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0521343658 - The Ends of the Earth: Perspectives on Modern Environmental History

Edited by Donald Worster

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INTRODUCTION

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I The Vulnerable Earth: Toward a Planetary History

Donald Worster

It is man's earth now. One wonders what obligations may accompany this infinite possession.

—Fairfield Osborn, *Our Plundered Planet* (1948)

IN THE EARLY DAYS of October 1492, great flocks of birds, migrating southward along the eastern flyway of North America, following an ancient course over open water far from sight of land, fly over three small Spanish caravels. The ships' crews and their captain, Christopher Columbus, have come from Europe across more than two thousand miles of open ocean. They have no idea of how many more miles they have yet to go to reach land, and many of them are tired and fearful. So far they have been following abstract theory, not instinct. But now, abandoning all their logical calculations, the men follow in the wake of the birds. They are on a direct line to the nearest landfall. On 12 October a lookout discerns a whitish cliff in the moonlight and sings out, "Tierra, tierra!" By noon of that day Captain Columbus is ashore on a tiny green island in the Bahamas, bearing the cross of Christendom and kneeling in joy and relief that his voyage has been a success. He is nowhere near his goal, Japan and the Indies, he will soon realize. Instead, with the help of the migrating birds he has arrived at a new and altogether unsuspected world.

If modern history has a single, fabled point of beginning, it is here with Columbus's finding of the Americas. They had not been lost, they simply had not existed heretofore in the European mind. Now suddenly there they loomed, all shining with hope and invitation for the new people of power: an array of islands, continents, vast tropical jungles, a promise of gold and spices and who knew what else, a place inhabited by a race that seemed, in the words of court historian Peter Martyr, "to live in that golden world of which the old writers speak so much, wherein men lived simply and innocently without enforcement of laws, without quarreling, judges and libels,

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content only to satisfy nature.”¹ That momentous discovery would be followed by many explorations into faraway corners of the earth, including Ferdinand Magellan’s crossing of the Pacific Ocean less than thirty years later, in 1520 and 1521. There would follow too the most extraordinary period of economic and demographic expansion in history, one that would radically alter the human condition. Food and other resources from the New World would provide much of the raw material for that expansion. And Columbus’s discovery would also open a long era of global destruction, when native peoples everywhere would fall before the European onslaught, before an aggression that was at once biological, political, and cultural, when the entire planet’s fabric of life would be torn asunder in a frenzy of greed, lust, noble ambition, and high-minded idealism.

We are now approaching a grand ritualistic climax in this story, the five hundredth anniversary of Columbus’s arrival in the New World. On such an occasion, it is irresistible to ask whether we are passing from one era into another, from what we have called “modern history” into something different and altogether unpredictable. No one can know for sure the answer to that question, but there is some reason to think that we may be. In recent decades two nations, the Soviet Union and the United States, have launched new ships, new voyagers, into the unknown, the uncharted space lying beyond the earth, and landed them on the moon. As surely as Columbus’s report from the Bahamas opened wide the imaginations of European men and women, so these recent events are impelling us all, Westerners and non-Westerners alike, into new realms of thought and perception. The intuition of Columbus and his age that the world was a sphere has now become a photograph. It has appeared on the covers of news magazines, on posters, and in corporate advertising. What that photograph says to us is elusive and contradictory. For some it seems to say that, at last, the earth is ours – we own it all, we dominate it, and it is our launching pad for further quests of power into outer space. For others, however, it says we live on a very small and vulnerable ball, the blue and green planet of life, floating alone and unique in the solar system, drifting in all its minuscule fragility among billions of other planets and suns and galaxies. Whatever the message in the photograph, we may not be the same after seeing it. Such a revelation of where we live may bring with it, slowly, at first almost imperceptibly, a revolution in thinking.

Grant the possibility that these two dramatic events of human exploration, the beaching in the West Indies and the landing on the moon, may indeed mark off a distinct phase of history. During its course our species, though to a widely varying degree among us, has extended its sense of a

¹ Martyr, cited in Samuel Eliot Morison, *The Great Explorers: The European Discovery of America* (New York, 1978), p. 403.

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home place beyond any single parish or country to encompass the entire globe. Today we are vividly aware that we share this globe with many other races, cultures, and ideologies, that though other people may live completely out of our sight, may dwell on the far side of the globe, what we do here can affect them there. Quite simply, we have been acquiring over the past half millennium a sense of global interdependence. The fact is so familiar, so commented on, that it has begun to lose its simple, riveting force. At the same time the immense implications in this mental revolution for our understanding of history have scarcely been realized.

Similarly, we have been drastically altering our understanding of the earth itself. In Columbus's time and before, people felt themselves wholly at the mercy of natural forces. At sea they went where the wind would take them, trusting it would bring them back home again. They realized that nature had terrific power over them, but could not anticipate in this life the reverse occurring. Columbus, for example, had no inkling of the impact his voyage would have on the ecological order of the New World. He expected the natives would be converted to Christianity, but the organization of nature would remain, he assumed, inviolable as decreed by God, safely immune from human impact.² How extraordinary has been the change in that way of thinking! Today we are made aware, by almost every newspaper issued, of some destruction that humans have worked in nature. We read daily about pollutants spewing across national borders, even across oceans, to poison trees and sterilize lakes. We have learned that our burning of fossil fuels may be changing the carbon dioxide level in the atmosphere, with frightening implications for world climate patterns, for agriculture, for coastal settlements that may be flooded by a melting ice cap. We have had to confront the fact that when we in the United States manufacture a pesticide like DDT and sell it around the world, it can eventually turn up in the bodies of penguins living innocently at the South Pole. We may not want to accept responsibility for those outcomes – and many of us do not – but we cannot be unaware of them.

It was just such facts of environmental damage on a global scale that led, in 1971, to the United Nations Conference on the Human Environment in Stockholm, Sweden, and the subsequent founding of the United Nations Environment Programme. The official report of the Stockholm conference bore the title *Only One Earth*. Its authors, the British economist Barbara Ward and the American scientist Rene Dubos, articulated as well as anyone the change in consciousness that has occurred in the modern era. "As we

² The European impact is authoritatively discussed in Alfred Crosby's *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, Conn., 1972) and his *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (New York, 1986).

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enter the global phase of human evolution,” they wrote, “it becomes obvious that each man has two countries, his own and the planet Earth.”³

If each of us now has two countries to care about, we also have two histories to write, that of our own country and that of “planet Earth.” And it is high time we began asking what that second history has been, began pursuing not merely the history of this people or that living in isolation from all others – glorifying their achievements or tracing their follies – but the history of all peoples colliding and cooperating with one another on a shrinking island in space.

When that larger planetary history gets fully written, it will surely have at its core the evolving relationship between humans and the natural world. Planetary history has been fundamentally environmental history. It has been the story of a long shifting away from direct and local interaction with the earth, as the defining context of daily life, to dealing with it more indirectly and globally, through the impersonal mediation of powerful centralized political institutions, elaborate technologies, and complicated economic structures. Some will insist that there have been significant gains in that shift and strong, compelling reasons for making it. True enough, but all the same the transformation did not come without costs, ecological as well as social, and a large part of the new planetary history must entail calculating those costs and determining who or what paid them and why.

Planetary history has itself a history: a cycle of getting invented, being endlessly refined, of going through radical revisions. To locate the very earliest gropings in this direction one would have to go back to Genesis, to Clio, the Muse of history, to thousands of anonymous creation myths and stories.⁴ But in terms of modern consciousness, secularized and scientized as it is, one could locate the origins of planetary history in a small book published in 1779, *Des epochs de la nature*. Its author was the French naturalist Georges-Louis Leclerc, the Comte de Buffon, who was one of the most influential minds of his day. Beginning back at the point of creation, Buffon argued, there have been seven grand epochs in the history of the earth. The first six follow closely the biblical story of creation, including the appearance of humans and their long bondage under the authority of nature. Then comes the seventh and last epoch, commencing with the invention of agriculture, when the tables begin to turn and humans

3 Ward and Dubos, *Only One Earth: The Care and Maintenance of a Small Planet* (New York, 1972), p. xviii.

4 The earliest and most common of these “histories” had humans emerging, as in an actual birth, from their Mother Earth. When people stopped believing that account, turning on their mother with exploitation in mind, it can be said that the modern era began. See Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Francisco, 1980), esp. chap. 1.

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assume more and more command, destined in modern times to become lords of the earth. By the eighteenth century, Buffon believed, that final age of human dominance had arrived in full glory. “The state in which we see nature today,” he writes, “is as much our work as it is hers. We have learned to temper her, to modify her, to fit her to our needs and desires. We have made, cultivated, fertilized the earth; its appearance, as we see it today, is thus quite different than it was in the times prior to the inventions of the arts.”⁵

Buffon’s book, so neatly rational and schematic, appeared almost three hundred years after Columbus’s first voyage of discovery, but it could not have been conceived without that event. It was part of the new empire of European reason, asserted in this case over the past. In reports from the New World, telling how other Europeans had followed in the wake of Columbus and altered the landscape, Buffon believed he could see recapitulated the entire seventh epoch of history: First, there was a state of wilderness; then savages cleared the land by fire and ax; finally, the savages were supplanted by civilized people who gave polish and embellishment, creating a work of art out of rudeness. “Uncultivated nature is hideous and languishing,” the first human declares; “It is I alone who can render it agreeable and vivacious.” But the European, not the feeble savage, feels that ambition most intensely; and eventually, by draining marshes, cutting away forests, confining rivers, exterminating all weeds and vermin, he makes the New World over into “a place of perfect repose, a delightful habitation, where man, destined to aid the intentions of Nature, presides over every other being.”⁶

The Count died in 1788, never having had the opportunity to see firsthand, in action, his program of New World conquest. Nor did he apprehend how soon the triumphant epoch of man would begin to go sour. Within another seventy or eighty years that souring had begun. A radically different view of the human transformation of the earth was emerging, one in which humans appeared, not as the earth’s redeemer, but as its destroyer.

The first writer to so portray and systematically document the latest epoch was an extraordinary American polymath, George Perkins Marsh, born on the primitive frontier of Vermont but destined to an international career in diplomacy and conservation. In 1864 he brought out the first edition of his book *Man and Nature*, which would start many people thinking about the darker consequences of emerging human power. Marsh’s object was to indicate the character and

5 Buffon, cited in 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, 1967), p. 666.

6 Buffon, *Natural History, General and Particular*, trans. William Smellie, 2d ed. (Edinburgh, 1785), vol. 6, pp. 257–9.

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the extent of changes produced by human action in the physical conditions of the globe we inhabit; to point out the dangers of imprudence and the necessity of caution in all operations which, on a large scale, interfere with the spontaneous arrangements of the organic or the inorganic world; to suggest the possibility and the importance of the restoration of disturbed harmonies and the material improvement of waste and exhausted regions; and, incidentally, to illustrate the doctrine, that man is, in both kind and degree, a power of a higher order than any of the other forms of animated life, which, like him, are nourished at the table of bounteous nature.

Beneath those rotund Victorian phrases lay a feeling of revulsion toward many of the environmental changes going on, changes Buffon had seen as improvements. Marsh had grown up in the New World as it was undergoing invasion and conquest, and what he saw was not a nobler design emerging out of chaos but a violent ravaging of natural harmonies. Something irreplaceable was being shattered, and the destroyers were in the end sure to be losers. “The earth,” Marsh wrote, “is fast becoming an unfit home for its noblest inhabitant.”⁷

Both Buffon and Marsh would have agreed that nature is no longer in a position to set all the terms of human life. They alike celebrated the modern age as a time of liberation for the species, a time of its coming to power. Neither man regretted that revolution or wanted to return to some more vulnerable, fearful dependency on nature. Why then did Marsh find so much cause to be alarmed? What had happened in the short interval between his own and Buffon’s lifetime to produce so critical an appraisal?

There were two major forces that appeared full-blown in that interval, and each force would continue to reverberate down to our lives today. Marsh identified neither of them, probably because he was not yet in a position to connect them clearly with the damage going on. But the two forces are clear enough to us in retrospect. We can see how, working together, they began to put the earth and its processes of life in an unprecedented state of vulnerability.

The first of those forces was an explosive increase in the European population, followed by a wave of out-migration to new lands all over the globe. That increase had gotten underway much earlier, though for a long time it was not easy to perceive. In Buffon’s time one group of savants were actually convinced that the world had fewer people living in their day than in ancient times. Buffon was not one of them, believing as he did, and quite accurately, that the demographic trend was upward, not downward. Indeed, that belief was one of the reasons for his optimism: More people meant more hands to rearrange the earth into a civilized state. But if Buffon saw the trend rightly,

⁷ Marsh, *Man and Nature, Or, Physical Geography as Modified by Human Action* (Cambridge, Mass., 1965), p. 3. See also David Lowenthal’s biography *George Perkins Marsh: Versatile Vermonter* (New York, 1958).

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he did not appreciate the full momentum of that increase or anticipate where it would lead or what problems it would entail.⁸

Go back to the year 1500, when the European population stood somewhere around 80 million. It had been on a slow rebound from the hideous losses brought by the black death, the epidemic of bubonic plague that had swept the continent in the mid-fourteenth century, when between a quarter and a third of the people had died. By the sixteenth century the European numbers had been restored to what they had been at their medieval peak – and thereafter they would soar and soar and soar. Plagues, wars, and famines would continue to occur, but they would have only a minor moderating impact. By 1750 the number of people in Europe had climbed to an estimated 140 million. The largest agglomerations were found, in descending order, in Russia, France, Germany, and Italy. And the numbers were far from leveling off. Over the next hundred years they rose to 266 million, at a rate of increase that was more than twice the previous record set back in the twelfth century. Now the fastest growing region was the British Isles, increasing threefold from 9.25 million in 1750 to 28 million in 1850, and that despite the massive potato famine that struck Ireland late in the period. These were the most spectacular rates in world experience. Outside Europe, only China came close to matching them.⁹

More people meant more crowded conditions and fewer opportunities to make a living: the iron law of human ecology. Consequently, surplus population began leaving the Old World for the New, leaving in droves and hordes, leaving by boats and ships of every dimension. The overwhelming majority headed for lands lying in the temperate latitudes, wherever the natives were few in number or were dying from introduced diseases or were militarily weak. The invaders entered North America, Argentina, Australia, South Africa – but not densely populated China or Japan or the tropics. Wherever they did not settle in large numbers, Europeans tried to take command through winning and defending their colonial empires. By the time George Perkins Marsh wrote, evidence was accumulating from all over the earth on the ecological impact of this outflow of numbers and power. Marsh, however, was struck not only by that impact overseas. In Europe, he realized, extensive environmental changes had been going on. For instance, in France, which Buffon had once held up as a model of environmental improvement, there had been widespread degradation; from 1750 to 1860,

8 Glacken, *Traces on the Rhodian Shore*, pp. 625–32, 678.

9 These statistics are taken from Colin McEvedy and Richard Jones, *Atlas of World Population History* (Harmondsworth, Engl., 1978), pp. 19–119. See also, among the large number of titles in historical demography, William Langer, “Europe’s Initial Population Explosion,” *American Historical Review* 69 (October 1963): 1–17. Langer argues that a major reason for the increase may have been the introduction of the potato from the Americas, which gave two to four times the food value of grain per acre.

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the country had cut down no less than half its forest acreage, leaving people exposed to floods, soil erosion, and timber shortages.¹⁰

But it would be completely unsatisfactory to ascribe all those environmental changes to the crude, blunt agency of population increase. Such an explanation would not tell us precisely which groups, or which economic classes, in European society were experiencing most of the increase and why. It would not inform us that, within nations, some regions were gaining while others were losing population. Nor would it reveal the full complexity of the out-migration going on: which people left and why, which villages and cities furnished the largest numbers, whether the migrants were rich or poor, and so forth.¹¹ Finally, it would not acknowledge the fact that eventually, with rising levels of food and affluence, Europe would begin to see its birth rates fall, would even experience in some places by the twentieth century a negative growth rate. This so-called demographic transition, in which fertility responded to improving economic conditions, suggests that population has not always been a steady, unrelenting force of change, that it waxes and wanes in intensity, that one day it might even disappear altogether as an important agent of environmental vulnerability.¹² Explaining the modern degradation of nature requires us, in other words, to look beyond these broad demographic trends.

We come thus to the second force that was making Marsh's world seem quite different from that of the eighteenth century: the rise of the modern capitalist economy, its evolution into industrialism, and its diffusion to the rest of the globe. Here again, the origins of this agency go back well before the modern era; markets and trade had existed in premodern times, indeed could be found through most of the world and most of history. Nonetheless, they were nowhere rigorously made the center of economic life and social organization before 1500. The market had not yet become the key economic institution, nor the values associated with it the basis of a new social philosophy. A preliminary stage in the transformation occurred in what Immanuel Wallerstein has called "the long 16th century," the period running from 1450 to 1640, during which a capitalist world-economy began to take shape out of a concatenation of the northern cities of Italy and the old Hanseatic League of Germany.¹³ But the market did not really remake the

10 Marsh, *Man and Nature*, p. 253.

11 Bernard Bailyn's *Voyagers to the West: A Passage in the Peopling of America on the Eve of the Revolution* (New York, 1986), esp. chap. 1.

12 On the demographic transition, see William Peterson, *Population*, 3d ed. (New York, 1975), pp. 8–15. One must always remember that such a transition is not a law but only a pattern observed, with no assurance of universal validity.

13 Wallerstein, *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (New York, 1974), esp. chap. 4. For a more comprehensive treatment of the origins of market society, see Fernand Braudel, *The Wheels of Commerce*, vol. 2 of *Civilization and Capitalism, 15th–18th Century*, trans. Sian

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lives of most Europeans until much later, until the eighteenth and even nineteenth centuries. It had first to pass through several more stages, from the organized trading of goods produced in traditional ways to industrial capitalism, which was a radical new mode of producing those very goods, using wage labor in factories owned by a new class of capitalists. Moreover, on the level of culture and ideas, the full emergence was slow in coming, and not until 1776 did it reach a kind of culmination, with the publication of Adam Smith's masterly blueprint *The Wealth of Nations*. That work provided, at last, a sophisticated rationale for the emerging economic system, showed it had achieved a high level of self-awareness, and finally put into clear, compelling words a new way of regarding nature.

The capitalists and their theoreticians promised that through the technological domination of the earth, they could deliver a more fair, rational, efficient, and productive life for everyone, themselves above all. Their method was simply to free individual enterprise from the bonds of traditional hierarchy and community, whether the bondage derived from other humans or the earth. That meant teaching everyone to treat the earth, as well as each other, with a frank, energetic self-assertiveness, unembarrassed by too many moral or aesthetic sentiments. To behave otherwise must be tantamount to failure as a human being. People must begin to work and produce not for the purpose of meeting their own family and community needs directly, but for selling to others, more often than not to strangers, and then must buy whatever was needed at home. Above all, they must learn to pursue relentlessly their own private accumulation of wealth. They must think constantly in terms of making money. They must regard everything around them – the land, its natural resources, their own labor – as potential commodities that might fetch a profit in the market. They must demand the right to produce, buy, and sell those commodities without outside regulation or interference.¹⁴ Such a way of thinking was supposed to be superior to any that preceded it because it was more logical and scientific, more “natural” to humans. As Adam Smith put it, capitalism rested on a “certain propensity in human nature . . . to truck, barter, and exchange one thing for another.”¹⁵ Natural it might have been, but neither he nor any other promoter of this new ethos expected it to be accepted without plenty of persuading. It would take a dedicated effort on their part to transform what traditionally had been regarded as vices, the dark energies of greed and envy, into virtues and blessings to the race.

Reynolds (New York, 1982); and the succeeding volume, *The Perspective of the World* (New York, 1984).

14 Karl Polanyi's *The Great Transformation* (New York, 1980) still offers the best account of this moral attitude. See esp. chaps. 11 and 15.

15 Smith, *The Wealth of Nations* (New York, 1937), p. 13.