

The Theoretical Foundations of Environmental History

JOSÉ AUGUSTO PÁDUA

“Lucien Febvre use to say ‘history is man.’ I on the other hand say: ‘history is man and everything else’. Everything is history: soil, climate, geological movements.”

(Fernand Braudel, 1984, *apud* Moore, 2003, p. 431)

Voices from the Streets and Epistemological Changes

Environmental history – as a self-conscious historiographic field increasingly institutionalized in the academia of various countries – started to take hold in the early 1970s. The first scientific society dedicated to this type of research, the American Society for Environmental History, was established in 1977. The publication of substantively historical/environmental analyses, however, something quite different from the simple proposition of natural influences in human history, began taking shape in the first half of the 20th century and, to some extent, since the 19th century. Thus, to reflect on the genesis and evolution of this field of knowledge, we must bring to bear sociological and epistemological factors.

The first college-level course¹ of significant impact, titled “Environmental History,” was given in 1972 at the University of California at Santa Barbara, by cultural historian Roderick Nash, who had published *Wilderness and the American mind* in 1967, a classic book on the presence of wildlife images in the construction of ideas on North American identity. Explaining the course’s concept, which was presented as indicating a new frontier in History teaching, the author explicitly stated that he was also “responding to the cries for environmental responsibility which reached a crescendo in the first months of that year” (Nash, 1972).² In other words, the “voices from the streets” were important in formalizing environmental History – a sociological factor that may be inferred from various other accounts.

To be sure, many environmental historians are uncomfortable with this kind of influence coming from outside a properly academic milieu. Or they simply reject it, because such influence might suggest a politicization of research and help to promote spurious confusion between environmental history and environmentalism. This stance, however, goes against the theories, often repeated by Lucien Febvre and many others, that believe that historians are not isolated

from their time and always gaze into the past with questions from the present – even taking into account the requisite care in separating science from politics, to the extent they can be separated. Commenting on the recent development of environmental history, Peter Burke (2009, p. 349) noted that monetary history was also instigated by the inflationary crisis of the 1920s and demographic history by the post-World War II baby boom.

In any case, it is quite clear that, directly or indirectly, public debate has been challenging environmental historians, even when apparently denied. In 1974, editor Emmanuel Le Roy Ladurie (1974, p. 537) introduced the special issue on History and Environment of the journal *Annales* by insisting that he was not giving in to “faddish imperatives,” because the magazine had “long since” chosen to “pay interest to the problems of an ecological history.” However, by stressing an approach to the environment that attempted to “isolate the real problems, declining the amenities of a trivializing discourse,” both the counterpoint with the public debate and the underlying presence of “environmental problems” were made obvious.

The emergence of a “complex and multi-sectored environmentalism” since the 1970s, with a high public profile in the global scene, was one of the most significant sociological events of contemporary history and can be considered a historical, rather than social, movement with repercussion in various fields of knowledge (Viola & Leis, 1991, p. 24). The notion of “ecology” tore down the walls of the academia and inspired the social behaviors, collective actions and public policies in various levels of articulation, from the local to the global. Moreover, it has penetrated deeply into educational structures, communication media, the collective imagination and various aspects of art and culture. The advancement of so-called globalization, with the accompanying qualitative and quantitative growth of scientific/technological production and the increasing speed of the media, catalyzed an explosion of life and environmental issues in the political agenda. Environmental debate became at the same time a creator and a creature of the globalization process. The very image of a global planet is largely a symbolic construction of this complex cultural field.

Historical research has revealed that, at least in the world of European extraction, intellectual concern with “environmental” problems has existed since the late 18th century and played an important role in the construction of modern thought (Raumolin, 1984; Grove, 1995; Pádua, 2002). The great innovation of recent decades has been the dissemination of this kind of debate to a much broader public sphere. Academic knowledge has been both challenged and stimulated by this movement. It is no accident that recent decades have witnessed teaching and research initiatives in ecological economics, environmental law, environmental engineering, environmental sociology etc. A two-way movement was established in which scientific production has influenced and been influenced by public actions.

The political scene alone, however, is not enough to explain the emergence of historical research's focus on the environment. Environmental historians were also challenged by internal movements in the universe of knowledge as a whole, especially the crucial epistemological changes in our understanding of the natural world and its place in human life – changes that were consolidated in the 20th century but had been brewing for centuries. Three changes in particular deserve attention: 1) the idea that human action can have substantial impact on the natural world, even to the point of degrading it; 2) the revolution in the chronological milestones of our understanding of the world; and 3) the view of nature as history, that is, as a process of construction and reconstruction over time.

The main feature of environmental debate in contemporary culture is not the perennial deep-seated attention to the matter of nature. Since Antiquity, nature has always been a central category of human thought, at least in Western culture (I will not pursue here the interesting discussion on the universality or not of the concept of “nature”). Overall, to the extent that human societies are territorial – building their environments from interactions with specific parts of a planet that embodies great diversity of geological and biological forms –, we have countless examples of material practices and cultural perceptions referring to the natural world. The quest to produce ways of understanding this world has become an essential component of social existence itself.

Clarence Glacken (1967), in his monumental study of the history of intellectual conceptions of nature in the Western world, from classical Antiquity to the 18th century, found that virtually every thinker was forced to confront this theme along three basic lines of inquiry: Is nature, as it appears on Earth, endowed with meaning and purpose? Does nature, especially regarding the physical space occupied by each society, have an influence on human life? Was Earth's primordial condition modified by humanity's historical actions? The findings of Glacken's research make it clear that the first two questions largely dominated philosophical and scientific reflection until the 18th century, when it was a matter of understanding how nature influenced human history, not the vice-versa. Some elaboration on the third question was carried out in relation to the improvements in the natural scene stemming from the arts and from labor. But the human ability to degrade or even destroy the natural world is an essentially modern theme (*Ibid.*, p. viii).

The modern character of the environmental question – the idea that our relationship with the natural environment poses a radical and inescapable problem for the continuity of human life – must be understood in a broader sense, pertaining not only to the consequences of the great urban/industrial transformation that began to occur at an unprecedented pace in the 19th and 20th centuries, but also to numerous other prior and related macro-historical processes (i.e., the interplay of continuities and discontinuities that characterize historical processes). This is true with regard to Europe's colonial expansion and

the incorporation of vast regions of the planet, a variety of areas and ecosystems, into a world-economy under its dominance. It is also true regarding the institutionalization of science as the preferred way of understanding the world, with pretensions of universality and the ability to establish planet-wide networks for research and information exchange. The proposal to compare regions, natural productions, economies and cultures – i.e., to establish planetary geographic knowledge – is fundamental to understand the new concern with the risks of human action. Even the idea of collapse, the destruction of the future, begins to appear in this context (Pádua, 2002).

Empirical observations of the consequences of devastating human action, whether in Europe or in the world of colonial expansion, led to new charges against deforestation, soil erosion, sedimentation of rivers etc. The studies of Richard Grove (1995) showed that European settlements in the tropical world (even after political independences) became a conducive space for such concerns, because the swift conversion of forest areas into monocultures and mines was spawning “skin-deep” environmental changes, so to speak. Yet, these empirical observations could not become “evident” without changes in perception and knowledge. The science of the Enlightenment was beginning to speak of interdependent “natural systems,” of the importance of each species in the maintenance of the natural whole, of the relevance of forests in conserving the moisture and health of a territory. A paper published in 1760 by the Swedish naturalist Linnaeus, together with H. Wilcke, stated that “from what we know, it is possible to judge the importance of each of nature’s dispositions, so [...] if only one important function were missing from the animal world, we would have reason to fear the worst disaster in the universe” (Linnaeus, 1972, p. 118). Such scientific constructions combined with the birth of pre-Romantic and Romantic sensibility, derived from an aesthetics of the sublime, to promote a new appreciation of the natural world. (Pádua, 2005).

Surely, it is not a matter of drawing a direct line between the environmental criticism that began to appear in the 18th and 19th centuries, with its time-bound categories and vocabularies, and contemporary environmentalism. Nor is it a matter of seeking “precursors,” but rather of analyzing a broader and more diffuse historical movement, namely, the establishment of an ecological sensitivity within the universe of modernity. Regardless, in the context of this article, the key point is understanding how that culture milieu, sketched out very briefly here, enabled the emergence of historical reflections on the environmental consequences of human action – reflections that, moreover, would become more prominent in the essays of naturalists and political thinkers than in the work of the first History academies, overly focused on the feats of great historical characters and national States. An often mentioned landmark was the book *Man and nature or physical geography modified by human action*, by the American diplomat George Perkins Marsh (1965), published in 1864. This work, although heavily focused on the European and Mediterranean context, sought to review the changes wrought by

human action since Antiquity on the flora, fauna, forests, waters and sands, having as main vector the denouncement of destruction. In the suggestive words of the author, “we are, even now, breaking up the floor and wainscoting and doors and window frames of our dwelling” (Marsh, 1965, p. 52).

We can find interesting examples of this kind of perception in the Brazilian cultural context that even antedates Marsh's. José Bonifácio de Andrada e Silva (1991, p. 172), for example, the founding-father of Brazilian independence, writing in 1815 about the problem of deforestation in Portugal, took a broad historical perspective and argued that:

Everyone who has studied the great influence of groves and forests in the overall economy of nature knows that countries that have lost their woodlands are nearly sterile and without people. Thus happened in Syria, Phoenicia, Palestine, Cyprus and other lands, and thus is happening in our Portugal.

The view that intense aridity and desertification in some regions of the Middle East were largely caused by long-lasting human action has been corroborated by recent studies in the field of environmental history. Something similar can be said of the territory of Libya, a former supplier of grains to Rome, where the advance of the desert was driven by destructive agricultural practices (Hughes, 1981). It is interesting to note that later, when he had returned to Brazil and after the country's independence, José Bonifácio (1973, p. 103) resumed his historical reading of environmental problems by asserting that the persistence of a slave-based and technologically rudimentary agriculture would, in “less than two centuries,” transform “our beautiful Brazil” into “the paramos and arid deserts of Libya.”

The essential point, therefore, is not the mere confirmation of relatively distant historical examples, but the possibility of their replication wherever similar patterns of destructive land use were adopted. Similar reasoning, to give another example, can be found in jurist Tomás Pompeu de Sousa Brasil (1860), from the state of Ceará. In 1860, discussing the problem of droughts in the region, he adopted the same broad-ranged historical approach:

History has presented distressing documents of the truth of this eternal law, that even the most fertile, abundant and wealthy nation can be converted into barren moorland and uninhabitable desolation if human carelessness fleeces the forests that are the condition of its plentifulness and the benignancy of its climate.

Among many examples cited by him was the destruction of the forests of the Atlas range, home of the Berber people, which “ruined North Africa, formerly the breadbasket of Italy.” The same happened in the context of local history, because

if one consults existing documents on the physical state of Brazil at the time of its discovery in the 16th century and throughout its history, or even by simply

comparing the portions of the country's territory dedicated to sugarcane and those where cotton was cultivated, one may be able to prove the influence of human action on the climate of lands inhabited by man, and to demonstrate the truth of this principle enunciated forty years ago by Fourier, that the atmosphere is a field susceptible to culture. (Ibid, p. 64, 88)

These authors were certainly not practicing “environmental” historiography. But a historical perception of the processes of environmental change, brought by an interaction of human and natural factors, was clearly being outlined. Many other examples might be sought, both within and outside Brazil – variations related to the broader epistemological shift mentioned above: the judgment that human action can interfere in the natural environment and even cause disasters, a view that obviously continued to spread in the following centuries, attaining unprecedented visibility in our own time. However, the environmental history that emerged in the late 20th century is much more complex than a diachronic inventory of the evils inflicted by humans upon the planet. It incorporates other theoretical changes that deserve to be discussed, even more so because they have deconstructed the strongly dualistic image of the previous sentence.

Nature and Humanity as Movement and Transformation

The Greek concept of *Physis*, later translated into Latin as *Natura*, is linked to the image of birth, appearance, manifestation. The word “nature,” according to Raymond Williams (1983, p. 219), is “perhaps the most complex in [human] language [...] a word which carries, over a very long period, many of the major variations of human thought.” The classic definition of nature, summarized by Aristotle, although founded on a strong dualism, was able to combine simplicity and conceptual power. Natural things would be those things that exist by themselves, in the sense of possessing in themselves the principle of their movement and rest. They comprise materials, configurations and shapes that appear to human perception as nature (Aristotle, 2002, p. 59, 61).

When human observers contemplate the reality of existence, they realize that the overwhelming majority of things that exist, including the fundamentals of the material edifice that enables their existence, are not human creations. That is, for the human observer, these things exist by themselves, both in terms of materiality and of organization. The spiral galaxies, the Sun, the Moon, the texture of plants, the water cycles, the physiology of organisms – including, of course, our own primate and mammalian body –, none of this is human creation, at least not in the primary sense. Their existence, their form and their movement did not arise by our resolution.

The awe that the word Nature inspires lies in its ability to conceptually unify the myriad manifestations of an extremely complex and diverse reality, establishing a rapprochement between the farthest and nearest, from the Big

Bang to a house cat. In the history of Western thought, “nature” took on an increasingly broad and inclusive meaning: not only the whole of things and natural movements, but also the character and the essential quality of each thing, and, in an even broader sense, the inherent force that rules the universe (Williams, 1983, p. 219).

To human understanding (if one may speak so generally), the concept of Nature presents a clear ambiguity, one that has undergone several metamorphoses throughout history. On one hand, the idea of nature acts as a kind of conceptual axis that gives meaning to our understanding of the universe. Nature substantiates the conceptual construction of our experience, namely, that there is ontological consistency in the world where we live. In turn, the human image and the image of human history were built largely by opposition to nature: art versus nature, social order *versus* nature; technique *versus* nature; spirit *versus* nature etc. In other words, a set of oppositions that attempt to demarcate, either by differentiation or identification, the specificity of the human phenomenon vis-à-vis nature (whether by affirming an opposition and a radical break between both, or by understanding the human being as a special qualification within the natural world).

This picture, presented here in a very introductory manner, was made even more complicated by two epistemological changes that revolutionized our understanding of nature and have clear implications for environmental history. The first one refers to a major rupture in old chronological milestones. Keith Thomas (2001, p. 201) reminds us that biblical chronology (at least as interpreted in the ecclesiastical milieu) began to undergo severe shocks in the 18th century. The French naturalist Buffon was able to imagine that Earth existed “some 70 thousand years” before the appearance of man. A little later, in the early 19th nineteenth century, geologists were already conceiving the planet on a scale of millions, not thousands, of years. These figures serve, above all, to convey the magnitude of that ongoing revolution. Nowadays, we assume a geological history of 4.5 billion years and a biological history, since the appearance of life on Earth, of 3.5 billion years. Moreover, we assume a cosmic history, since the so-called Big Bang, of 13.7 billion years, which, according to recent estimates, resulted in the existence over 100 billion galaxies, each containing between 100 and 200 billion stars. The physical and natural sciences are unceasingly extending their limits, creating profound changes in our understanding of the world. To remain just in the range of our immediate experience, Earth increasingly appears to us as an age-old, extremely powerful and diverse entity, a planet that has suffered enormous biophysical changes in the course of its existence. Countless forms of life have come and gone, the human species being one of the most recent (Christian, 2003).

It is ironic to note that, in this revolutionary intellectual context, the prevailing models of History research and instruction insist to remain, at best, within what until the 19th century (and still today in some fundamentalist circles)

could be defined as “biblical time,” i.e., a time horizon of six thousand years. The understandable tradition that attributes paramount importance to written documents, so closely connected to the urban strata of humanity’s historical experience, can no longer serve as an excuse for such a conservative attitude. Biological anthropology is dating the emergence of the current human species (*Homo sapiens*) to some 200,000 years ago. The human phenomenon, however, is difficult to define and may be retroceded an additional two million years, to the appearance of *Homo habilis* in Central Africa. Human history prior to the onset of the first civilizations endowed with writing, precisely the domain of “biblical time,” is very, very long lasting. It is no longer possible to conceive the physical, mental and social emergence of human beings – including radical changes such as the adoption of agriculture and sedentary living circa 11,000 years ago – through the diffuse nebula of “prehistory.”

The chronological revolution in natural sciences had great epistemological impact on environmental historians, who are seeking new methodologies to investigate human history in a broader timeframe, that is, to rethink the place humans occupy within the broader history of the planet. To be sure, no one is saying we must work only with very long time spans. It is possible to make environmental history of relatively short periods. But we must always bear in mind, at least in the background, the presence of huge time scales in the constitution of whatever is being analyzed – whether in the natural realm (the biophysical realities of each region under study) or in the formation of the human societies and populations that interact in this realm and with it.

The chronological explosion was accompanied by another epistemological change, one that was even more stimulating for the dialogue between the social and natural sciences. Nature increasingly presents itself as something permanently under construction and reconstruction over time, a far cry from the traditional view of a fully finished reality that would act as a stable reference point for the agitation of human living. The image of a theater play is not far-fetched, where the stage set serves as a passive context to the dynamic content of the actors’ movements. After a certain point, however, this set begins to move and change with surprising intensity, forcing us to acknowledge its active presence. The play becomes an interaction between the movements of the set and the movements of the actors. The difference in today’s scientific view is that the set has always been in motion; what changed was the subjective perception of the actors.

William McNeill (2001), one of the senior scholars of American “world history,” writing about the relationship between history and evolutionary theory, described with some irony his personal experience in the face of recent epistemological transformations in the natural sciences, including several branches of physics. According to the author, during his intellectual education in the 1930s, the natural sciences still seemed solid and enduring in their theoretical foundations and predictive abilities, whereas the social sciences, and especially history, were weak and tentative in their conclusions. Since the turn of the

millennium, the natural sciences as a whole have taken on positions increasingly open and *soft*, rather than *hard*, and this has produced a unique portrait of the universe as

dynamic, historical, occasionally chaotic, in which extraordinary changes of state occur in imperfectly predictable ways, and the role of the observer in shaping what is observed becomes as ubiquitous as the subjectivity that has always marked history and the social sciences.

In this sense, the historical perspective is gaining ascendancy among the sciences, “sharing perplexities and limitations.” As a result, the dissemination of an “evolutionary worldview” is producing a “convergence between the cosmic, terrestrial, biological and human histories – all of them part of a whole in constant transformation” (ibid., p. 2).

In other words, the formations of nature are being perceived as momentary configurations in a history of ongoing changes. The final destination is unknown, but the changes often seem infinitely solid in their specific temporality because they occur on a much larger time frame than the limited “social time” of human beings.

The history of how this epistemological shift came about is rather complex, the various aspects of which cannot be elucidated in an article.³ Overall, it involves the transformation of the notion of natural history – from an organized description of the living world, according to the classical tradition, to the view of nature itself as history. The dissemination of the Darwinian theory in the 19th century was a crucial step, ultimately influencing all the sciences. In some respects, indeed, it presented a radically historical and open reading of the formation of living beings, in addition to clarifying the still difficult matter of the animality of the human species. Thus, the tree of evolution would be a construction of the living beings themselves, who, in their struggle for existence in specific environments, would branch out (or not) into new life forms. With this, a set of small variations in real life, not an underlying and superior reason, would be at the base of the vast biological edifice (Norris, 1985, p. 26). From this perspective, the very concept of nature might be seen as almost metaphorical. In one passage of *Origin of Species*, 1859, Darwin (1958, p. 88) states that “it is difficult to avoid personifying the word Nature; but I mean by Nature, only the aggregate action and product of many natural laws, and by laws the sequence of events as ascertained by us.”

It is important to note, however, that the interpretations of the scientific and social implications of Darwin’s work were never uniform. From the beginning, many had a closed and dogmatic reading of the Darwinian thesis, even resorting to similarly closed passages of his writings, which sometimes paid tribute to the prejudices of his time (considering he came from Victorian and imperial England). Evolutionism was later used as a justification for various types of reductionism, determinism and racism through the vulgar notion that

biological forms become superior over time (an image that may be deemed incompatible with the open character of Darwin's original argument).⁴

The 20th century, however, witnessed the emergence of new, even more surprising theoretical formulations that helped to consolidate the idea of irreversibility and of the arrow of time – one might even say “of history” – as a key component to understand Nature. A radical milestone is the recent view, more properly formulated since the 1940s, that even the universe – previously seen as nature's ultimate bastion of firmness and solidity – manifests itself through a process of expansion and permanent transformation.

All this has profound theoretical implications for an oft-remembered problem of environmental history: the threat of geographical or ecological determinism. The long tradition that refers to the determinations of nature (and especially of climate) on social life was based precisely on fixed and defined views of its manifestations. Since the first formulations by Hippocrates in the 5th century B.C.,—whose book *Airs, Waters, Places* attributed the superiority of the European over the Asian way of life to the influence of natural conditions –, the backdrop of determinism has been based on the assumption that these conditions are rigorously stable (Arnold, 1996, p. 15). Contemporary meteorology, however, with its historicizing focus and its long-term investigations, reveals that the climate of each region undergoes major changes both in the short and in the long run. The same can be said of vegetation and other components of the natural world.

Put another way, by dialoguing today with the natural sciences, environmental history is in a very different theoretical context than the one that nurtured the deterministic formulations of the past. Not to mention the theoretical heritage of all the internal criticism of the social sciences with regard to the risks of geographic, biological and other types of reductionism. The natural sciences have achieved greater theoretical sophistication, basing themselves on radically open and interactive ecological methods. Natural systems are now seen as self-organizing through the constant interaction between all its elements, biotic and abiotic. The walk itself makes the path (to evoke Antonio Machado's beautiful verse). The consequences of such interaction, in turn, remain open and may ultimately lead either to collapse or to the emergence of the most resilient forms of organization. The influence of chaos, chance and contingency gains strength in the analyses. The very idea of “adaptation” is now being questioned for its analytical stringency, leading to the concomitant strengthening of concepts such as “co-evolution” and “mutual construction of niches,” among others (Jantsch, 1980; Maturana & Varela, 1987; Prigogine & Stengers, 1985). Obviously, a view of nature in permanent motion and transformation over time does not contribute to the persuasiveness of deterministic theories (even if they still exist within today's great theoretical polytheism). Now, at the turn 21st century, it is in this renovated theoretical milieu that, in the definition of Elinor Melville and Guillermo Castro, environmental history seeks to rethink “the

interactions between social systems and natural systems, and the consequences of these interactions for both parties over time” (Castro, 2007).

Nature and Culture in Historical Experience: Advocacy for a Less Dualistic Viewpoint

The emergence of a self-conscious environmental history is connected to the absence of a biophysical dimension in much of contemporary historiography. To be sure, one still feels the very strong presence of a viewpoint that has been called “floating,” in the sense of humanity floating above the planet – as if humans were not mammals and primates, beings that breathe and every day must ingest mineral and biological elements found on Earth. As if they were not truly beings who, more than establishing punctuated “contacts”, live by means of the natural world, dependent on the flows of matter and energy that ensure the reproduction of the atmosphere, the hydrosphere, the biosphere, and so on – even if, in subtle observation of Alfred Crosby (1995, p. 1177), humans are often “distracted” participants of their ecosystems. However, merely acknowledging this fact would be simplistic and vulgar if we did not also recognize the other dimensions of the human phenomenon, including the reality that historical human beings are as inescapably immersed in culture and language as they are in the earthly ecosphere.

In a 1944 text, commenting on Maximilien Sorre’s book, *Les bases biologiques de la géographie humaine*, Fernand Braudel (1992, p. 144, 151) discussed the fascinating exercise of conceiving man in his mere animal materiality, in his condition as a “bare-skin homeotherm,” in his

elemental aspect as a biological being, sensitive to heat, wind, cold, dryness, heat strokes, insufficient pressure at high altitudes, incessantly occupied looking for and ensuring food, forced to defend himself from the diseases that follow him everywhere, especially now that he has become aware of their dangers.

This is an ideal type that challenges us by presenting a fundamental and voluntarily or involuntarily oft-neglected aspect of the human condition. An aspect, however, that is insufficient in itself, that does not tell the whole story. Because humans, viewed in this manner, are an abstraction that overlooks “man in his complexity – in the entire breadth of his history, in his full social cohesion” (ibid.).

The great theoretical challenge in the contemporary world is conceiving human beings in the tense and complex fullness of their biological and sociocultural dimensions – a challenge kept in the dark by the prevailing “floating humans” historiographic approach.

This predominance, however, should not be overstated, if only for the fact that historiography is not a homogeneous block. During the 20th century, even in Brazil, some historians were able to produce analyses that interweaved biophysical

factors into the heart of their historical investigation, which are now being recovered in the genealogy of environmental history.

This article does not intend to establish a history of environmental historiography. Nevertheless, some areas that stimulated environment-driven reflections before the 1970s may be mentioned, however briefly. The historiography of regions, for instance, in *Nordeste*, by Gilberto Freyre, and *Méditerranée et le monde méditerranéen à l'époque de Philippe II*, by Fernand Braudel; the historiography of territorial expansion and the establishment of national frontiers, in *The great plains*, by Walter Prescott Webb, *Caminhos e fronteiras*, by Sérgio Buarque de Holanda, and *The grassland of North America*, by James Malin. Some studies from the diversified production of the French *École des Annales* are always mentioned, especially *La Terre et l'évolution humaine*, by Lucien Febvre, *Les caractères originaux de l'histoire rurale française*, by Marc Bloch, and *Histoire du climat depuis l'an mil*, by Emmanuel Le Roy Ladurie. Grove & Damodaran (2009) drew attention to the need of going beyond a specifically historiographic production, citing the importance of the historical geographers of the 20th century – such as Carl Sauer, H. C. Darby, and Gordon East – in establishing a fruitful dialogue between history and ecology. An interdisciplinary seminar held at the University of Chicago in 1955, was also a landmark, giving rise to the collective volume *Man's role in changing the face of the Earth*, edited by William Thomas Jr.

Despite these efforts, however, the dominance of the “floating humans” approach cannot be denied. In part, it was a reaction to the strong influence of geographical and biological determinism in social thought at the turn of the 20th century. We might say that the social scientists who came later often did not realize the seismic epistemological changes that the natural sciences and their understanding of nature were undergoing. Furthermore, we must also take into account the robust culturalist theoretical elaboration that gained strength in all the social sciences, without ever totally obscuring the more radical materialist approaches. In the field of anthropology, as Walter Neves (1996, p. 13) stated not without irony, the axes of an “anthropology of the belly” and an “anthropology of *la pensée*” (one might equally call them “of the gut” and “of the mind”) followed parallel and often conflicting courses.

The experience of many historians now working on the environmental dimension of societies, shared by anthropologists, economists and other social scientists who adopted the same viewpoint – involves precisely the need to pursue a less dualistic study line of the relationship between nature and culture (seeing that non-dualism is an ideal and almost utopian type of analytic achievement). As Eduardo Viveiros de Castro (2002, p. 320) stated when reflecting on the question of Amazonian Indian societies:

These new images of nature and of society are formed in a historical context marked by synergy between structural and historical approaches, by attempts to

overcome single-cause explanatory models (naturalists or culturalists) in favor of a more nuanced understanding of the relations between society and nature.

They indicate, moreover, the hope of a “new synthesis” capable of “eventually integrating the cumulative knowledge of various disciplines” (ibid.).

The quest for a “more nuanced understanding” requires the acknowledgement of culturalism in the deepest sense. The theoretical literature on environmental history has stressed that, when emphasizing the relevance of the biophysical world, we must not fall prey to the fallacy of believing that this world lends itself directly, positively and immediately to human perception. Humans, being immersed in language, in the mechanisms of cognition and in the presence of historically constructed cultural views, always act according to their perceptions and understandings. In this sense, the appropriation of natural resources and the valuation of the landscape have a clearly historical character (Cronon, 1996; Asdal, 2003). We need only to remember that gold does not have universal economic value and, for instance, was irrelevant to the indigenous groups that traversed the lands of what is today the Espinhaço mountain range [in the states of Minas Gerais and Bahia] before the arrival of Europeans. For the latter, on the contrary, the primacy of gold motivated considerable efforts and sacrifices in the establishment of colonial mining. Beaches, in turn, are not universally considered spaces of beauty and health; during the 19th century, in Brazil, they were generally scorned by the urban elites. Notwithstanding, it would be equally fallacious to forget that gold and beaches are not human creations in the primary sense, and, moreover, that without their material existence their perceptual and cultural dimensions would not exist either.

In the events of social life – life as actually lived, what history imperfectly seeks to reconstruct –, all these elements are thoroughly intertwined in the collective experience. Among the attempts to achieve a less dualistic reading, a fascinating theoretical approach is opened when the ecology of self-organization suggests expanding in two directions the culturalist proposal that humans build the world according to their perceptions and their culture. First, humans do not build their world by thought alone, but also through their body and their entire organism (the latter being involved in the construction of subjectivity). Second, something similar can be said of all living beings, at least after a certain level of complexity. All these beings build their world from their experience, involving organism and perception – even if the domain of language and culture (with the breadth and synthetic characteristics found in humans) is not present. Each being builds its world and the collective world is built through a complex web of interactions and interdependencies (Maturana & Varela, 1987).

In the social sciences, the theoretical razor’s edge lies in recognizing the plurality of natural and cultural dimensions that, somehow, resolve themselves and find meaning in the collective practices of human beings. The insistence on

dualism fails to grasp the nuances of a highly dynamic movement. Field studies and contemporary social transformations converge towards the quest for more open theories. We increasingly realize the role of human history in the formation of “natural” landscapes. At the same time, there is a vast array of forms of cultural perception of the biophysical world and its relation with human life, both diachronically and synchronically. In the advanced industrial world, in turn, new technologies penetrate the processes of nature in ways that were unthinkable in the past. Whether from an epistemological or from a political point of view, a perception of the living unity between natural systems and human beings is becoming increasingly necessary. In the words of two anthropologists who are at the forefront of this effort of conceptual renovation, we need a theoretical horizon in which “states and substances are replaced by processes and relations; the main question is not any more how to objectify closed systems, but how to account for the very diversity of the processes of objectification (Descola & Pálsson, 1996, p. 12).

As Donald Worster (1991, p. 199) put it so well, it is in this context that environmental history should be seen not as a reduction but as an expansion of historical analysis. It carries forward the movement that began in the late 19th century to expand the subjects and dimensions of historiography beyond the history of nations and great historical characters. A movement that had manifestations in economic history, in social history, in micro-history etc. Therefore, it is not a matter of reducing historical analysis to the biophysical world (as if this aspect might explain all others), but rather of sturdily incorporating it – along with other economic, cultural, social and political dimensions – in the quest for an increasingly broad and comprehensive approach to historical inquiry. The recent expansion of environmental history in universities can be at least partly explained by its concrete ability to expand historical analysis and provide new perspectives for the study of old historiographic problems.

To implement this program, even with the limitations we always have when writing history, the most fruitful proposals have been those that seek to define environmental history as an open, dynamic and interactive attempt to work analytically on three basic dimensions that blend themselves in the actual experience of societies. Arthur McEvoy (1986), in his study on the fishing industry in California, summarized these three levels with the words ecology, economic relations and human cognition. Worster (1988), in a classic article that sought to synthesize the main elements of “doing environmental history,” further developed these three levels, which must be perceived together in their mutual interactions and their multiple lines of causality.

The first relates to nature itself, both organic and inorganic, including the human organism and its relations with the various ecosystems. In this regard, a historian must be attentive to the changes in the biophysical world over time, and seek to reconstruct the environments of the past (as they relate to the places and historical periods under study). An interdisciplinary perspective is

crucial here, since without a dialogue with the physical and natural sciences, the rebuilding effort becomes unfeasible. This dialogue, however, must take into account the historical and theoretical diversity of the various sciences, so that it may be incorporated in a critical and contextual manner.

Inevitably, a historical reading of ecological factors (on the first level being discussed here) has many interpretative nuances. The view presented by Fernand Braudel (1995, p. 25) in 1949, for example, concerning “a history whose passage is almost imperceptible, that of man in his relationship to the environment, a history in which all change is slow, a history of constant repetition, ever-recurring cycles” – as opposed to the greater speed of social and individual movements – is being increasingly criticized. Despite having the merit of comprehensiveness and of granting historical status to mountains, plains, beaches and islands in a region, this viewpoint suffers from taking the biophysical as an overly static stance of interaction with human actions. The diversity of contemporary research in environmental history has revealed situations of disruption, disaster and intense change in the realm of this relationship, both in the short and in the long run (Arnold, 1996, p. 44).

The second level concerns the socioeconomic constitution of societies and their inescapable interrelationship with certain geographical spaces. By Marx’ direct influence, Worster used the notion of “modes of production,” stressing the need to understand them through a broad historical and anthropological perspective, including their intimate connection with ecological factors. Material culture, technological ways and means, the “second nature” produced by human activity fall into this level of analysis. It is here, too, that James O’Connor (1997) developed his Marxist reading of environmental history, drawing attention to the concept of “conditions of production” – beyond the forms of ownership and relations of production – and to the contradictions found in the movement of imperfect commoditization of labor, land and nature.

Finally, the third major level mentioned by Worster pertains to the cognitive, mental and cultural dimensions of human existence, including cosmologies, ideologies and values. The social behavior of human beings in the natural world, as well as the socioeconomic framework of collective life, passes through our views of nature and the meanings of human life. We could say, conversely, that cultural manifestations do not occur isolated from the living world and, to establish language and the categories of understanding, often draw on the elements of biodiversity and the physical experience on the planet, or rather, of specific places on the planet. Regarding our actual historical experience, to remember the beautiful words of Claude Lévi-Strauss (1986, p. 173), we should:

Reject the divorce between the intelligible and sensible declared by an outmoded empiricism and mechanism, and to discover a secret harmony between

humanity's everlasting quest for meaning and the world in which we appeared and where we continue to live – a world made of shapes, colors, textures, flavors, and odors.

However, it is essential to avoid the anachronism and the belief that individuals from the past may be conjured by categories as modern as ecology, sustainability, impacts of human activities etc. We must understand each age in its own geographic, social, technological and cultural context. Clearly, as we've seen, the environmental question will only appear at a very recent moment in human history, yet it might be said that environmental relationships were already present, whether perceived or not, in accordance with the cultural patterns of each period. Therefore, it is not a matter of projecting environmental and ecological categories of the present onto the past, but rather of using these categories, with due care, to reflect on the existence of earlier societies – or, as formulated by Alfred Siemens (1999), of “extracting ecology” from past documents that obviously had no such intent or justification. In fact, it all boils down to an exercise in “retrospective qualification” (Drouin, 1991, p. 73) as a general condition and a dilemma of historical analysis itself.

Environmental history is presented today as a vast and diverse field of research. Different aspects of the interactions between social systems and natural systems are scrutinized each year by thousands of researchers. Current production includes both forest/rural and urban/industrial realities, and establishes dialogues with numerous economic, political, social and cultural issues. As these studies progress, several short-, medium- and long-range theoretical problems tend to appear (Leibhardt, 1988). There is no space here to present the entire literature on this matter, especially in an article on the “theoretical foundations” and not the “theories” of environmental history.⁵ In any case, research in environmental history, even if only for the fact that it is “environmental,” is not usually carried out in the abstract realm of pure theories, but in the contradictions of actual places and experiences. Most often, it resorts to concrete geographic and biophysical scissions: a forest, a watershed, a city, an agricultural area etc. (Drummond, 1991, p. 181).

The crucial theoretical point, however, is the need to combine, openly and interactively, the three levels mentioned above. To be sure, it is not an easy task.⁶ There is, for instance, a tendency to focus on one level to the detriment of the others. But, in general, I believe environmental history has been successful in establishing methodologies that combine the various dimensions of historical experience. In the introduction to one of the founding books in the efforts to link historical and environmental research, Le Roy Ladurie (1991, p. 15, 34) objected in 1967 to the anthropocentrism of the first climate historians, who insisted on examining climate in relation to human life. It so happens that climate could also be studied by itself, as a “history without men.” Since it is “a function of time, it varies; it is subject to fluctuations; it is an object of history.” However, as the

investigation proceeded and the relationship between climate and human life was analyzed, one would have to confront a “human ecology,” a genuine “ecological history.”⁷ In a somewhat different reading than that of the French historian, but one that understands his point of view, I believe the second moment is precisely that in which historical research starts to bear more fruit. Environmental history, as a social science, must always include human societies. But it must also recognize the historicity of natural systems. The challenge, to repeat, is to attain an open and interactive reading of the relationship between both.

In essence, this open stance should imply abandoning the catastrophic viewpoint and the notion of “man-the-destroyer” that the voices from the streets tend to demand. Simon Schama (1995, p. 13-4) had already criticized the fact that environmental history, although offering “some of the most original and challenging history now being written”, adheres excessively to analyses of destruction, whereas the relationships between society and nature can also be constructive and creative, especially with regard to cultural ties.

Today it is possible to observe a change in that picture. Destructive and/or constructive relationships must emerge during the analysis itself, without preconceived or stereotypical interpretations. Another central point concerns the problem of influences and causal determinations. The closed and reductionist views are no longer sustainable. To say that nature always determines social life, or vice-versa, does not take us very far.

The important thing is to remain alert and open in every research situation. In some of them, biophysical factors will be decisive; in others, technology or worldviews may be decisive. In every situation, however, biophysical, social and cultural factors are always present. In every case, one finds open systems that change with time. The relationships between each element of the interaction – where all are relevant, even if at different levels – build, destroy and reconstruct numerous material and cultural forms. In the deepest sense, the analytical challenge is to overcome the rigid and dualistic divisions between nature and society, in favor of a dynamic and integrative reading based on observation of the world that is built along the river of time.

Notes

- 1 It is true that the term was already being used occasionally, in quite distinct and strictly technical sense, by geologists and archaeologists. Furthermore, a course titled “Environmental history,” had been given at the University of London in 1969 by Henry Bernstein, an economic historian who studied steam navigation in India, including the use of firewood etc. (Grove & Damodaran, 2009, p. 25). But this was an isolated initiative, with no further theoretical consequences.
- 2 In the wake of growing debates and public demonstrations since the previous decade, the year 1972 was marked by the organization of the first United Nations Conference on the Human Environment, in Stockholm (McCormick, 1995, p. 119).
- 3 See a good analysis in Bowler (1992).

- 4 For this reason, some authors prefer to use the term “evolutionary” in the sense that things are born from one other from concrete movements, differing from the vulgar evolutionist view that there is necessarily an improvement over time.
- 5 See two updated listings of the contemporary literature on environmental history in McNeill (2003) and Hughes (2006). For Brazil, see Duarte (2005).
- 6 For a critical reading, including the view that the three proposed levels are exceedingly broad, see Sorlin & Warde (2007, p. 112).
- 7 This last view was fully embraced by Le Roy Ladurie in his most recent studies on climate, as can be seen in the very title of his monumental 3-volume work titled *Histoire humaine et comparée du climat* (published in Paris by Fayard in 2004, 2006 and 2009).

Bibliographic References

- ARISTOTLE. *Física I e II*. Campinas: Unicamp, 2002.
- ARNOLD, D. *The problem of Nature*. Oxford: Blackwell, 1996.
- ASDAL, K. The problematic Nature of Nature: the post-constructivist challenge to environmental history. *History and Theory*, nº 42-1, 2003.
- BOWLER, P. *The Earth encompassed: a history of the environmental sciences*. New York: Norton, 1992.
- BRASIL, T. P. de S. *A necessidade da conservação das matas e da arboricultura*. Fortaleza, 1860.
- BRAUDEL, F. Une vie pour l’histoire (interview with F. Ewald and J.J. Brochier). *Magazine Littéraire*, nº212, p. 18-24, 1984.
- _____. Há uma geografia do individuo biológico? In: _____. *Escritos sobre a história*. São Paulo: Perspectiva, 1992.
- _____. *O Mediterrâneo e o mundo mediterrânico na época de Felipe II*. Lisbon: Dom Quixote, 1995.
- BURKE, P. Afterword. In: SORLIN, S.; WARDE, P. (Org.) *Natures’s end: history and the environment*. Houndmills: Palgrave Macmillan, 2009.
- CASTRO, G. Notas sobre historia ambiental y desarrollo sostenible. *Peripecias*, nº71, 2007.
- CHRISTIAN, D. *Maps of time: an introduction to Big History*. Berkeley: University of California Press, 2003.
- CRONON, W. In search of Nature. In: _____. (Org.) *Uncommon ground: rethinking the human place in Nature*. New York: Norton, 1996.
- CROSBY, A. The past and present of environmental history. *American Historical Review*, v.100, nº4, p. 1177-89, 1995.
- DARWIN, C. *The origin of species*. New York: New American Library, 1958.
- DESCOLA, P.; PÁLSSON, G. Introduction. In: _____. (Org.) *Nature and society: anthropological perspectives*. London: Routledge, 1996.
- DROUIN, J.-M. *L’ecologie et son histoire: réinventer la Nature*. Paris: Flammarion, 1991.

- DRUMMOND, J. A. A história ambiental: temas, fontes e linhas de pesquisa. *Estudos Históricos*, v.4, nº8, p. 177-97, 1991.
- DUARTE, R. H. Por um pensamento ambiental histórico: o caso do Brasil. *Luso-Brazilian Review*, v.41, nº2, p. 144-62, 2005.
- GLACKEN, C. *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*. Berkeley: Berkeley University Press, 1967.
- GROVE, R. *Green imperialism: colonial expansion, tropical Island Edens and the origins of environmentalism*. Cambridge: Cambridge University Press, 1995.
- GROVE, R.; DAMODARAN, V. Imperialism, intellectual networks and environmental change: unearthing the origins and evolution of global environmental history. In: SORLIN, S.; WARDE, P. *Natures's end: history and the environment*. Houndmills: Palgrave Macmillan, 2009.
- HUGHES, J. D. *La ecología de las civilizaciones antiguas*. Mexico: Fondo de Cultura Económica, 1981.
- _____. What is environmental history? London: Polity, 2006.
- JANTSCH, E. *The Self-organizing Universe*. Oxford: Pergamon, 1980.
- LE ROY LADURIE, E. Présentation. *Annales – Économies, Sociétés, Civilisations*, v.29, nº 3, p. 537, 1974.
- _____. *Historia del clima desde el año mil*. Mexico: Fondo de Cultura Económica, 1991.
- LEIBHARDT, B. Interpretation and causal analysis: theories in environmental history. *Environmental Review*, v.12, nº 1, p. 23-36, 1988.
- LÉVI-STRAUSS, C. Estruturalismo e ecologia. In: _____. *O olhar distanciado*. Lisbon: Edições 70, 1986.
- LINNÉ, C. *L'équilibre de la Nature*. Paris: J. Vrin, 1972.
- MARSH, G. P. *Man and nature or physical geography as modified by human action*. Cambridge: Harvard University Press, 1965.
- MATU RANA, H.; VA RELA, F. *The tree of knowledge: the biological roots of human understanding*. Boston: New Science Library, 1987.
- McCORMICK, J. *The global environmental movement*. Chichester: Wiley, 1995.
- McEVOY, A. *The Fisherman's problem: ecology and law in the California Fisheries*. Cambridge: Cambridge University Press, 1986.
- McNEILL, J. Observations on the Nature and culture of environmental history. *History and Theory*, Theme issue 42, p. 5-43, Dec. 2003.
- McNEILL, J. et al. (Org.) *Environmental history: as if Nature existed*. New Delhi: Oxford University Press, 2010.
- McNEILL, W. Passing strange: the convergence of evolutionary science with scientific history. *History and Theory*, v.40, nº 1, p. 1-15, Feb. 2001.
- MOORE, J. Capitalism as world-ecology: Braudel and Marx on environmental history. *Organization and Environment*, v.16, nº 4, p. 431-58, Dec. 2003.
- Nash, R. American environmental history: a new teaching frontier. *Pacific Historical Review*, nº 41, p. 362-372, 1972.

- NEVES, W. *Antropologia ecológica*. São Paulo: Cortez, 1996.
- NORRIS, M. Darwin's reading of Nature. In: _____. *Beasts of the modern imagination*. Baltimore: The Johns Hopkins University Press, 1985.
- O'CONNOR, J. What is environmental history? Why environmental history? *Capitalism, Nature, Society*, v.8, nº 2, p. 3-29, June 1997.
- PÁDUA, J. A. *Um sopro de destruição: pensamento político e crítica ambiental no Brasil escravista, 1786-1888*. Rio de Janeiro: Jorge Zahar, 2002.
- _____. Herança romântica e ecologismo contemporâneo – Existe um vínculo histórico? *Varia Historia*, nº 33, 2005.
- PRIGOGINE, I.; STENGERS, I. *Order out of chaos: man's new dialogue with Nature*. London: Flamingo, 1985.
- RAUMOLIN, J. L'homme et la destruction des ressources naturelles: la "Raubwirtschaft" au tournant du siècle. *Annales – Économies, Sociétés, Civilisations*, v.39, nº 4, p. 798-819, 1984.
- SCHAMA, S. *Landscape and memory*. London: Harper-Collins, 1995.
- SIEMENS, A. Extrayendo ecología de algunos documentos novohispanos de la época temprana. In: GARCIA, B.; JÁCOME, A. (Org.) *Estudios sobre historia y ambiente em América I*. Mexico: El Colégio de México y Instituto Panamericano de Geografía e Historia, 1999.
- SILVA, J. B. de A. e. Representação à Assembléia Geral Constituinte e Legislativa do Império do Brasil sobre a Escravidão. In: _____. *Obra política de José Bonifácio*. Brasília: Senado Federal, 1973.
- _____. *Memória sobre a necessidade e a utilidade do plantio de novos bosques em Portugal*. Rio de Janeiro: Instituto Histórico e Geográfico Brasileiro, 1991.
- SORLIN, S.; WARDE, P. The problem of the problem of environmental history: a rereading of the field. *Environmental History*, v.12, nº 1, p. 107-30, 2007.
- _____. (Org.) *Natures's end: history and the environment*. Houndmills: Palgrave Macmillan, 2009.
- THOMAS, K. *O homem e o mundo natural*. São Paulo: Cia. das Letras, 2001.
- VIOLA, E.; LEIS, H. Desordem global da biosfera e nova ordem internacional: o papel organizador do ecologismo. In: LEIS, H. (Org.) *Ecologia e política mundial*. Rio de Janeiro: Vozes, 1991.
- VIVEIROS DE CASTRO, E. Imagens da natureza e da sociedade. In: _____. *A inconstância da alma selvagem*. São Paulo: CosacNaify, 2002.
- WILLIAMS, R. *Keywords: a vocabulary of culture and society*. London: Famingo, 1983.
- WORSTER, D. Doing environmental history. In: _____. *The ends of the earth: perspectives on modern environmental history*. Cambridge: Cambridge University Press, 1988.

ABSTRACT – The article analyzes the emergence of environmental history as a self-conscious science in the historical and cultural context at the turn of the 21st century. It defines environmental history as an open and non-reductionist inquiry of the interactions between social and natural systems over time. The sociological factors and the major epistemological issues found in the constitution of this new historiographic field are also discussed.

KEYWORDS: Environmental History, Ecological History, Theory of History, Interdisciplinary Dialogue, Conceptions of Nature.

José Augusto Pádua is Professor of the History Department at the Federal University of Rio de Janeiro. He has a doctorate in Political Science from IUPERJ and made postdoctoral studies in History at the University of Oxford in England. @ – jpadua@terra.com.br

Received on 2.18.2010 and accepted on 2.24.2010.

Translated by Carlos Malferrari. The original in Portuguese is available at http://www.scielo.br/scielo.php?script=sci_issuetoc&pid=0103-401420100001&lng=pt&nrm=iso.