation of Forests in Early New Zealand," *Journal of Historical Geography* 5 no. 2 (1979): pp. 171–88.

48. Cited in Wynn, "Pioneers, Politicians," pp. 180–82.

49. Wynn, "Pioneers, Politicians," p. 185.

50. Some of what I had in mind was later undertaken for his University of Canterbury Ph.D by Michael Roche, who was an undergraduate student in geography during my time at that institution. See his *Forest Policy in New Zealand: An Historical Geography, 1840–1919* (Palmerston North: The Dunmore Press, 1987).

51. Kenneth B. Cumberland, "A Century's Change: Natural to Cultural Vegetation in New Zealand," *Geographical Review* 31 no. 4 (1941): pp. 529–54; Andrew H. Clark, *The Invasion of New Zealand by People, Plants and Animals: the South Island* (New Brunswick, NJ: Rutgers University Press, 1949); Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (London and New York: Cambridge University Press, 1986): pp. 217–68. See also Eric Pawson and Tom Brooking, eds., *Environmental Histories of New Zealand* (Melbourne: Oxford University Press, 2002).

52. Marsh, *Man and Nature*, pp. 60–62.

53. W. Herbert Guthrie-Smith, *Tutira: The Story of a New Zealand Sheep Station* (Edinburgh: Blackwood, 1921).

54. See Graeme Wynn, "The Introduction of Species: Faunal and Floral Colonisation," Plate 42 of M. McKinnon, ed., *The New Zealand Historical Atlas* (Auckland: Bateman, 1997) and Graeme Wynn, "ReMapping *Tutira*: Contours in the Environmental History of New Zealand," *Journal of Historical Geography* 23 no. 4 (1997): pp. 418–46.

55. Samuel P. Hays, *Beauty, Health and Permanence: Environmental Politics in the United States, 1955–1985* (New York: Cambridge University Press, 1987) and Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890–1920* (Cambridge, MA: Harvard University Press, 1959).

56. Richard White, "Environmental History: The Development of a New Historical Field," *Pacific Historical Review* 70 (2001): p. 103.

57. John R. McNeill, "Observations on the Nature and Culture of Environmental History," *History and Theory* 42 no. 4 (2003): pp. 5–43.

58. William Cronon, "Foreword: Look Back to Look Forward," Lowenthal, *Prophet of Conservation*, p. ix.

59. Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism* (Cambridge, UK: Cambridge University Press, 1995); in a related vein, see Michel F. Girard, "Conservation and the Gospel of Efficiency: Un Modele de Gestation de l'envronnement Venu d'Europe?" *Histoire Sociale/Social History* 23 (1990): pp. 63–80.

60. Richard W. Judd, *Common Lands, Common People: The Origins of Conservation in Northern New England* (Cambridge, MA: Harvard University Press, 1997).

61. Richard W. Judd, "George Perkins Marsh: The Times and Their Man," *Environment and History* 10 no. 2 (May 2004): pp. 169–90.

62. Graeme Wynn, "'On Heroes, Hero-Worship and the Heroic' in Environmental History," *Environment and History* 10 no. 2 (May 2004): pp. 133–52.

63. Lowenthal, *Prophet of Conservation,* pp. 420–22.

64. Michael Williams, "The Origin and Construction of Knowledge," *Environment and History* 10 no. 2 (May 2004): pp. 127–31; Clarence Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (Berkeley and Los Angeles: University of California Press, 1967).

65. Lowenthal, *Prophet of Conservation,* pp. 415–16.

66. Lowenthal, *Prophet of Conservation,* p. 420.

67. The phrase is adapted slightly from Carl O. Sauer, "The Morphology of Landscape," John Leighly, ed., *Land and Life: Selections from the Writings of Carl Ortwin Sauer* (Berkeley and Los Angeles: University of California Press, 1969): p. 316.

68. McNeill, "Observations on the Nature . . . ," p. 6.

69. Thomas H. LeDuc, "An Ecological Interpretation of Grasslands History: The Work of James C. Malin as Historian and as Critic of Historians," *Nebraska History* 31 no. 3 (September 1950): pp. 226–33.

70. An attempt to order the Canadian literature in the field is made in Matthew Evenden and Graeme Wynn, "54,40 or Fight: Writing within and across Borders in North American Environmental History," in Paul S. Warde and Sverker Sorlin (ed.s) *Nature's End: History and the Environment* (Palgrave, forthcoming 2008).

71. References are to Jared M. Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking, 2005); Ronald Wright, *A Short History of Progress* (Toronto: Anansi, 2004); Joseph Tainter, *The Collapse of Complex Societies* (London and New York: Cambridge University Press, 1988) and Paul R. and Anne H. Ehrlich, *One with Nineveh: Politics, Consumption and the Human Future* (Washington, DC: Island/Shearwater Books, 2004). There are thoughtful reviews of Diamond's work in *Current Anthropology* 46 (2005)—see especially David Demeritt, pp. S92–94—and Matthew Evenden, "Twenty-First-Century Magic," *Journal of Historical Geography* 32 no. 4 (2006): pp. 864–70. I offer more extended reflections on these matters in "Hubris and Hope," *Canada and Arctic North America: An Environmental History* (Santa Barbara: ABC-Clio, 2007): pp. 383–91.

72. Marsh, *Man and Nature,* p. 15.

Further Reading

Coates, Peter. "Clio's New Greenhouse." *History Today* 46 no. 8 (August 1996): pp. 15–22.

Langton, John A. "The Two Traditions of Geography: Historical Geography and the Study of Landscapes.' *Geografiske Annaler* Ser. B. Human Geography 70B (1988): pp. 17–25.

Marsh, George Perkins. *Man and Nature, or Physical Geography as Modified by Human Action,* David Lowenthal, ed. Cambridge, MA: The Belknap Press of Harvard University, 1965.

McNeill, John R. "Observations on the Nature and Culture of Environmental History." *History and Theory* 42, 4 (2003): pp. 5–43.

Trombulak, Steven, ed. *So Great a Vision: The Conservation Writings of George Perkins Marsh.* Middlebury, VT: Middlebury College Press and Lebanon, New Hampshire: University Press of New England, 2001.

Wynn, Graeme. "Geographical Writing on the Canadian Past." M. Conzen, T. Rumney, and G. Wynn, eds. *A Scholar's Guide to Geographical Writing on the American and Canadian Past.* Chicago: University of Chicago Press, 1993, pp. 91–124.

Wynn, Graeme. "A Fine Balance? Geography at the Millennium." *The Canadian Geographer* 43 no. 3 (1999): pp. 220–43.

Wynn, Graeme. *Canada and Arctic North America: An Environmental History.* Santa Barbara: ABC-Clio, 2007.

Ice, Worms, and Dirt: The Power of Nature in North American History

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The 2004 tsunami that killed over 250,000 people living along the shores of the Indian Ocean sent a shock wave through western culture. And now Hurricane Katrina has, on a much smaller scale, done the same for people in the United States. In both cases we learned how vulnerable our vaunted technological civilization is to the power of the natural world. Historians are scurrying to find examples from the past when other natural calamities similarly destroyed lives, upset the political order, and challenged religious beliefs in divine providence. They point to the volcanic explosion of Krakatoa in 1883 or the Lisbon earthquake of 1755 or dozens of El Niño effects that, besides causing immense human suffering, may also have brought significant change to the social or intellectual order. A new field of "disaster history" has sprung up, with the usual mix of serious scholars and publicity-seeking charlatans vying to say just how powerful nature has been as a force in history.

But nature not only inflicts us with sudden tragic events that kill or disrupt or impoverish. Far more of nature's power comes to us with the slow, relentless, gradual force of a glacier in motion or a continent in drift and over scales of time that far transcend our written records or memories, scales that often could have been revealed only by modern scientific methods. That power is not simply destructive, although it is always simply indifferent. We would not number over six