

Historicizing Nature: Time and space in German and American environmental historiography

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*'History's time is the plasma
in which phenomena are immersed and
the locus of their intelligibility' –*

Marc Bloch

Introduction

I.G. Simmons, the doyen of British environmental history, explains in the introduction to his “Environmental history of Great Britain from 10.000 years ago to the present”:

The discipline of environmental history attempts ... to undertake studies of environments in a way which highlights the interfaces between humans as agents, acting in the light of all their manifold human characteristics (both social and individual) and the non-human world in all its complexities and dynamics. ... The best studies in environmental history also have one more feature. They carry through an environmental process involving both nature and culture from its beginning to its end. ... since, however, words have to be placed sequentially it is rarely possible to deal with the simultaneity of the ramifications. ... Hence, simplification in time and space is an inevitable part of the account which is given ... ¹.

This reflection on the dimensions of time and space in environmental history points out conceptual difficulties that historians have to reckon with if they want to study “how people have lived in the natural systems of the planet, and how they have perceived nature and reshaped it to suit their own idea of good living” and if they start to investigate “how nature, once changed, requires people to reshape their cultures, economies, and politics to meet new realities” – as Louis Warren in his definition of environmental history suggests.²

Time – as well as space – is basic to history both with regard to what historians claim to present about the past and with regard to how they go about representing it. Around the term ‘history’ cluster notions of time: process, duration, reproduction, change, development, evolution, and transformation.³ At the same time the analysis usually concentrates on certain geographically defined spaces. Most historians conceive of history as not simply something that happens to people, but something people make – within, of course, the very powerful constraints of the natural, social or cultural world within which they are operating. More than other historical sub-fields, environmental history has to consider the fact that human engagements with the natural world are not merely mental or intellectual but spaced, timed and embodied.⁴

This observation, however, implies a couple of fundamental questions with regard to the epistemological and ontological foundations of environmental history: How do we analyze the interplay between nature, environment, ecology, culture, politics and economics? How can we capture the historical interaction between human and non-human beings, their mutual dependence and interdependencies and the power structures shaping them? How is the actor relationship between man/woman and nature shaped? Is it at all possible to conceive nature as a historical actor and what is the specific quality of this agency? In short: how can we theorize the relationship between the human and the non-human environment?

Whereas philosophers might tackle the problem to find an all encompassing definition of what nature, and of what time and space is, the historians’ task is to point out the historical

contingency of 'nature' and to historically contextualize time and space. Nature means something different at any given time. Notions of landscape change overtime. Hence the first step in theorizing the relationship between the human and the non-human environment is to lay out the time specific understanding of nature and to define the notion in the context of the time and space historians' are analyzing. The second step is to reflect upon the temporal and spatial embeddedness of the historian and of historiography itself. Why does nature or the environment emerge at specific points in time as phenomena of historical research and how does a historian's interest in nature and the environment relate to social, cultural, political and economic pressures and processes?

Reflecting the focus of the first session "historicization of nature" and the overall topic of the conference "comparative approaches to environmental history" this essay discusses the above questions in *four steps*: first the fundamental notions at stake here and their relevance for historical research will be reviewed. What is time, what is space, and how is history and historiography related to both? Our conceptions of time and space, historiography and the philosophy of history have been influenced quite significantly by three paradigmatic shifts in 20th century humanities and sciences which will be at the center of analysis in the second part of this essay. A historical analysis of nature cannot ignore the major empirical contributions of human geography to our understanding of the interplay of nature and culture, nor can it discount the philosophical and sociological implications for the concepts of time and space resulting from the discoveries of the general theory of relativity, of quantum theory and thermodynamics or the challenges of globalization and the concomitant growing awareness of environmental destruction. In the 1990s the United Nations introduced the concept of "sustainability" as a paradigm challenging to a certain extent the paradigm of "progress". One may therefore ask whether "sustainability" includes a temporal/spatial model that might be able to re-shape the time/space/nature/economics system in an innovative and ecologically responsible way and whether and how this model could inform environmental historical

research. Is “sustainability” a concept that re-orientes constructively our thinking about the future, or does it just replicate preservationist perspectives and their conservative ethic, ignoring the historical dynamics of the relationship between humans and nature and thus prohibiting an innovative discourse about future developments? Using these paradigmatic considerations as a foil, the third part of the essay will investigate the development of historians' concern with nature and the environment. As part of this historiographical analysis historical narratives of German and American environmental historians will be sketched. What are the heuristic models used in these environmental histories and what are their empirical foci? How do these studies deal with the problem of time frame and spatial extension in their empirical work? In a last step the two parts of the paper – the philosophical one and the historiographical one – will be brought together by discussing conceptual commonalities and differences in American and German historian's concern with nature in time.

Basics: Time and space as historical categories

Time

For all living species physical space is immediately conceivable. In contrast, time only becomes comprehensible by language. This is why Durkheim e.g. argued that only humans have a concept of time.⁵ Time itself does not have a content. It is language that gives time structure and content, and only through being given content can time be historicized.

Language creates the possibility of passing on memories or visions and hopes. It thus adds the time dimensions of past and future to our conceptions of the world. The past can only be saved from being forgotten and thus disappearing by telling stories.⁶ Future developments can be anticipated as “wishes” or “visions” and can eventually be realized by strategic planning.

Hence, story-telling or creating narratives is one of the major ways in which human intelligence ascribes meaning to life in time.⁷

Time is very much conceived of as an objectively given social category of thought with a universalistic character. However, as a creation of the human intellect, conceptions of time remain closely connected to the social and intellectual specificities and imaginations of specific cultures and thus may vary considerably between societies. The cultural embeddedness of time becomes especially significant if we consider historical writing and the development of History as an academic discipline.⁸ Despite History being a genre of time par excellence producing and reproducing social constructions of (historical) times, historians rarely discuss its nature or how it is textualized. The temporal framework of historical narratives is dealt with as a sort of *a priori* because the emergence of history as a “scientific” discipline during the 19th century went hand in hand with the establishment of a universal and standardized concept of time whose main characteristics were linearity and secularity. This universal notion of time, produced and reproduced by “scientific” history, very much nurtured the perception of time being an objectively given and universal category and a social institution.

The modern idea of historical time was linear as opposed to cyclical, secular as opposed to religious, universal rather than particular to any epoch, nation, or faith...

The new historical sense of time reproduced the universalizing, standardizing time of the scientists, but for human rather than natural history. ... A new relationship to the facts of history followed from the new conception of time. The disciplining of history, its metamorphosis into a scientific discipline, became possible only once a new notion of time had emerged.⁹

The universalization of historical time is probably one of the reasons why historians do not discuss its usage in the narratives they present. They presuppose time and employ temporal ordering in different and often related ways very often more or less intuitively.¹⁰ The second reason is that historians tell stories. Story-telling is an expression of the primacy accorded to temporality in remembering the past. This primacy characterizes the history of Western metaphysics since Aristotle and has hence become so much part of our social knowledge that a lack of reflection on the temporality of story-telling does not arose any scholarly apprehension.

It was Walter Benjamin who questioned the primacy of temporality in remembering the past and in writing about the past. In his Arcade Project Benjamin presented a constellar model of history, based on interrelation rather than linear flow.¹¹ Walter Benjamin breaks history down into fragments which it is for the reader to reassemble into a qualitatively new whole. But according to Benjamin it is not only with regard to the structure of the text that there exists an inherent interconnectedness of historical time and space or place. In his essay on Proust Benjamin developed the formula of the spatial or “space-bound” aspect of convoluted (*verschränkte*) time as opposed to the boundless time of eternity.

The eternity which Proust opens to view is convoluted time, not boundless time. His true interest is in the passage of time in its most real – that is, space-bound – form [*raumverschränkte Gestalt*], and this passage nowhere holds sway more openly than in remembrance within and aging without.¹²

Temporality and history are intertwined and at the same time intimately interwoven with space. The concept of “Standortgebundenheit” (the spatial and temporal embeddedness of the historian)¹³ or the metaphor of “path-dependency” used by political scientists to acknowledge

the importance of historical developments and processes e.g. for political decision-making or the functionality of institutions¹⁴ reflects this interwovenness of time and space.

The textuality of historical time and the linearity of historical texts (as opposed to photographs, sound-documents, or material objects) allegedly produce the problem of simplification in *representing* the history of environments which I.G. Simmons is referring to.¹⁵ But does it necessarily also lead to a simplified *understanding* of the historical narrative and its meaning? Writing and reading a text is one thing. Both aspects of the (re)production and consummation of past events in the form of texts are inherently sequential. They cannot overcome the constraints of time and linearity. Understanding the message and meaning of a text or a book, however, is based on cognitive processes and brain functions that are much more similar to those we activate when we see and read pictures. We remember the text as a whole – its composition, its argumentation, its main thesis etc. – and not necessarily the sequence of the words and sentences as such. Moreover, the understanding of a text is a very individualized act of recognition and remembrance, based on individual interests, knowledge, perception or reading patterns and cognitive filter mechanisms. Last but not least, social time and the time used in historical texts is different from and sometimes opposed to the time(s) of nature, including the temporal processes and rhythms that inhabit or order the natural world.¹⁶ These three observations not only ask for a historically contextualized definition of time and space in any environmental history, but they also demand the reflection of the historical contingency of reading and understanding of historical narratives dealing with nature, ecology and the environment.

Space

Lefebvre in his study “The Production of Space”¹⁷ argues that “space is not a neutral and passive geometry. Space is produced and reproduced through human activity and it thus

represents a site of struggle and contestation. It is not an empty container simply waiting to be filled.”¹⁸ Space has to be distinguished from ‘place’. Space plus culture equals ‘place’. The diversity of human cultures creates diverse places across both space and time.¹⁹ Other terms are sometimes used in place of ‘place’, such as home, dwelling, milieu, territory, and of course, space. None of these are necessarily equivalent to the notion of ‘place’. The concept ‘place’ highlights the scholarly concern a) with the interaction between peoples and environments that creates particular places and b) with individual localities. The latter perspective especially characterizes the historical approach to place as a socially and culturally embedded everyday experience playing a crucial role in the formation of group and individual identity and reflecting and reinforcing power relations.²⁰ According to the latter perspective Wilson in “The Culture of Nature” explains:

We don’t just talk and dream about our relations with the non-human world. We also actively explore them in the real places of our streets, gardens and working landscapes. By crossing to the sunny side of the road on a winter’s day, or by arranging some flowers in a vase, we both respond to and address the animals and plants, rocks and water and climate that surround us. Those working landscapes – the ordinary places of human production and settlement – are enormously complex places. Their history is, in part, a history of engineering – of how we build bridges, contain water, prune trees and lay sidewalks. But it is also an aesthetic history. It is about shaping, defining and making the world beautiful in a way that makes sense to us in the time and place that we live.²¹

Wilson strengthens Lefebvre’s argument that different spatial phenomena such as land, territory or site should be understood as part of the same dialectical structure of the production of space or spatialisation. Space as time is a social construct. In contrast to time,

however, space is not a social institution. But while, as a result of a fragmented discipline-based analysis, the social and the geographical aspects of space are very often separated, in environmental history they need to be brought together in a unified heuristic structure that is able to capture the social bases of spatialisation.

Since space is produced and reproduced by human activities, the historian's task is to differentiate and analyze the historical varieties of space and spatialisation. In contrast to 'time' 'space' has not been a favourite subject of philosophers. One of the few philosophical-sociological treatments of the phenomenon 'space' is Henri Lefebvre's "The production of space". Drawing on a Marxist humanist framework Lefebvre suggests a distinction between "dominated space" and "appropriated space". Dominated space is space "transformed and mediated by technology, by practice"²². This dominance has deep roots in history and its origins coincide with those of political power itself. "Military architecture, fortifications and ramparts, dams and irrigation systems – all offer many fine examples of dominated space".²³

... dominated space is invariably the realization of a master's project. ... In order to dominate space, technology introduces a new form into a pre-existing space – generally rectilinear or rectangular form such as a meshwork or chequerwork. A motorway brutalizes the countryside and the land, slicing through space like a great knife. Dominated space is usually closed, sterilized, emptied out.²⁴

Appropriated spaces in contrast are "natural spaces modified in order to serve the needs and possibilities of a group". Appropriated spaces are those involving its 'consumption'.

Examples for appropriated spaces are peasant houses and villages: "they recount, though in mumbled and somewhat confused way, the lives of those who built and inhabited them".²⁵

An appropriated space resembles a work of art, which is not to say that it is in any sense an imitation work of art. Often such a space is a structure – a monument or building – but this is not always the case: a site, a square or a street may also be legitimately described as an appropriated space. Examples of appropriated spaces abound, but it is not always easy to decide in what respect, how, by whom and for whom they have been appropriated.²⁶

A good example of the appropriation of space is the clearing of the forests by American settlers during the 18th and 19th century. Since the early 19th century the transformation of the natural environment by settlers has been described in notions of the settlers' destructive mastery over nature. James Fennimore Cooper, for example, in his novel "The Pioneers, or The Sources of the Susquehanna" depicts the settlers as possessed by an irrational, emotional desire to decimate nature. Their slaughter of the wild plants and animals exceeds all considerations of economic need and interest. This narrative has been repeated and reproduced ever since. It dominates the historical description of the settlement process from an environmental perspective. William Cronon e.g. argued that colonists often denuded forests for profit.²⁷ The conceptual differentiation of space into *dominated space* and *appropriated space* as proposed by Lefebvre offers a theoretically or philosophically based heuristic model for a re-evaluation of what the settlers' motives and their impact on the environment might have been. Instead of telling the story of settlement in terms of environmental destruction for economic reason, i.e. in terms of the domination of space, the story of settlement could be told in terms of the consumption of nature (i.e. the appropriation of space) by the early settlers trying to survive in the wilderness. Such a re-evaluation is e.g. put forward by Alan Taylor in his essay "'Wasty Ways': Stories of American settlement".²⁸ Taylor explains:

Environmental historical narratives of North American settlement often open with a nostalgic description of a natural abundance now lost: towering forests, immense flocks of waterfowl, majestic game animals, a boundless, diverse tangle of wild plants, and native peoples who manage their environment with restraint ... then the powerful Euro-American settlers appear to attack and subdue the wild. Only later do their successors experience the harsh consequences, as a nature scorned counterattacks with severe erosion, dust storms, shrinking aquifers, and salinized soil. In sum, a tripartite structure characterizes the classic environmental histories: initial abundance, transforming settlers, and a legacy of diminished nature. Such narratives are powerful and persuasive because, from our contemporary vantage point, they convey a truth: we do live in an altered nature of diminished diversity and painful dilemmas that derive from the settlement past. ... By making so much of settlers' power over nature, however, our environmental narratives make too little of settlers' initial weakness and suffering. ... the drastic consumption of nature had its roots in the prolonged and previous period when early settlers felt threatened and often overmatched by the new environmental setting.²⁹

Taylor pleads for a location of the settlers' assault on nature within their often harsh initial experiences with a new land and within the stories they told one another about the meaning of their experiences. In his analysis of the appropriation of "wilderness" by farm-building he shows how the settlers' behaviour emerged from a dialectic between their experiences with the surrounding wilderness and their own environmental storytelling. The transformation of wilderness into a more productive and secure version of nature was interpreted by the settlers as a replacement of nature "that they called wilderness with another nature called pastoral".³⁰ Hence, nature was not intentionally destroyed for economic purposes but it was appropriated to serve the needs of the human beings living in this environment.

Although Lefebvre's categories of "domination" and "appropriation" might indeed help to develop criteria for the evaluation of the relationship between humans and the non-human world going beyond the traditional, pejorative and mono-causal narrative of human's domination of space, they themselves need further empirical operationalization to strengthen their analytical quality by reducing their inherent normative relativity. It has to be clarified, for example, when, how and why appropriation ends and domination begins. In addition, empirically based criteria have to be developed to measure these ends and beginnings. In order to be able to do so environmental histories not only have to reflect the time and space embeddedness of the historian (*Standortgebundenheit*), but also the specific cuts historians make for example between culture and nature when they choose their topic and construct their framework of analysis.³¹ Historians have to recognize that space is always depending on certain moments in time and that the production of space is closely interconnected to the development of certain technologies.³²

Meta-Histories of time and space

Environmental historical narratives, however, are not only and exclusively characterized by the tripartite structure of a meta-environmental narrative pinpointed by Alan Taylor. A second, very influential meta-narrative, structuring environmental historical accounts, is the modernization paradigm. This paradigm has shaped the development of Western professional history ever since the eighteenth century. Despite its many varieties, professional history in the 20th century has been usually written under the interpretative signpost of "modernization" and "progress". In this meta-narrative the West was defined as the paradigmatic model of modernity. 19th and 20th century history was accordingly described as a historical process by which the Western world became modern and tried to modernize the rest of the globe. This interpretative scheme was especially virulent in the context of the history of colonization. The

modernization paradigm is based on an implicit spatial concept, dividing our planet into “the West” and “the rest”. In this spatial model the West is depicted as the space of culture and civilization and “the rest” as the space of “wilderness” which needs and waits to be civilized and thus modernized.

This spatial model of the historical meta-narrative of modernization is mirrored in the American historical tradition of Western and frontier history which is usually pointed out as the first proto-environmental historical field.³³ Western and frontier history presented a spatially defined concept of nature with an implicit positive notion of wilderness that nevertheless needed to be “colonized” in the sense of civilized or modernized. This “double bind” characterizes, for example, the argument in Frederick Jackson Turner’s essay “The Significance of the Frontier in American History”. Turner explains:

Up to our own day American history has been in a large degree the history of the colonization of the Great West. The existence of an area of free land, its continuous recession, and the advance of American settlement westward, explain American development. ... The peculiarity of American institutions is, the fact that they have been compelled to adapt themselves to the changes of an expanding people—to the changes involved in crossing a continent, in winning a wilderness, and in developing at each area of this progress out of the primitive economic and political conditions of the frontier into the complexity of city life. ... American development has exhibited not merely advance along a single line, but a return to primitive conditions on a continually advancing frontier line, and a new development for that area. American social development has been continually beginning over again on the frontier. This perennial rebirth, this fluidity of American life, this expansion westward with its new opportunities, its continuous touch with the simplicity of primitive society, furnish the forces dominating American character.³⁴

Western or frontier history in the tradition of Frederick Jackson Turner reflected upon the significance that a specific “moving space”, the American *frontier*, had played in the American past. Already one hundred years before the “spatial turn” in the humanities, the history of the *frontier* was presented in a narrative based on a concept of nature stressing its hybridity and the impossibility of disentangling the human from the non-human. Moreover, in his article Turner presented a social and intellectual interpretation of “space” pinpointing a paradox that had emerged in the context of the modernization paradigm and the very experience of modernization processes since the early 19th century. The mastery of nature in the sense of Lefebvre’s concept of “domination of space” that signified modernisation processes went hand in hand with the development of a considerable interest, passion and enthusiasm for nature itself.³⁵ To a certain extent this paradox reflects one of the central arguments in Lefebvre analysis of modernity – the substitution of the primacy of temporality and time by the supremacy of space. Lefebvre argues:

With the advent of modernity time has vanished from social space. It is recorded solely on measuring-instruments, on clocks, that are isolated and functionally specialized as this time itself. Lived time loses its form and its social interest – with the exception, that is, of time spent working. Economic space subordinates time to itself; political space expels it as threatening and dangerous (to power). The primacy of the economic and above all of the political implies the supremacy of space over time. ... This manifest expulsion of time is arguably one of the hallmarks of modernity.³⁶

Historicizing Nature: 20th Century Paradigm shifts in the Humanities and Sciences

Environmental History and the theorizing about how to conceive of the spatial and temporal character of the interdependence and interaction of nature, the environment and humankind was influenced by three major paradigm shifts in the humanities and sciences during the last 100 years.

Historicizing space: Geography and history during the first half of the 20th century

The first paradigm shift, which introduced a historicization of space, resulted from the differentiation process within the humanities during the second half of the 19th and early 20th century. Geography and History in Europe as well as in the United States started out as two separate disciplines. With the development of human geography at the end of the 19th century and the publications of major and path-breaking studies e.g. by the French geographer Paul Vidal de la Blache³⁷ and German geographers like Friedrich Ratzel,³⁸ Geography and History came closer together. Numerous regional studies written during the first half of the 20th century confirmed the deep-rooted interdependence of human action and nature. Vidal de la Blache e.g. argued that a “region” is the result of the interaction of space/landscape and man. Space and landscapes influence humans' spirit and corps and vice versa, human beings change landscapes according to their capacities and their economic, social and cultural needs.³⁹ Vidal de la Blache also introduced the differentiation between “human time” (history) and “spatial time” (geography).⁴⁰ But it took another generation of scholars and the foundation of the *Annales* School to further elaborate the intricate temporal interrelationship between Geography and History.

The *Annales* School questioned the traditional focus on political history and the “histoire événementielle” and its concentration on specific individuals and events. Instead, it emphasized long-term trends and demographic and environmental factors. In “La Méditerranée”⁴¹ Fernand Braudel, using the time categories introduced by Vidal de la Blache,

historicized “space” in a complex time model differentiating between “permanence”, “longue durée” and “courte durée”, and focusing on the “dialectic of time”. Whereas Vidal de la Blache as a geographer was predominantly interested in the space dimension of Human Geography, Braudel as a historian focused on the time dimensions of Geography and its influence on human action. Braudel argued for the inclusion of “la durée” or “permanence” as legitimate historical categories and claimed that history takes place in the interaction of the three time dimensions mentioned above. With the time concepts of “quasi-immobilité” and “longue durée” history entered a research field that used to be the terrain of geographers. Braudel's concepts were further developed by Lucien Febvre. He introduced a third dimension into the analysis of regions or geographical entities, the “text”. Febvre argued that “text” has an important function for the development and the coming into being of regions. In his study on “La Franche-Comté” he underlined the importance of historical descriptions of landscapes for developing the character and the meaning of a region.⁴²

In the first decades of the twentieth century – even before the *Annales* School had taken shape – the New Historians in the United States put forward similar ideas. They urged their colleagues to escape “from the limitations formerly imposed upon the study of the past” and to include the widest possible range of sources in their analysis.⁴³

History became a modern discipline when its major theorists began to seek knowledge of the broad, unseen structures that channel processes of change. Curiosity about great men and women or precedent-shattering events yielded early in the nineteenth century to a more compelling interest in the regularities that structured social action. With Marx, Weber, and Durkheim, the search for structure became part of parcel of the modernity of the discipline of history. They and their followers believed that time had a direction and that society, like nature, was composed of a network of systems that scientific investigation could locate.⁴⁴

Hence, on both sides of the Atlantic historians and geographers tried to overcome traditional event-oriented historical research and to introduce structures, geographical regions and space into their analysis. As a result space was historicized. The historicization of space acknowledged the growing human influence on nature and reflected the differentiation process taking place in the parent disciplines of environmental history: geography and history. The move towards diachrony went into two directions: one emphasizing micro-developmental processes and the other macro-processual or macro-historical ones. As a result two historical subfields emerged that distinguish themselves not only with regard to the level of analysis (micro – macro) but also regarding the time dimensions analysed: “Strukturgeschichte” which in terms of environmental history can be translated as “spatial history” focusing on the “longue durée” on the one hand and social history and the history of mentalities concentrating on shorter time periods (“courte durée”) on the other. One major conceptual effect of the developing sub-field of Environmental History was the realization that both time dimensions and the respective focus of analysis are intertwined. Environmental historians try to understand changes on the micro-level by relating them to large-scale historical developments external to the societies inhabiting the spaces analysed.

Discovering the relativity of time, space and nature: Mathematics, physics and scientific ecology

Quasi simultaneously a paradigm shift took place in the sciences where the relativity of time and space was discovered. With Einstein's general theory of relativity, quantum theory and thermodynamics, mathematicians and physicists appropriated space and time and made them part of their domain. These theories questioned the Kantian assumption that time and space are categories separate from the empirical sphere, belonging to the *a priori* realm of

consciousness. They pointed out the complex interdependencies between space, time and nature. Much of the twentieth-century science has shown that a distinction between space and time is inappropriate. Space and time combine to produce a particular nature. Nature and the environment are not only spatial but intrinsically temporal and there are many different times in nature. Even seemingly dead things like physical landscapes are not merely 'natural' and time-free but are both of particular times and are constructed through temporal processes of entropy, self-organisation, dynamical chaos, decay, and so on.⁴⁵ This “scientific” and “empirical turn” had a deep impact not only on 20th century Philosophy but also on the developing discipline of Ecology. By contrast, historical research seemed to stay immune of the new insights, at least until the “spatial turn” of the mid-1980s. Historians’ concepts and views on culture and nature remained very much in the Western post-enlightenment tradition, stressing the important role of science, the key function of rationality and the implicit separation of the species *Homo sapiens* from the rest of nature, implying our self-elevation to a dominant position.

Environmental historians discovered the “new” concepts of time, space and nature by way of Ecology's reception of the scientific insights into the theory of relativity, quantum theory or thermodynamics. Concepts such as “organisms” or “communities” were replaced by systemic approaches. Ecologists started to talk about “ecosystems”. System theory pointed out that there is no fixed time independent of the system to which it refers. Time is thus a local, internal feature of the system of observation. The philosophical consequence of this assumption was that the ‘modern’ differentiation between natural time and social time became obsolete. The same holds true for the concept of “space”: The ‘modern’ concept of “space” remained Cartesian and absolute. “Space like time was treated as an objective phenomenon existing independently of its contents. In this sense space was seen as a container that had effects existing within it, but was not itself affected by them”.⁴⁶ In the humanities and social sciences this ‘modern’ conception of space only changed some 20 years ago with the “spatial

turn". As a result of the growing interest in understanding the social and cultural meaning of space, space was increasingly regarded as lacking independent existence. Scholars agreed that space

comes into being as a function of other processes and phenomena (which in the world of relativity also generate time). Thus any space is contingent upon the specific objects and processes through which it is constructed and observed. Questions of space become epistemological rather than ontological. ... Relative space ... embraces the fact of scalar continuity and the constant blurring and interaction between scales that are always dependent on process and observation. ... Geographical 'place' is today treated as an instantiation of process rather than an ontological given. This way of thinking about spatial scale immediately reintroduces matters of time and history into geography.⁴⁷

In the wake of the "spatial turn" space was conceived of as a function of natural and social processes, but also as an outcome of these processes. Hence, space has social agency, able to create and transform the material world.⁴⁸ This understanding of space allowed transcending the modernist dualism of nature and culture in favour of a more dialectic model which is mirrored e.g. in the scholarly literature on landscapes. According to this new concept of space as a social actor, landscape can be defined as being simultaneously a natural and a cultural space. The concept of landscape brings together nature and culture as spatial actors.⁴⁹

Dethroning the post-Newton assumption that human beings could master nature and thus establish their own autonomy as social actors, the new scientific paradigms developing in the early 20th century confirmed that human beings were themselves the product of various causal processes. To use the words of Joyce Appleby: "Science ... threatened the possibility of free will and self-conscious autonomy ... as it extended the intellectual grasp of those

deprived of freedom of action”.⁵⁰ Environmental historians drew and draw on this insight in the limits of human capabilities of mastering nature and the argument that humans themselves are product of causal processes that cannot be immediately influenced by them.

Environmental History is more than other historical subfields based on the assumption that an inherent tension between free will and determinism exists. Environmental historians show how on the one hand nature and the environment confine and direct what is thought and done and how nature and the environment constrain the options for action at any given moment of time. On the other hand they bring to a fore how human effort, imagination and desire trying to master and tame the deterministic power of nature. It is one of their predominant research perspectives to figure out which of these antagonistic forces causes certain effects and for what reasons.

A. J. Toynbee used this dialectic model in his monumental study of world history in which he described the rise and fall of civilizations.⁵¹ Toynbee argues that because of a regional shift in rainfall patterns caused by the fact that North Africa, Egypt and Mesopotamia were no longer tracked by Atlantic storms which for unknown reasons had moved further north, the traditional lifestyle of hunters and gatherers in this region could no longer be supported. People living in this region reacted differently to the climate change. Some people did nothing, held on to their old ways, and eventually perished. Others migrated to find more amicable climatic conditions, and remained hunters and gatherers. A few people remained there and prospered by “inventing” the domestication of plants and animals, irrigated agriculture, and cities. These people laid the foundation for the civilizations of Egypt and Sumer.

Challenges of globalization and the development of new time concepts

The intensifying debate about the environmental challenges of globalisation in the 1970s produced another paradigm shift. The effects of globalisation underlined the theoretical and philosophical insights put forward during the first half of the 20th century. Human beings all over the world realized that the dichotomy of 'nature' and 'society' does not exist and that the division between what is 'natural' and what is 'artefactual' has to be replaced by different concepts taking into account the fact that nature has to be viewed as a historical product and of course subject to laws which are themselves historical.

The global debate about the environmental costs of globalisation began with the publication of “The Limits to Growth” by the Club of Rome in 1972.⁵² The main argument of this publication was that we face limits – limits on this planet’s carrying capacity for human beings, limits on using nature as the source of food, fuel, minerals and the dumping ground for wastes, limits too on what we can expect from technological innovation. This publication triggered a global debate about environmental issues. Environmental policy became part of the United Nations agenda and a special focus of the developing global civil society. Eventually, in June 1992 at the “Earth Summit” world leaders agreed to collectively pursue a new path. They decided, under the terms of Agenda 21 (the central agreement of the Earth Summit) to jointly pursue a path to put the world on a more sustainable course. To describe the course to be taken, the phrase ‘sustainable development’ was used. Since the Rio Summit in 1992 most nation-states and multi-national corporations have publicly endorsed the concept of sustainability, including the notion that 'we' all must live within the finite ecological limits of the planet.

On a scholarly level, Human Geography was the first discipline to react to this discussion, followed by Sociology and Political Science. Ulrich Beck e.g. used one of the arguments developed by the French *Annales* School and in the sciences during the first half of the 20th century as a central perspective for his sociological treatment of the globalisation process. In “Risk Society” Beck explained that alienation from the natural world and

ecological imbalance together with a decrease in the human capacity to have an impact on the environment and a loss of control over effects are important elements of the sociological dimensions of the globalisation process.⁵³

But it was not so much the humanities and social sciences but more the natural sciences and the international civil society that eventually proposed new concepts of time and space, replacing the dominant notion of “progress” (a temporal correlate to the meta-narrative of modernisation) by a model that combined the development needs of large parts of the non-Western world (“the rest”, see above) with the need to preserve a healthy natural environment for future generations. “Sustainable development” became the catchword. It was defined by the Brundtland Commission in 1987 as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.⁵⁴ It contains within it two key concepts:

the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs.⁵⁵

As the United Nations and the emerging global civil society discovered the complexity of the interdependence of industrialisation and modernisation with the physical world, a re-evaluation of nature took place. Nature no longer seemed to constitute 'the other', out there and merely waiting to be 'mastered'. It now seemed at least for some groups some of the time as intimately bound up with human experience, with culture, and much less simply exploitable and disposable. Indeed because of this complex interdependence it seemed as though humans had a special responsibility for nature's long-term preservation. Philosophers, sociologists and novelists who catered to a growing group of transnational actors (especially

the international environmentalist movement and the women's movement) started to claim that people who are as yet unborn should possess extensive rights of inheritance of a particular quality of the environment.⁵⁶ As an international scientific community discovered holes in the ozone layer and a possible climate change caused by uncontrolled emissions of carbon dioxide, a community of environmentalists and feminists increased their lobbying for an international responsibility for the preservation of nature for future generations.

The concept of “sustainable development” is based on arguments that are inherently temporal in character: the argument of the *limits of growth* and *the limits of progress* point at the possible *end* of a modernization process whose main characteristics was technological innovation; the ethical argument of our responsibility for *future* generations and the *immediate* need for action because we are *running out of time* since it is already “fünf Minuten vor Zwölf”⁵⁷ pleads for a re-evaluation of human’s attachment to the natural environment, the landscapes and “space” as a prerequisite for developing an environmental consciousness.

“Sustainable development” thus became the focus of green philosophies arguing that not only human beings but also other components of nature, such as rain forests, have extensive rights.⁵⁸ These philosophies introduced a concept of nature that goes well beyond the dialectic concept developed by the sciences during the first half of the 20th century described above. Green philosophies view nature not as an object or as part of a dialectic structure of nature and culture but as the *subject* of development and change. This ascription of subject functions was paralleled by the introduction of new time concepts which Macnaghten and Urry describe as the “glacial sense of time ... in which the relation between humans and nature is very long-term and evolutionary. It moves back out of immediate human history and forward into an unspecifiable future”.⁵⁹

Despite the substantial shifts in the idea of nature in recent years from an independent reality external to and different from the human and the cultural to a domain that is

increasingly dependent on and shaped by the operation of a global human society, to eventually a concept of nature in which nature itself becomes a subject of history and a historical actor, the public discussion about environmental problems and how to solve them remains anthropocentric. It focuses on human beings and their capacity to change their way of living and to adapt to changed circumstances. Whether this will lead to the emergence of new civilizations – as was the case in ancient North Africa, Egypt and Mesopotamia (see Toynbee) – or whether the whole rhetoric about ‘the environment’ and ‘the environmental crisis’ are another in a continuous series of human realisations or constructions of nature, as Franklin claims,⁶⁰ will be the subject of analysis for future generations of environmental historians.

The history of environmental historiography

To a certain extent paralleling the described developments and paradigm shifts in the humanities and sciences, the development of environmental historiography⁶¹ can roughly be subdivided into three periods: *first* the period of proto-environmentalism ca. 1890 to 1960 and the discovery of the "longue durée"; the writings of Frederick Jackson Turner (1861-1932) and the frontier school⁶² and of Fernand Braudel (1902-1985) and the Annales School very much shaped the scholarly treatment of space, landscapes and nature during this period. Their studies together with the publications of scientists like Aldo Leopold (1887-1948) who graduated from Yale forestry school and joined the US Forest Service in 1912 laid the foundation of the scholarly field of modern environmental history emerging in the 1960s and 1970s. In his cornerstone book “Game Management” (1933)⁶³ Aldo Leopold, who is considered the father of wildlife ecology, defined the fundamental skills and techniques for managing and restoring wildlife population. This landmark work created a new science that intertwined forestry, agriculture, biology, zoology, ecology, education and communication. Leopold’s significance as a pivotal figure in intellectual history, and philosophy in particular,

lies in his unique attempt to devise an ethic from a foundation of ecological science. His book “A Sand County Almanac”⁶⁴ introduced the concept of “land ethic”, the fundamental tenets of which are 1) "land" (which we would now call an "ecosystem") is a system of interdependent parts: best regarded as a "community," not a "commodity"; 2) *Homo Sapiens* is a member, not the master, of the land community; 3) "The whole informs the part" – that is, we can only understand and appreciate our place in nature, and the place of our fellow creatures, in the context of an understanding of the whole, and 4) man’s duty is to preserve the integrity, stability and beauty of the biotic community. Leopold saw “the land” as a living organism closely intertwined with the concept of community. “All ethics”, he explained, “so far evolved rest upon a single premise that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate (perhaps in order that there may be a place to compete for).”⁶⁵ The land ethic enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.⁶⁶

The emergence of political environmentalism had a deep impact on environmental history in the 1960s and 1970s. During this period the sub-field more and more focused on local developments, hence shifting the scholarly interest from regional studies to local studies thereby introducing a new, a narrower spatial concept of the environment. The period of political environmentalism in the 1960s and 1970s was particularly shaped by the writings of Donald Worster, William Cronon and Alfred W. Crosby.⁶⁷ In the tradition of Aldo Leopold Donald Worster, e.g. approached problems of environmental history from the perspective of science and broached the complexities of the relationship between science and environmentalism. Using the conventions of intellectual history, he attempted to show how ecological thought reflected not just discoveries about nature but also the specific cultural conditions in which those discoveries arose.⁶⁸ Like Aldo Leopold Donald Worster addressed the problem of trying to extract ethical standards from studies of nature. And like the New

Left History he stressed the role of the economy and he criticized capitalism. In his essay “Doing Environmental History” Worster states:

Environmental history was ... born out of a moral purpose, with strong political commitments behind it, but also became, as it matured, a scholarly enterprise that had neither any simple, nor any single, moral or political agenda to promote. Its principal goal became one of deepening our understanding of how humans have been affected by their natural environment through time and, conversely, how they have affected that environment and with what results.⁶⁹

Worster’s work is based on the assumption that “we are interdependent with all of nature and that our sense of community must take in the whole of creation.”⁷⁰ He insists that environmental historians “... have got to go ... down to the earth itself as an agent and presence in history.”⁷¹ Building on the work of historical ecologists, like James Malin,⁷² Worster moved the field of studies of the environment from the American studies concerns of American views of nature (prominent in such works as Henry Nash Smith’s “Virgin Land” and Roderick Nash’s “The Wilderness in the American mind”⁷³) to more ecologically-centered studies of human interactions with the environment. In Worster’s studies – and in those of the environmental historians who have followed his footsteps, like William Cronon and Richard White – the environment is an historical actor which both shapes and is shaped by human actions upon it.

The focus on the interaction between nature and culture very much shaped the scholarly work of a third period of environmental historiography facing the challenges of scientific ecology and the “spatial turn” of the late 1980s and 1990s. During this period two sets of different historiography developed: One following the path of the critical perspective developed in the late 1960s and 1970s focusing on questions of pollution, of city

development, and the interrelation of consumer culture and environmental consciousness. This strand was very much urban or social history with "ecology" attached to it. And this is where German and American historiography met and started a scholarly interchange. German environmental history emerged as a historical sub-field in the 1980s and 1990s with a focus on the history of industrialisation and pollution. Environmental history was very much the social history of the era of heavy industrialisation und urbanisation. It was this social and economic perspective on environment and its history that opened the field of urban studies for problems of nature and environment.

As a critical reflection of the urban and social history approach in environmental historiography a revisionist school of environmental history emerged in the 1990s, of which Andrew Isenberg's study of the destruction of the bison stands out as a paradigmatic contribution.⁷⁴ This revisionist school refocused its analysis away from the "imperialist" perspective of Europeans conquering the continent and thus not only destroying indigenous cultures and people with the germs they imported from Europe, but also destroying the ecological system of the native people⁷⁵ towards a multi-factorial analysis of ecological change. Andrew Isenberg e.g. developed his history of the destruction of the bison by using the factor triangle of economy, ecology and culture as a heuristic model.

The development of the historical sub-discipline environmental history demonstrates that environmental history is no exception to the rule that the most distinctive problem all historians have to face is temporality itself. The impulse to tell new stories or to tell old stories differently demonstrates that time itself is a perspective. The past as an object will be read differently from one generation to another. Lived experience alters the questions historians ask, foreclosing some research agendas while inspiring new ones. More than in other historical sub-fields space and place characterize contents, research questions and the localities scrutinized by environmental historians. The spatial bias of environmental history becomes especially obvious in a comparative perspective. German and American historians

do not only live in different “social and cultural spaces” but also in different physical environments. As environmental historians they explore different material remains of the past located in very distinct natural spaces. European environments and landscapes differ considerably from American ones. In contrast to ideas, commercial goods or people, physical environments and geographical spaces do not travel across the Atlantic (except in the form of plants, animals, and microbes). Nature and the environment are much more locally bound than other historical artefacts. The entanglement of human experience and the non-human environment prohibits to a certain extent the travelling of these experiences beyond the spatial confines of a certain region. Historians of environmental history who want to reconstruct and interpret the past of environments and nature have to take into account the locality of historical developments and with it the singularity of these entanglements. In order to discover and appreciate the more fundamental forces in history, Worster argues, “we must now and then get out of parliamentary chambers, out of birthing rooms and factories, get out of doors altogether, and ramble into fields, woods, and the open air. It is time we bought a good set of walking shoes, and we cannot avoid getting some mud on them.”⁷⁶

Time, Space and nature in German and American environmental historiography

The individuality and singularity of the entanglements of human experience and the non-human environment may be one reason why the topic the Krefeld Historical Symposium 2005 resists the comparative method much more than former ones. German and American historians do treat the environment’s past in very distinct ways reflecting major developments and the specific spatial character of Europe and America in the respective national histories, but also the locality of the experience with their physical environment.

In Germany environmental history emerged out of the history of industrialisation that discovered pollution and the destruction of nature as observable facts going hand in hand with

the industrial development of certain regions. It very much focuses on the late 19th and 20th centuries. In the United States environmental history resulted to a large extent from the historical analysis of the settlement process, the history of the West and the history of Indian-White relations since the colonial era. Hence a comparison of German and American historiography using a topical approach is next to impossible. In order to comply with the comparative approach of the Krefeld symposia the German and American historiographical traditions will be compared on a non-topical level using the focus of this paper on time and space as guidelines for comparison. German and American scholarly treatment of nature and the environment, the interaction of man and nature and of nature as a historical actor can be compared with regard to (1) the temporal embeddedness of historical research, the contexts of and the contextualization of environment, (2) regarding the time frame used in German and American environmental narratives, and (3) with regard to the spatial framing of the analysis.

(1) For historians the notion of context is a way of both comprehending past plenitude and portraying it through 'thick description'. Human activities and institutions are to be understood in relations to the larger network of behavior or social organization and structure of which they are said to be part. Social, political, religious, economic, family, philanthropic, and other institutional practices make sense only when placed in their proper social and cultural contexts. Contextualisation is usually based on texts: Words and sentences must be read in the context of the document, and the document as part of its community of discourse or of the ideological and belief system that gave it meaning at the time. Discourses and worldviews in turn demand the context of their cultures and times.⁷⁷ In environmental history, more than in other historical sub-disciplines, the research topic tends to dictate the approach, source materials, and research methods used. Therefore the source materials utilized in environmental history vary from traditional written documents to data provided by modern science, such as pollen and sediment studies, dendrochronological findings, and carbon datings. Methodologies employed by the natural sciences provide information on past

environmental change, whether natural or human-induced. Methodologies, source material and accordingly the practices and strategies of contextualization differ in the German and American historiographical tradition. Indeed two approaches can be distinguished: the scientific and ethical approach to contextualisation combined with a strong inclusion of the sciences in an interdisciplinary setting in the American case and the socio-economic and cultural approach tending more towards including cultural studies or intellectual history in the German case.

(2) German and American environmental historiography also differ with regard to the narratives they present and the temporal structure of these narratives reflected in the periodization schemes used to organize historical research. Siemann, for example, explains that German environmental historiography uses the “thermo-industrielle Revolution” as a perspective for periodization. As a consequence German environmental historiography very much focuses on the analysis of the usage of energy as a fundamental factor for historical development during the 19th and 20th century.⁷⁸ In the United States the processes of colonization and the settlement of the West and its impact on the environment very much structure the time frame of historical narratives. Both traditions, however, use a functionalist approach to explain the interrelation between the quality of “space” and the time dimension analysed. Historical causalities are constructed on a set of variables encompassing the topic analysed, the disciplinary background of the historian (intellectual history, social history, political or diplomatic history, the history of mentalities or cultural history), the specific character of the interdisciplinary approach used and the political and ethical goal of the historian. It is this functional perspective that gives environmental history a distinct character. In both cases – the German and the American one – environmental narratives are re-embedding Western culture into the natural world. Thereby environmental historians get to parts of the past that other historians cannot reach.

(3) German and American environmental historiography is based on different conceptions of land and landscape. These can be classified as culturalist in the German or European context and naturalist in the American one. In Europe the concept of “g  ohistoire” as developed by the *Annales* school established the empirical tradition of regional studies with a focus either on micro-regions [e.g. la Franche-Comt  , Lorraine-Alsace⁷⁹, the moorlands of England and Wales⁸⁰, the Ruhr area⁸¹, the Rhine area⁸²] or on macro-regions [e.g. the Mediterranean⁸³]. Interest in these regions or landscapes emerged because of their cultural, social and economic meanings. The analysis of these landscapes or regions were linked to questions of social, cultural or economic history and based on the assumption that certain developments in the social and economic history of the region analysed was linked directly to the character of the landscape. This tradition of a culturalist interpretation of landscapes and regions is closely connected to the political idea of region and regionalism that influences and nurtures the current debate about European identity. In the United States, however, a more geographical, or “naturalist” perspective on landscapes dominates which emanated from the early works on the environment clustered around Western History, e.g. Walter Prescott Webb's “The Great Plains”⁸⁴ or Aldo Leopold's “A Sand County Almanac”⁸⁵. In these works the physical environment itself and not so much its “meaning” was central to the analysis.

Hence it is not surprising that William Cronon's attempt to introduce a cultural perspective in arguing that “the nature we carry in our heads is as important as the nature that is all around us”⁸⁶ was heavily disputed by Donald Worster. Worster accused Cronon and other environmental historians from the intellectual history tradition, of attempting to turn environmental history into anthropocentric cultural history. Embracing the causal arguments and moral concerns of social history would redefine environment as cultural landscape. Worster feared that in writing about those cultural landscapes environmental historians would concentrate “on telling how each social group, and finally each individual, living in that landscape saw it or felt about it” and that they would “forget about the forest as an

independent entity”. Defending the scientific approach Worster argued that “no landscape is completely cultural” and that “[a]ll landscapes are the result of interactions between nature and culture”.⁸⁷

The culturalist and naturalist view of landscape converge, however, in the so-called ‘dwelling perspective on landscape’ introduced by the anthropologist Tim Ingold.⁸⁸ He pleads for replacing the opposition between the naturalistic view of the landscape as a neutral, external backdrop to human activities, and the culturalist view that every landscape is a particular cognitive or symbolic ordering of space by using the concept of “dwelling”. Dwelling in this case describes the historically layered nature of the relationships between humans and their environment. According to the ‘dwelling perspective’, “landscape is constituted as an enduring record of – and testimony to – the lives and works of past generations who have dwelt within it, and in doing so have left something of themselves there”.⁸⁹ The ‘dwelling perspective’ concurs with the dialectic view on nature and culture and the inherent temporality of space. Like the German or European concepts of regionalism and *Landschaft*, Ingold’s perspective shows that anthropologists and historians alike have to deal with cultures that make and are in turn made through landscapes.

Conclusion

Environmental history can be described as an attempt to study the interaction between humans and nature in the past. Its aim is to deepen our understanding of how humans have been influenced by their natural environment through time and, conversely, how they have affected their surroundings and with what results. This relatively new field of historical study rejects the traditional assumption that human experience has been exempt from natural constraints or that the ecological consequences of past human activity can be ignored. In comparison with traditional historiography, environmental history emphasizes the role of

humans as an integral part of their natural surroundings. Modern environmental history strives for a fuller understanding of today's environmental issues and, ideally, provides information for contemporary problem solving. What ecological models does history offer us? What have been the adaptive and maladaptive human societies throughout history and how did they function in relation to the natural environment? These questions require empirical answers which environmental history can provide. Even as current environmental problems may differ from former ones, understanding of the past events may prove helpful.⁹⁰

The most important questions within the field seem to be the different productive strategies of the human societies, their ideological backgrounds, and their consequences and comparisons across culture and place. What kind of human society and natural environment emerge as a result of the interaction between these forces? Environmental history can be of great importance to the general study of human-nature interaction by phenomenologically identifying various social, economic, and ecological processes in the past and analytically separating relevant patterns from each other. Successful pattern descriptions can identify recurring features of socioecological dynamics and enable enlightened guesses on how they functioned. Detailed description of past events furthermore forces environmental historians to draw analytical distinctions and define criteria for the identification of environmental change.⁹¹

In environmental historiography, the study of human-nature interaction often has to focus on long-term change. Thus environmental history approaches what Fernand Braudel called the *histoire de la longue durée*. Environmental history is also spatially more flexible than traditional historical research; natural entities, such as drainage basins or other geological formations, are often more important than the boundaries created by humans, such as the borders of nation states or other administrative units.⁹² Environmental historians should strive for a precise spatial application of Braudel's *histoire de la longue durée*: instead of making

wide geographic generalizations in shallow time, deep time should be analyzed in a single locality thus providing insightful environmental histories of place.⁹³

Current research in environmental history displays enormous diversity in its selection of approaches and research subjects. It is, however, possible to identify some general orientations within the discipline. Donald Worster has observed that there are three general levels on which environmental history operates. There is nature itself and the human socioeconomic and intellectual realms as they interact with the natural environment. Environmental historians can intertwine these three levels in a myriad of ways.⁹⁴ As conventional methods of historical research are hardly sufficient, and traditional sources cannot provide enough source material on environmental change, environmental history calls for an interdisciplinary approach. Much of the source materials utilized by current environmental history has been available for generations, and current research attempts to reorganize the data based on recent theoretical advancements: interdisciplinary synthesis can often be achieved by combining existing information from diverse disciplines in a new way.

For these reasons, environmental historians have to employ the findings and methodologies of ecology, zoology, botany, geology, meteorology, and many other natural sciences. Environmental historians should furthermore interpret the history of technology in a new way: the development of technical equipment has had an enormous impact on the way humans utilize natural resources.⁹⁵ It can be argued that the skills of an environmental historian are weighed by the researcher's degree of sophistication in interweaving the different approaches and source materials. There is no one accepted paradigm for this task, but research on as many levels as possible can, nevertheless, be regarded as the ideal for environmental history.

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¹ I. G. Simmons, *An environmental history of Great Britain: from 10,000 years ago to the present* (Edinburgh: Edinburgh University Press, 2001), 2.

² Louis S. Warren, *American environmental history*, Blackwell readers in American social and cultural history (Malden, MA: Blackwell Pub., 2003), 1.

³ Sherry B. Ortner, "Theory in Anthropology since the Sixties," in *Culture/Power/History: A Reader in Contemporary Social Theory*, ed. Nicholas B. Dirks, Eley Geoff, and Sherry B. Ortner (Princeton N.J.: Princeton University Press, 1994), 372-411, here 402.

⁴ Adrian Franklin, *Nature and social theory* (London; Thousand Oaks: Sage, 2002).

⁵ Emile Durkheim, *Les formes élémentaires de la vie religieuse: le système totémique en Australie*, 5. éd. (Paris: Presses Universitaires de France, 1968).

⁶ Walter Benjamin, "Der Erzähler. Betrachtungen zum Werk Nikolai Lesskows," in *Gesammelte Schriften*, ed. Walter Benjamin (Frankfurt a.M.: 1977), 438-465. Paul Ricœur, *Time and narrative*, 3 vols (Chicago: University of Chicago Press, 1984).

⁷ See Robert F. Berkhofer, *Beyond the great story: history as text and discourse* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1995).

⁸ In the following I will use 'History' with a capital H if I am referring to the academic discipline. The same applies to geography, ecology, etc. In contrast 'history' with "h" refers to past experiences.

⁹ Joyce Oldham Appleby, Lynn Avery Hunt, and Margaret C. Jacob, *Telling the truth about history* (New York: Norton, 1994), 55.

¹⁰ Berkhofer, *Beyond the great story: history as text and discourse*.

¹¹ Walter Benjamin and Rolf Tiedemann, *The arcades project* (Cambridge, Mass.: Belknap Press, 1999); Walter Benjamin and Rolf Tiedemann, *Das Passagen-Werk*, 1. Aufl. ed. (Frankfurt am Main: Suhrkamp, 1983).

¹² Walter Benjamin, *The Image of Proust*, quoted in: Amresh Sinha, "The Intertwining of Remembering and Forgetting in Walter Benjamin," *Connecticut Review* 20, no. 2 (1998): 99-110.

¹³ Jörn Rüsen, *Historische Vernunft: Grundzüge einer Historik* (Göttingen: Vandenhoeck & Ruprecht, 1983), 116-121.

¹⁴ Peter Hall and Rosemary C. Taylor, "Political Science and the Three New Institutionalisms," *Political Studies* 44, no. 5 (1996): 936-957.

¹⁵ See quote in the introduction.

¹⁶ Phil Macnaghten and John Urry, *Contested natures* (London; Thousand Oaks, Calif.: SAGE Publications, 1998), 135.

¹⁷ Henri Lefebvre, *The production of space* (Oxford, OX, UK; Cambridge, Mass., USA: Blackwell, 1991).

¹⁸ *Ibid.* 64.

¹⁹ See Michael P. Conzen, Carl A. Zimring, and Amy D. Alberts, *Looking for Lemont: place & people in an Illinois canal town*, *Studies on the Illinois & Michigan canal corridor*; no. 7 (Chicago: Committee on Geographical Studies, University of Chicago, 1994); William E. Leuchtenburg, ed., *American Places: Encounters With History* (Oxford: Oxford University Press, 2000); Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977).

²⁰ Gary Backhaus and John Murungi, eds, *Lived Topographies: and their Mediational Forces* (Lanham, MD: Lexington Books, 2005); William Cronon, "A Place for Stories: Nature, History, and Narratives," *Journal of American History* 78, no. 4 (1992): 1347-1376; Leuchtenburg, ed., *American Places: Encounters With History*.

²¹ Alexander Wilson, *The culture of nature: North American landscape from Disney to the Exxon Valdez* (Cambridge, MA: Blackwell, 1992), 89.

²² Lefebvre, *The production of space*, 164.

²³ *Ibid.* 164.

²⁴ *Ibid.* 165.

²⁵ *Ibid.* 165.

²⁶ *Ibid.* 165.

²⁷ William Cronon, *Changes in the land: Indians, colonists, and the ecology of New England*, 1st ed. (New York: Hill and Wang, 1983).

²⁸ Alan Taylor, "'Wasty Ways': Stories of American Settlement," in *American Environmental History*, ed. Louis S. Warren (Oxford: Blackwell Publishing, 2003), 102-118.

²⁹ Ibid. 103.

³⁰ Ibid. 105.

³¹ It was Hanjo Berressem who developed this argument in our discussion.

³² Susan Strasser and Marc Cioc put forward this argument.

³³ Richard White, "American Environmental History: the development of a new historical field," *Pacific Historical Review* 65 (1985): 297-335, here 297.

³⁴ Frederick Jackson Turner, *The significance of the frontier in American history* (1894), 199-200.

³⁵ For an elaboration of this paradox see Franklin, *Nature and social theory*; N. Clark, "Panic ecology - nature in the age of superconductivity," *Theory, Culture and Society* 14, no. 1 (1997): 77-96.

³⁶ Lefebvre, *The production of space*, 95, 96.

³⁷ Paul Vidal de La Blache, Emmanuel de Martonne, and Millicent Todd Bingham, *Principles of human geography* (New York: H. Holt and company, 1926).

³⁸ Friedrich Ratzel, *Anthropogeographie*, 2. Aufl. ed. (Stuttgart: J. Engelhorn, 1899);

Friedrich Ratzel, *Völkerkunde*, 2., gänzlich Neubearb. Aufl. ed. (Leipzig, Wien:

Bibliographisches Institut, 1894); Gerhard H. Müller, *Friedrich Ratzel (1844-1904):*

Naturwissenschaftler, Geograph, Gelehrter: neue Studien zu Leben und Werk und sein

Konzept der "Allgemeinen Biogeographie" (Stuttgart: Verlag für Geschichte der

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³⁹ Paul Vidal de La Blache and H. J. Fleure, *La personnalité géographique de la France* (Manchester, London: The University press; Hachette, 1941).

⁴⁰ Barbara Kronsteiner, *Zeit Raum Struktur. Fernand Braudel und die Geschichtsschreibung in Frankreich* (Wien: Geyer Edition, 1989), 15.

⁴¹ Fernand Braudel and Richard Lawrence Ollard, *The Mediterranean and the Mediterranean world in the age of Philip II*, Abridged ed. (New York, NY: HarperCollins, 1992).

⁴² Lucien Paul Victor Febvre, *Histoire de Franche-Comté* (Marseille: Laffitte Reprints, 1983); see also Lucien Paul Victor Febvre and Lionel Bataillon, *A geographical introduction to history* (New York: Barnes & Noble, 1966); Lucien Paul Victor Febvre and Lionel Bataillon, *La terre et l'évolution humaine: introduction géographique à l'histoire* (Paris: A. Michel, 1970); Lucien Paul Victor Febvre and Peter Schöttler, *Le Rhin: histoire, mythes et réalités*, Nouv. âed. / ed. (Paris: Perrin, 1997).

⁴³ Berkhofer, *Beyond the great story: history as text and discourse*, 86.

⁴⁴ Appleby, Hunt, and Jacob, *Telling the truth about history*, 303.

⁴⁵ Macnaghten and Urry, *Contested natures*, 145.

⁴⁶ Denis Cosgrove, "Landscape and landschaft," *Bulletin of the German Historical Institute* 35, no. Fall (2004): 57-71, here 58.

⁴⁷ *Ibid.* 58-59.

⁴⁸ *Ibid.* 68.

⁴⁹ For this argument see *Ibid.*

⁵⁰ Appleby, Hunt, and Jacob, *Telling the truth about history*, 305.

⁵¹ Arnold Joseph Toynbee and Edward D. Myers, *A study of history* (London, New York: Oxford University Press, 1948).

⁵² Donella H. Meadows and Club of Rome., *The Limits to growth; a report for the Club of Rome's project on the predicament of mankind* (New York: Universe Books, 1972); Donella H. Meadows, Jürgen Randers, and Dennis L. Meadows, *The limits to growth: the 30-year update* (White River Junction, Vt: Chelsea Green Publishing Company, 2004); Mathis Stoffel, "Die Grenzen des Wachstums," *Beurteilung der Kritik* (Bern; Frankfurt am Main; Las Vegas: Lang, 1978).

⁵³ Ulrich Beck, *Risk society: towards a new modernity* (London; Newbury Park, Calif.: Sage Publications, 1992), 80.

⁵⁴ World Commission on Environment and Development, *Our Common Future* (Oxford, New York: Oxford University Press, 1987), 43.

⁵⁵ *Ibid.* 43.

⁵⁶ Macnaghten and Urry, *Contested natures*, 153-54.

⁵⁷ In English: “at the eleventh hour” – another example of the social construction of time and the role of language.

⁵⁸ See for example the work of Bruno Latour : Bruno Latour, *La fabrique du droit: Une ethnographie du conseil d'état, Armillaire* (Paris: Découverte, 2002); Bruno Latour, *Pandora's hope: essays on the reality of science studies* (Cambridge, Mass.: Harvard University Press, 1999); Bruno Latour, *Politiques de la nature: comment faire entrer les sciences en démocratie* (Paris: Découverte, 1999); Bruno Latour, *We have never been modern* (Cambridge, Mass.: Harvard University Press, 1993).

⁵⁹ Macnaghten and Urry, *Contested natures*, 155.

⁶⁰ Franklin, *Nature and social theory*, 19.

⁶¹ Historians' concern with the environment goes back to the early 19th century. See Donald Worster, *American environmentalism; the formative period, 1860-1915*, Wiley sourcebooks in American social thought (New York: Wiley, 1973). I will, however, confine my analysis on the period of “scientific” historical research.

⁶² See Walter Prescott Webb, *The Great Plains* ([Boston]: Ginn and company, 1931); James Claude Malin, *The grassland of North America: prolegomena to its history* (Lawrence, Kan.: James C. Malin, 1947); James Claude Malin, *Winter wheat in the golden belt of Kansas; a study in adaption to subhumid geographical environment* (Lawrence: University of Kansas press, 1944); Robert Fishman, *The American planning tradition: culture and policy* (Washington, D.C., Baltimore: Woodrow Wilson Centre Press; Johns Hopkins University Press, 2000); Walter Prescott Webb, *The Great Frontier* (Boston: Houghton Mifflin, 1952); Webb, *The Great Plains*; White, "American Environmental History: the development of a new

historical field."; Richard White, *The middle ground: Indians, empires, and republics in the Great Lakes region, 1650-1815*, Cambridge studies in North American Indian history (Cambridge; New York: Cambridge University Press, 1991).

⁶³ Aldo Leopold and Allan Brooks, *Game management* (New York, London: C. Scribner's Sons, 1933).

⁶⁴ Aldo Leopold, *A Sand County almanac, and Sketches here and there* (New York: Oxford Univ. Press, 1949).

⁶⁵ *Ibid.*

⁶⁶ *Ibid.* 204. See also Si Balch and Society of American Foresters, *The land ethic: meeting human needs for the land and its resources*, Forestry forum (Bethesda, Md.: Society of American Foresters, 1998); J. Baird Callicott, *Beyond the land ethic: more essays in environmental philosophy*, SUNY series in philosophy and biology (Albany, NY: State University of New York Press, 1999); J. Baird Callicott, *In defense of the land ethic: essays in environmental philosophy*, SUNY series in philosophy and biology (Albany, NY: State University of New York Press, 1989); Richard L. Knight and Suzanne Riedel, *Aldo Leopold and the ecological conscience* (Oxford; New York: Oxford University Press, 2002); Worster, *American environmentalism; the formative period, 1860-1915*.

⁶⁷ Cronon, *Changes in the land: Indians, colonists, and the ecology of New England*; William Cronon, *Nature's metropolis: Chicago and the Great West*, 1st ed. (New York: W. W. Norton, 1991); William Cronon, George A. Miles, and Jay Gitlin, *Under an open sky: rethinking America's Western past*, 1st ed. (New York: W.W. Norton, 1992); Alfred W. Crosby, *America's forgotten pandemic: the influenza of 1918* (Cambridge [England]; New York: Cambridge University Press, 1989); Alfred W. Crosby, *The Columbian exchange; biological and cultural consequences of 1492* (Westport, Conn.: Greenwood Pub. Co., 1972); Alfred W. Crosby, *Ecological imperialism: the biological expansion of Europe, 900-1900*, Studies in environment and history (Cambridge [Cambridgeshire]; New York: Cambridge University

Press, 1986); Alfred W. Crosby, *Epidemic and peace*, 1918 (Westport, Conn.: Greenwood Press, 1976); Worster, *American environmentalism; the formative period, 1860-1915*; Donald Worster, *Dust Bowl: the southern plains in the 1930s* (New York: Oxford University Press, 1979); Donald Worster, *Nature's economy: a history of ecological ideas*, 2nd ed., *Studies in environment and history* (Cambridge; New York, NY, USA: Cambridge University Press, 1994); Donald Worster, *A river running west: the life of John Wesley Powell* (Oxford; New York: Oxford University Press, 2000); Donald Worster, *Rivers of empire: water, aridity, and the growth of the American West*, 1st ed. (New York: Pantheon Books, 1985).

⁶⁸ This view points for one at the close relationship between intellectual history and environmental history; secondly it reflects the opening of the historical profession to methods and questions of natural science, especially biology and chemistry. White, "American Environmental History: the development of a new historical field." 313f.

⁶⁹ Donald Worster, "Appendix: Doing Environmental History," in *The End of the Earth: Perspectives on Modern Environmental History* (*Studies in Environment & History*), ed. Donald Worster and Alfred W. Crosby (Cambridge: Cambridge University Press, 1988), 290.

⁷⁰ Donald Worster, "The Vulnerable Earth," in *The Ends of the Earth*, ed. Donald Worster (New York: Cambridge University Press, 1989), 20.

⁷¹ Worster, "Appendix: Doing Environmental History," 289.

⁷² James Claude Malin, *Dust storms, 1850-1900* (*Kansas Historical Quarterly: Kansas Historical Quarterly*), microform; Malin, *The grassland of North America: prolegomena to its history*; Malin, *Winter wheat in the golden belt of Kansas; a study in adaption to subhumid geographical environment*; James Claude Malin and Robert P. Swierenga, *History & ecology: studies of the Grassland* (Lincoln: University of Nebraska Press, 1984).

⁷³ Henry Nash Smith, *Virgin land; the American West as symbol and myth* (Cambridge: Harvard University Press, 1950); Roderick Nash, *Wilderness and the American mind* (New Haven: Yale University Press, 1967).

⁷⁴ Andrew C. Isenberg, *The destruction of the bison: an environmental history, 1750-1920*, *Studies in environment and history* (Cambridge; New York: Cambridge University Press, 2000).

⁷⁵ Alfred W. Crosby, *The Columbian exchange: biological and cultural consequences of 1492*, 30th anniversary ed. (Westport, Conn.: Praeger, 2003); Alfred W. Crosby, *Ecological imperialism: the biological expansion of Europe, 900-1900*, 2nd ed., *Studies in environment and history* (Cambridge; New York: Cambridge University Press, 2004); Alfred W. Crosby, *Germs, seeds & animals: studies in ecological history*, *Sources and studies in world history* (Armonk, NY: M.E. Sharpe, 1994).

⁷⁶ Worster, "Appendix: Doing Environmental History," 289.

⁷⁷ Berkhofer, *Beyond the great story: history as text and discourse*, 31.

⁷⁸ Wolfram Siemann and Nils Freytag, *Umweltgeschichte: Themen und Perspektiven*, Originalausg. ed. (München: C.H. Beck, 2003), 11-12.

⁷⁹ Febvre, *Histoire de Franche-Comté*; Paul Vidal de La Blache, *La France de l'Est (Lorraine-Alsace)* (Paris: A. Colin, 1917).

⁸⁰ I. G. Simmons, *The moorlands of England and Wales: an environmental history 8000 BC to AD 2000* (Edinburgh: Edinburgh University Press, 2003).

⁸¹ Werner Abelshauser, Wolfgang Köllmann, and Franz-Josef Brüggemeier, *Das Ruhrgebiet im Industriezeitalter: Geschichte und Entwicklung*, 1. Aufl. ed., 2 vols (Düsseldorf: Schwann im Patmos Verlag, 1990).

⁸² Febvre and Schöttler, *Le Rhin: histoire, mythes et réalités*.

⁸³ Braudel and Ollard, *The Mediterranean and the Mediterranean world in the age of Philip II*.

⁸⁴ Webb, *The Great Plains*.

⁸⁵ Leopold, *A Sand County almanac, and Sketches here and there*.

⁸⁶ William Cronon, "The Trouble with Wilderness: Or, Getting Back to the Wrong Nature," *Environmental History* 1, no. 1 (1996): 7-28.

⁸⁷ Donald Worster, "Seeing Beyond Culture," *Journal of American History* 76 (1990): 1142-47, here 1144.

⁸⁸ Tim Ingold, "Building, dwelling, living," in *Shifting Contexts: Transformations in Anthropological Knowledge*, ed. Marilyn Strathern (London: Routledge, 1995); Tim Ingold, "The Temporality of the Landscape," *World Archeology* 25, no. 2 (1993): 152-74.

⁸⁹ Ingold, "The Temporality of the Landscape," 152.

⁹⁰ Worster, "Appendix: Doing Environmental History," 290–91.

⁹¹ Yrjö Haila and Richard Levins, *Humanity and Nature: Ecology, Science and Society* (London: Pluto, 1992), 182–83.

⁹² Timo Myllyntaus, "Environment in Explaining History," in *Encountering the Past in Nature: Essays in Environmental History*, ed. Timo Myllyntaus and Mikko Saikku (Helsinki: Helsinki University Press, 1999), 125–31.

⁹³ Dan Flores, "Place: An Argument for Bioregional History," *Environmental History Review* 18, no. 4 (1994): 1-18, here 6; Stanley W. Trimble, "Nature's Continent," in *The Making of the American Landscape*, ed. Michael P. Conzen (Boston: Unwin Hyman, 1990), 9-26.

⁹⁴ Worster, "Appendix: Doing Environmental History," 289–307.

⁹⁵ See e.g. Andrew C. Isenberg, *Mining California: an ecological history*, 1st ed. (New York: Hill and Wang, 2005).