I

In one nineteenth century definition, history is 'the record of what one age finds worthy in another'. With regard to environmental history, however, its primary research agenda might well be defined as 'the record of what one age finds unworthy in another'. Hence the overwhelming emphasis of many environmental historians on processes of ecological degradation, and on the identification of the human agents behind these processes. While the characterization of past ecological crimes remains the primary task, a secondary activity more closely approximates the conventional nineteenth definition of history. This is the study of currents of resistance to environmental abuse—on the part of marginalized social groups or individuals with an ecological conscience well ahead of their times—which some environmental historians do indeed find worthy of celebrating in another age.

The salience of these primary and secondary research agendas is well illustrated by the development of environmental history in the United States of America, where the field is perhaps at its most vibrant. Although there are some well-acknowledged pioneers, such as the geographer Carl Sauer and the historian of the Great Plains W.P. Webb, environmental history in the U.S.A. emerged as a distinct field only in the wake of the modern environmental movement; that is, from the early 1970s.
onwards. From the vast outpouring of dissertations, books and articles in the past two decades, it is easy to identify the primary research agenda as being the study of past environmental crimes: in particular, the ecological destruction and social dislocation consequent on the European colonization of the Americas, as well as later processes of resource exhaustion and pollution with the growth of industrial capitalism. The secondary research agenda involves the study of factors that have challenged (however unsuccessfully) these processes of environmental destruction. Thus the celebration by some historians of the environmental wisdom of Native Americans, and the writing by others of biographies of early environmentalists, such as the naturalist and wilderness lover John Muir, and the forester and ecologist Aldo Leopold.

The most celebrated works of American environmental historians can with little difficulty be located in this scheme. Among the many fine studies of the conflict between European colonists and Native Americans, one may single out Alfred Crosby’s wideranging examination of the biological aspects of this encounter, and William Cronon’s more subtle and sociologically sensitive study of the clash of economies, institutions and ideologies in colonial New England. As for studies of early environmentalists, there have been two substantial intellectual biographies of Aldo Leopold, while at least three major works on the life and ideas of John Muir appeared within the space of four years. Better known than any of these is Roderick Nash’s monumental history of wilderness thinking in America, whose recent sequel examines the historical development in the U.S.A. of ‘environmental ethics’.2

The moral force of American environmental history is best expressed in the writings of Donald Worster, perhaps the most influential scholar in the field. Worster once remarked that the writing of environmental history in the United States has largely been a playing out, in different venues and


1 In a meeting on environmental history held at Nuffield College, Oxford in April 1991, sponsored by the American Social Science Research Council.
time periods, of the great ideological debate in early twentieth century American history between the utilitarian forester Gifford Pinchot and the preservation oriented naturalist John Muir. Whereas Pinchot, as a ‘progressive conservationist’, wished primarily to put natural resources more efficiently to human use, Muir was a doughty defender of the wilderness who believed nature had an intrinsic value quite apart from human needs. Not surprisingly, for most American environmentalists (and environmental historians) Pinchot has come to symbolize the urge to dominate and subdue nature, Muir the wish to respect and honour it.

Worster’s first book, a marvellous study of the rise of ecology in the West entitled (after a phrase of Henry Thoreau’s) Nature’s Economy, is itself a good example of the working out of the Pinchot–Muir dialectic in the writing of environmental history. This work is woven around the broad opposition between ‘Imperial’ and ‘Arcadian’ attitudes to nature, with different scientists exemplifying one or the other perspective. Where Imperial scientists believe that nature is made exclusively for man, the ideas of Arcadian ecologists rest on a more holistic and sympathetic attitude to nature and natural processes.4

While Nature’s Economy ranges widely across cultures and centuries, Worster’s second book is a fine grained analysis of one event in American history—the dust storms that ravaged the Great Plains in the nineteen thirties. The book is a rousing indictment of the ethos of capitalist agriculture. In Worster’s presentation, underlying the ecological and social dislocation of the Dust Bowl lay an economic culture—capitalism—destructive both of land and of human community. This is a beautifully written and at times deeply moving study, with the narrative embellished with the skilful use of contemporary photographs.5

Worster’s most recent work is set further west. This is a history of water development in California which relies heavily on Karl Wittfogel’s theory of irrigation despotism. Rivers of Empire mounts a broadside against the technocrats and engineers whose visionary schemes have both subordinated farmers to the power of the state and caused environmental degradation. (Interestingly, the California irrigation schemes were in part modelled on the massive canal network of British India, being thus a rare example of technology transfer from East to West.) While written with the author’s customary flair and passion, this is perhaps Worster’s least impressive work, its theory tending to run somewhat ahead of the supporting evidence.6

Donald Worster is a wonderfully evocative writer, and an old fashioned populist in the best sense of the term. Both Dust Bowl and Rivers of

Empire contain lyrical descriptions of the natural beauty of the Old America, before capitalist farming and irrigation engineers began desecrating it. Yet in his writings (as William Cronon has also pointed out), environmental history is not always clearly demarcated from environmental prophecy. Again, Worster’s accounts of Great Plains and California agriculture tend to privilege the role of an all-pervasive ideology—‘capitalism’ in the one case, ‘scientific irrigation’ in the other—without satisfactorily demonstrating the ways in which the practice of farmers or scientists actually embodied these ideas.

The writing of environmental history in India is as yet in its infancy, but such studies as have appeared point to some interesting parallels with the American situation. There is little doubt that it is the pressures of the contemporary environmental movement, rather than internal scholarly debates, that explain the crop of recent works in environmental history. The forest conflicts of the nineteen seventies, for example, keenly influenced historical analyses of the colonial origins of state forest policy and the erosion of local rights. Likewise, the ongoing conflicts over large dams have prompted critical analyses of large irrigation systems as well as ethnohistorical studies of small-scale indigenous systems of water management. In all these studies, colonial capitalism is held squarely responsible for initiating processes of resource depletion and social conflict, though scholars have been quick to point out that these processes have in many respects been intensified by the policies of the post colonial state. Searching for countervailing processes (i.e. the secondary research agenda), I have myself invoked peasant movements in defense of forest rights as anticipating the Chipko Andolan, and tried to construct an intellectual genealogy for Indian environmentalism.1

With most practitioners being partisans of the environmental movement, the writing of environmental history in the U.S.A. and India is thus marked by passionate intensity rather than scholarly detachment. The best environmental historians are often moralists too, unambiguously identifying good and evil among individuals and ways of life. More generally, economic activities oriented towards local use are deemed ecologically benign, while exploitation of resources for the market or for distant consumers is reviled for leading to the destruction of the environment. Particular opprobrium is reserved for the master processes of colonialism and capitalism, which have destroyed both the environment and sustainable forms of livelihood such as hunting and gathering and subsistence agriculture.

Does environmental history then involve a commitment to the goals of the environmental movement? Are environmental historians always partisans of the ideology of 'Small is Beautiful'? That this link may not be inevitable is brought out by the experience of French historiography, which has for decades been keenly aware of the impact of the natural environment on social organization. In France, the ecological approach to history was influenced not by the environmental movement, but rather by the close relationship between history and geography in that country. I do not think that the term 'environmental history' is at all in currency here: all the same, work by leading French historians (particularly those belonging to the Annales School) can easily be assigned to this category. Among an earlier generation, one can instance Lucien Febvre's still valuable overview of the match between natural environments and forms of resource use, and Marc Bloch's great work on French agriculture, a model of ecological analysis in its study of the integration of arable with woodland and pasture. Within the post war generation of Annalists, both Fernand Braudel and Emmanuel Le Roy Ladurie have emphasized—some would say too strongly—the impress of the physical environment on human life.

The key organizing concept of much work in the Annales tradition is, of course, the longue duree. Here the natural environment—aspects of terrain, climate, and soil and water regimes—sets the broad limits within which economic life must persist, adapt, or change. Both the longue duree and the French invocation of 'total history' have had, in recent years, some influence on the writing of agrarian history in India. Thus economic historians of modern India have located the agrarian economy in its ecological setting, and underscored the importance of soil types, climatic patterns and population densities in directing agrarian change, particularly in the colonial period. While this awareness of the ecological context is welcome, it must be said that agrarian historians of the Annales school, as well as their Indian followers, have tended to see the natural environment as itself unchanging. Theirs is also a one-sided analysis of the influence of ecology on social structure, which omits from its purview the ways in which humans themselves have made sense of, used, regulated and fought over nature and natural processes.

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9 See for example David Ludden, *Peasant History in South India*, Princeton, 1985; Introduction and essays in the special issue on 'Essays in Agrarian History: India, 1850–1940'. *Studies in History*, New Series, Vol. 1, No. 2, 1985. Historians of ancient India and Indian archaeologists have for a longer time (and independently of Annales) been interested in the interaction of the economic system and the natural environment. An assessment of their work is however outside the scope of this essay.
These limitations notwithstanding, common to both French and American traditions of environmental history is a first hand acquaintance of historians with the landscapes they are writing about, and a willingness to use the materials and insights of the natural sciences to illuminate historical processes. (In both respects their work is exemplary for historians of India, who have tended to eschew fieldwork and are also diffident about learning from the sciences of nature.) However, French and American traditions differ in some important respects. One has already been alluded to—viz. that in the one case environmental history owes its origins to developments internal to the discipline of history, and to external influences in the other. A more notable difference has to do with the very different ecological histories of America and France. The European conquest of America, and the subsequent growth on its soil of an industrial economy and consumer society, was enabled precisely by the extinction of the continent's original inhabitants and of their ways of life. Not surprisingly, change and conflict have been the governing motifs of American environmental history. The longue durée has no meaning for American history after 1492. By contrast, France has had a far less disruptive history—speaking in both an ecological and cultural sense—the greater persistence of the landscape and of the mores of medieval life into the industrial epoch mean that historians are concerned as much with continuity as with change. Here the ecological history of India has strong parallels with both the American and French experience. While colonialism did seriously disrupt the ecological and social fabric of the subcontinent, nowhere did it assume genocidal proportions. And despite the rapid spurt in industrialization after Indian independence, preindustrial ways of life have not been completely extinguished—communities of hunters and gatherers, swidden cultivators, pastoralists, subsistence peasants and artisans are still continuing, though against ever greater odds, their traditional modes of resource use.¹⁰

II

I have noted the links, in both India and the United States, between environmental history as scholarly practice and environmentalism as a popular movement. That connection cannot be denied, but I now wish to argue that for its further development environmental history must be justified not in ideological terms (that is, as helping to bring about a more just and environmentally benign society) but rather as constituting a major expansion of the intellectual horizons of history.¹¹ To make the point more

¹⁰ See, in this context, Madhav Gadgil and Ramachandra Guha, This Fissured Land: An Ecological History of India, New Delhi and Berkeley, 1992, especially Chapters VI and VIII.
¹¹ Here there is an analogy with history from below and women's history, likewise fields powerfully influenced by social movements but which expand our understanding of history irrespective of any partisan commitment to socialist or feminist politics.
explicit, let me outline the model of society which most historians and social scientists work with. In this model, society can be conceptually divided into four broad bands—the economy, the polity, social structure and culture. The economy incorporates, in the Marxian sense, the forces and relations of production, or from a more conventional viewpoint, questions relating to the production, distribution and allocation of goods and services. The polity refers to the relations of power between different social groups, as well as to the institutions which regulate power relations, notably the law and the state. By social structure I mean those social arrangements critical to the reproduction of social units—for example family and kin relations (including relationships between the sexes), caste and community. Finally, the domain of culture embodies characteristic forms of collective self-expression (ritual, music, art) as well as ideas and ideologies which influence social life, whether religious or otherwise.

This four-fold division, of course, is an analytical division used by the historian: society does not divide itself so neatly. However, this schema can explain the evolution of subdisciplines within history—'economic history', 'political history', 'history of the family', and so on. One can also demonstrate the importance of this framework in comparative history and historical sociology. Thus differences between two societies—or between the same society at two points in time—may be explained by differences in family structure, or religious beliefs, or the role of the state.

Essentially, an environmental perspective adds a fifth basic category to this scheme—the ecological infrastructure of human society—i.e., soil, water, flora, fauna, climate etc. Humans are unique amongst the world's creatures in their elaborately developed culture(s), but this does not exempt them from fundamental ecological processes. It is true that to a considerable extent, historical events and processes can be adequately explained without reference to the ecological context: yet in many instances they cannot be properly understood without taking into account the natural environment within which humans, like any other species, live, survive and reproduce. While the ecological infrastructure powerfully conditions the evolution and direction of social life, human intervention itself tries to reshape the natural environment in its own image. It is this interdependence of the biophysical and sociocultural worlds that provides environmental history with its point of entry.¹²

Juxtaposing the ecological infrastructure to the economy, polity, social structure and culture gives us the following five-fold scheme, labelled for convenience from A to E:

¹² The interdependence of the natural and human worlds is foregrounded in the highly suggestive but forgotten early studies of the sociologist Radhakamal Mukerjee. See for example his works Regional Sociology, New York, 1926 and Social Ecology, London, 1942.
E CULTURE (the arts, religion, ideology)
D POLITY (relations of power, the law, the state)
C SOCIAL STRUCTURE (family and kinship, caste and community)
B ECONOMY (forces and relations of production, trade)
A ECOLOGICAL INFRASTRUCTURE (soil, water, forests, climate)

From this perspective, the research agenda of environmental history encompasses the reciprocal interactions between A, on the one hand, and B, C, D, and E on the other. Possible topics for research could include, in specific areas or time periods, the interaction of agriculture with common property resources like forests and water (A & B); the differentiation in access to natural resources by caste and gender (A & C); legislation pertaining to natural resources and conflicts around their use (A & D); or the 'ecological' implications of different religious and cultural traditions (A & E).

One could of course think of 'total' environmental histories which simultaneously study, in one inclusive framework, the reciprocal relations between A on the one side and B, C, D and E on the other. Given the astounding cultural and environmental diversity of India, there is much scope for the writing of regional histories, following this pattern, of identifiable cultural-ecological zones. Taking a particular region, one might then reconstruct (a) the indigenous production systems, their technical and social features, as well as the interaction between different modes of resource use (agriculture, horticulture, pastoralism, swidden cultivation, hunting, gathering, craft production, etc.); (b) the interventions in these resource use and management systems by the colonial and post colonial states; (c) the resulting social and environmental changes and their consequences for modes of resource use (with some old modes dying out, some new ones emerging, and others persisting but having to adapt to the changing ecology and political economy).

Work on environmental history in India, with or without a regional focus, can draw upon a wide range of source materials (I speak here only of the modern period). In the fields of forestry, health, irrigation and geology, the records of the colonial state are impressively thorough and largely untapped, while the agriculture records, when read from an ecological perspective, might yield rich dividends. There is too an abundance of official records for documenting human and environmental change after 1947. Again, the contemporary writings of travellers, naturalists and anthropologists may justifiably be treated as primary sources. Other valuable printed sources for documenting ecological change include scientific journals, newspapers, and maps. Above all, environmental historians might follow Marc Bloch in procuring thinner notebooks and thicker boots.
Regional histories of the kind outlined above, may very likely be the main direction in which the discipline of environmental history will move in coming years. It is on the basis of such studies, sharply delimited in time and space, that one can slowly begin constructing a comprehensive ecological history of India. At the same time, thematically focused studies also have much potential. These might take the form of research on the formation, execution and implications of state policy in different natural resource sectors (forests, water, fisheries, etc.); on the breakdown or persistence of indigenous conservation systems; on the ideology and practice of scientific conservation; on the ecology of health and disease; on urban environmental history, namely the mapping of resource flows between city and hinterland as well as the investigation of living conditions within cities; and on the ideas and mileux of early environmental thinkers.

There is no gainsaying the fact that India provides unending possibilities for the field of environmental history. Its ecological and cultural diversity is unmatched. It has had for millenia a rich mosaic of cultures and modes of resource use, spanning the whole range of productive activities known to humans. The coming into being of these diverse forms of resource use, and their interactions in the past and in the present, are waiting to be studied from an ecological perspective. Add to this the intensity and rapidity of environmental change in the past two centuries, and we have a research agenda that shall occupy us for years to come.

The potential of monographic research aside, there are also exciting possibilities for comparative research in the sphere of environmental history. Most obviously, an ecological perspective may yield fresh insights into the comparative history of European colonialism. Consider Alfred Crosby's provocative book, *Ecological Imperialism*. Historians of the New World have taken Crosby to task for his neglect of the socio-political, as distinct from ecological, aspects of the colonial encounter. As a student of Indian history, however, I also take issue with Crosby's argument that it was only in the New World that colonialism had a significant ecological impact. Baldly stated, Crosby's claim is that in the Americas and in Oceania 'ecological imperialism'—i.e., the extermination of indigenous cultures and their ecosystems by the diseases and weeds that the invaders brought with them—paved the way for political imperialism. One might however argue that in the Old World the causation ran the other way: here the Europeans first achieved political control, which they then used to fundamentally reshape the ecological fabric of the colony and the colonized.

The history of colonial Africa might in fact provide more direct parallels with Indian history. There are marked similarities in the systems of conservation and resource management crafted by colonial regimes on the two
continents—indeed, foresters from British India deputed to African colonies may be reckoned as being among the first ‘development consultants’. And in Africa, as in India, indigenous systems of resource use were gravely undermined by colonial expansion.13

A related theme is the comparative study of socio-ecological change in tropical versus temperate cultures/ecologies. For example, in reading the proceedings of a recent round-table among the premier American environmental historians, I was struck by the neglect of the larger ecological context of agriculture—in particular, the social and ecological relationships of the cultivated field to common property resources such as forests and pasture.14 This neglect is perhaps explicable in terms of the symposium’s unstated emphasis on North American (industrialized) agriculture, where these links might not be so important or apparent. Yet any discussion of environmental history in the tropics would treat these relationships with the seriousness they deserve.15

A final theme is contemporary environmental history. What, for example, have been the ecological implications worldwide of the development of Western consumer society since the Second World War? What are the regional and global resource flows this has given rise to, and with what consequences? Again, what have been the social and ecological consequences of the energy intensive, capital intensive and resource intensive patterns of economic development undertaken by large Third World countries such as China, India and Brazil? Viewed from an ecological perspective, have these processes replicated at a national level the fundamental North–South dichotomy obtaining at the global level?

In all these respects, environmental history in India is a vast and largely untitled field. While senior historians have been (by and large) indifferent, the field is attracting a number of gifted younger scholars, often influenced by their own encounters with environmental change in contemporary India. In this country, as in the United States, the environmental historian is as likely as not to be a supporter of the environmental movement. This is not necessarily a bad thing: a scholar so motivated is likely to be more energetic in


15 Another example of the difference between the tropical and temperate contexts—one with rather more serious practical consequences—concerns the fate of scientific forestry in the tropics. Techniques developed in the context of often single species, ecologically simple temperate forests were transplanted to complex, multi-species tropical forests, with disastrous results. See Gadgil and Guha, This Fissured Land, Chapter VII.
his search for sources, and we have only to read E.P. Thompson (or for that matter, Donald Worster) to recognize that moral passion makes for the finest history writing. Ultimately though, the case for an environmental perspective must rest on methodological rather than moral grounds: as Marc Bloch might have said, it shall help history learn the truth about herself.