Uniting business history and global environmental history

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Abstract: This paper introduces the papers in the Special Issue and explains its aims. It observes that scholars in both environmental and business history are increasingly interested with the question of how knowledge flows over long distances, which is the central theme of this special issue. The introduction also serves to establish the relevance of the papers to academics who research ‘environmental knowledge management’. Although this term did not exist during any of the historical periods covered by the papers in this special issue, the firms discussed here were nevertheless engaged in this complicated task.

Keywords: environmental history; global history; environmental data; history of environmental knowledge management’

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In 1999, Christine Rosen and Christopher Sellers called for the integration of business history and environmental history. They observed that most business historians have followed Alfred Chandler in ignoring the natural world

beyond factory and office. They devoted equally little attention to the effects of resource extraction and use on plants, animals, land, air, or water, much less entire ecosystems and climate. … Our colleagues in environmental history have shown almost as much reluctance to tackle business's environmental relations as business historians have.[[1]](#footnote-1)

Since 1999, historians have made some progress in integrating business and environmental history. This trend has been supported by William Cronon, a recent president of the American Historical Association, who has supervised both business and environmental history PhD theses.[[2]](#footnote-2) Richard White’s recent book on the US transcontinental railways,[[3]](#footnote-3) which has been praised by both environmental and business historians, is an example of the integration of business and environmental history. More recent books that integrate business and environmental history include Bartow J. Elmore’s history of the Coca-Cola Company and a recent study comparing the history of waste disposal in post-war Germany and Britain.[[4]](#footnote-4) In the last decade, articles on environmental-historical themes have appeared in the three highest ranking English-language business-historical journals. This research has covered the topics in the histories of the Netherlands, Japan, Britain, and the US.[[5]](#footnote-5) What is recognisably business-historical research has been presented at environmental history conferences. Scholars who self-identify as business historians and who are members of the Business History Conference have also published in the top environmental history journals.[[6]](#footnote-6)

However, we believe that far more needs to be done to integrate business and environmental history. This conviction informs this special issue of *Business History*. In this introductory essay, we outline our reasons for believing that the integration of business and environmental history is an intellectual project of considerable potential importance to both academics and knowledge users outside of the academy. We will briefly describe the current state of the environmental history sub-field with a view to identifying commonalities and differences with business history. It is clear that there are important differences between business and environmental history. Our emphasis, however, will be what these two sub-disciplines have in common; namely, that they are highly interdisciplinary, theoretically informed, and increasingly interested with the question of knowledge flows.

Why the integration of global environmental and business history is important

We believe that the bridging of business and environmental history is an intellectual project of genuine social importance. Political leaders are currently struggling with the twin imperatives of environmental protection and economic growth. In the Global South, the need to reconcile the population’s desire for higher living standards and less pollution is particularly important. Tensions over global environmental governance have resulted in conflict between nations from the Global North and Global South, particularly over the distribution of the economic costs of limiting climate change.[[7]](#footnote-7) Seeking to avoid politically difficult trade-offs between development and environmental protection, policymakers are interested in finding policies that encourage firms to generate environmentally sustainable ‘green growth’.[[8]](#footnote-8) There is substantial interest in policies that simultaneously protect the environment and improve national competitiveness. For this reason, the so-called Porter Hypothesis, which posits that the imposition of strict environmental regulations can spur innovations that ultimately increase national competitiveness, has been investigated extensively.[[9]](#footnote-9) For the managers of companies confronted with emissions trading schemes, environmentally conscious consumers, and the possibility that climate change will affect certain types of insurance premiums,[[10]](#footnote-10) environmental issues are increasingly important.

A variety of academic disciplines offer policymakers solutions to these thorny issues. Economics, which emerged as the pre-eminent social science by the end of the twentieth century, offers many insights into ecological issues. The organisation that represents environmental economists in the US, Association of Environmental and Resource Economists, has no fewer than 800 members. The research of these scholars is doubtless valuable, particularly as the methods of economics allow researchers to aggregate data from a wide variety of social contexts and make comparisons across vast stretches of time and space. For instance, the seminal research by the economists Sachs and Warner on the ‘resource curse’ has had a significant and positive social impact, causing many policymakers and citizens around the world to think more carefully about the relationship between the presence of natural resources and human welfare.[[11]](#footnote-11)

On the other hand, the approach taken by mainstream economics can result in the loss of valuable information about social context and the specificities of time and place, such as the spiritual or cultural value that people in a local community may attribute to particular localities.[[12]](#footnote-12) Historical approaches can be better at capturing such local cultural-contextual knowledge than the quantitative research methods favoured in economics departments. As other authors have shown, most of the research in environmental economics proceeds from the problematic assumption that the actions of resource users can be understood using the *homo economicus* model of human behaviour.[[13]](#footnote-13) Environmental historical research, in contrast, demonstrated several decades ago that the instrumental views of nature promoted by some Western cultures are far from universal, even within those cultures.[[14]](#footnote-14) Moreover, as Jo Guldi and David Armitage have recently argued, economics tends to encourage short-term thinking, whereas exposure to historical research often encourages practitioners to adopt a longer-term orientation in which greater value is attached to benefits in the distant future. Economics, in contrast, tends to encourage decision-makers to discount future costs and benefits at a higher rate.[[15]](#footnote-15) Since much environmental research and advocacy involves getting people to think about the long term, historical approaches can be particularly useful in changing the time horizons of actors.

 Business-environmental history based on archival materials and other qualitative research methods has the potential to offer policymakers and business leaders an understanding of the relationship between firms and the natural environment that is at least as useful to policymakers, managers, and other practitioners as that offered by economics. Economists tend to focus their efforts on analysing country-level and industry-level data, while business historians drill down to the firm level and look at decision-making within specific named companies. Firm-level research can help us to understand the specific circumstances in which companies change their strategies so as to protect the environment. For instance, a recent paper by Geoffrey Jones and Christina Lubinski examined the post-war environmental histories of two prominent chemical companies, Bayer and Henkel. The idea that German chemical companies have a better environmental track record than their American counterparts is widespread in the social-scientific literature. Jones and Lubinski moved beyond this generalisation by using corporate archives to document the evolution of the environmental strategies of these firms, which were influenced by such factors as the specific environmental-historical circumstances of North Rhine-Westphalia (NRW), the rise of Germany’s Green Party, and changes in the senior management teams of these firms. The paper suggests that before the 1970s, the environmental policies of these two firms were not substantially different from similar firms but that major differences emerged after that point. [[16]](#footnote-16)

The paper by Jones and Lubinski names and discusses the context of the executives who altered the environmental policies of these firms, which gives readers a more vivid sense of how corporate environmental strategies are actually made. This level of detail helps the reader to ‘step into the shoes’ of the corporate decision-makers and suggests why business history is frequently used to train future corporate managers in MBA programmes. At the Harvard Business School, which is where Jones and Lubinski worked when they were preparing their paper, half of all MBA students take an elective course on business history.[[17]](#footnote-17)

Economists are now privileged over other social scientists in terms of relative pay, prestige, and, crucially, influence over public policy.[[18]](#footnote-18) A word-frequency count of *New York Times* articles from 1855 to the present found that until the Great Depression, academic economists were mentioned less frequently than historians. These statistics might suggest that the historical research of the era had, for good or ill, a major impact on decisions in society. Thereafter, research by economists was cited with increasing frequency in that influential newspaper. After the 1970s, the authority of economists was cited much more frequently than that of any other category of social scientist in the pages of the *New York Times*. A similar pattern emerges when one examines references to academic research in Congressional debates: economists have crowded out the historians, along with the sociologists, anthropologists, and other social scientists.[[19]](#footnote-19)

As Jo Guldi and David Armitage argue in a recent and controversial book, historical research offers decision-makers in a wide range of fields the chance to situate the present in long-term perspectives.[[20]](#footnote-20) These historians argue that many of the problems our societies face today stem from the excessive policy influence economists have acquired at the expense of historians. Speaking of the US, Guldi and Armitage observe that after the 1960s economists and economic concepts came to dominate policy debates, even those on topics such as family law and military policy that are superficially unrelated to the classical subject matter of economics. They contrast the present hegemony of economics with the situation in the early 1960s, when President Kennedy surrounded himself with a brain trust that included historians such as Arthur M. Schlesinger Jr. Historians, they report, also had a significant influence on the making of policy in the United Nations and other international organisations in the 1960s. Thereafter, advice given by historians was displaced by that of economists who adopted a neoclassical approach. We certainly recognise that it would be a mistake to paint all economists with the same brush: the discipline of economics exhibits considerable methodological diversity, as the advent of perspectives such as evolutionary economics, ecological economics, and behavioural economics illustrates.[[21]](#footnote-21) We are, nevertheless, inclined to agree with Guldi and Armitage’s view that historians should reclaim the influence in public debate that they lost to neoclassical economists in the second half of the twentieth century. In defence of this thesis, they present evidence to show that neoclassical economics engenders short-term thinking. They also show that historians using innovative research technologies are providing guidance on important issues that challenge the teachings derived from neoclassical economics.[[22]](#footnote-22)

Although one may quibble with a few of the comments made in their book, we agree with Guldi and Armitage’s general thesis that history should have a greater influence over public policy than it currently does. Historical research on how past societies have sought to reconcile the need to protect the environment with the desire for economic growth can contribute to this goal. However, influencing the makers of public policy is only one of several possible mechanisms by which business-environmental historians can improve social outcomes. Historical research can and indeed does shape decision-making in the private sector. We know from interviews that the thinking of CEOs and other corporate decision-makers is informed by the lifelong study of history as well as by historical knowledge remembered from formal education.[[23]](#footnote-23) Another way in which historical research can help to improve the quality of the decisions in companies is through inclusion in the curriculum of business schools, the institutions tasked by society with the training of *future* managers. In recent years, there have been calls for a ‘historic turn’ in management research[[24]](#footnote-24) and education.[[25]](#footnote-25)

 This special issue will extend the research agenda envisioned by the advocates of a historic turn into the area of business-environmental history. In addition to being a venue for four pieces of empirical research on business-environmental history, this special issue also suggests what types of research ought to be done by historians going forward. Readers will note that the papers in this special issue relate primarily the environmental-business histories of developed countries in temperate regions of the world. Additional research on similar themes in developing countries would seem to be an area that scholars should prioritise. Two of the papers in this special issue concern agriculture, one is about the fur trade, and a fourth is on mining. Additional research on the environmental-business histories of these industries is required, as well as more knowledge about other industries. Business historians interested in environmental issues should, in our view, pay far more attention than they hitherto had to fisheries, a topic which has been neglected by business historians but which is well documented in primary sources. Given that environmental policymakers continue to grapple with the ‘tragedy of the commons’ issues involved in fisheries, it would seem that business-historical research on this sector would have the potential for considerable societal impact. Researching the historical environmental impact of new industries, such as computer hardware, would appear to be another area where business-environmental historians can speak to contemporary issues. To our knowledge, nobody has written an environmental history of any of the world’s leading airlines. An environmental history of one of these firms could be particularly useful to policymakers and managers interested in mitigating the environmental impact of the greenhouse gas emissions associated with aviation.

We could generate a long list of topics in business-environmental history that are, as yet, un-researched and unwritten. There are many lacunae in this field that need to be filled. In our view, perhaps the most important of these relates to the environmental history of the so-called global value chain revolution (GVCR), a very recent episode in business history. Until about 1985, most manufacturing activity took place within the boundaries of a single nation, if not a single factory. The Toyotas shipped from Japan to worldwide consumers were assembled in Japan from components made by suppliers located near Toyota’s Nagoya headquarters. Starting around 1985, the manufacturing of many products was transformed, as a mixture of the new communications technologies and policy changes permitted the re-distribution of various manufacturing tasks around the world. The advent of the ‘global factory’ and the complex global value chains represented by Apple’s products (which are famously designed in California and assembled in China from parts made in many nations) illustrate the GVCR.[[26]](#footnote-26) The GVCR saw the outsourcing of dirty, labour-intensive manufacturing tasks from the Global North (North America, Western Europe, and Japan) to poorer countries. The existing historical accounts of this revolution by economists such as Richard Baldwin focus on wage differentials as the key drivers of the process.[[27]](#footnote-27) We suspect that a desire to take advantage of the less onerous environmental standards in poorer countries was an equally important part of the decision-making of firms in the economic-historical epoch that began around 1985. There is an opportunity here for environmental-business historians to make a contribution to our understanding of the managerial decisions that drove the GVCR via qualitative research methods, such as the use of archives and oral history.

Current state of environmental history

J.R. McNeill has defined environmental history as ‘the history of the mutual relations between humankind and the rest of nature’.[[28]](#footnote-28) It is likely that most working environmental historians would accept this definition. Historians of historical writing have shown the vast majority of historical research before the mid-twentieth century in both the Western and the major Asian historiographic traditions was essentially on political and diplomatic history.[[29]](#footnote-29) Historical writing on the relationship between humans and the natural environment is a relatively recent phenomenon, although the occasional proto-environmentalist author did make occasional remarks about environmental history.[[30]](#footnote-30) For instance, in an 1864 work widely regarded as an important milestone in the development of the conservationist movement, George Perkins Marsh argued that the excessive use of natural resources had contributed to the fall of the Roman Empire.[[31]](#footnote-31)

 The intellectual roots of the modern sub-discipline of environmental history are predominantly French and American. The *Annales* approach to historical research in France, which was exemplified by Fernand Braudel’s 1946 study of the Mediterranean world in the age of Phillip II, was very interested in the relationship between human beings and the environment.[[32]](#footnote-32) For instance, Braudel’s book contains extensive information about the natural environment and topics such as deforestation, referring to the region as a ‘global Mediterranean’ that extended to the Azores, Red Sea, Baltic, Niger, and beyond through commercial trade networks and biophysical processes.[[33]](#footnote-33) Braudel’s approach was deeply influenced by his mentor, Lucien Febrve, who viewed the Mediterranean as a product of ‘movements of men, the relationships they imply, and the routes they follow’.[[34]](#footnote-34) In the US, historians of the frontier experience, such as Frederick Jackson Turner and Walter Prescott Webb, discussed the social impact of the natural environment.[[35]](#footnote-35) Their works are precursors of modern environmental history, although most environmental historians today would distance themselves from the environmental determinism of these authors.

Similarly, historical geographers, starting in the 1930s with Carl Sauer, wrote extensively about the historical relationship between natural environments and societies from a cultural perspective. Sauer’s approach was in reaction to scholars who relied on theories of environmental determinism – a theory of the role of climate on organisms in fixing human attributes such as ‘race’ or economic development – to understand the role of environment on global human progress.[[36]](#footnote-36) According to Sauer, and those who followed him, human agency was viewed as the primary cause of environmental change, such as the transfer of flora and fauna from ‘Old Worlds’ and ‘New Worlds’, the impact of global plantation systems on soil exhaustion and erosion, and the effect of the metropole’s timber trade on deforestation in the colonial frontier.[[37]](#footnote-37)

Today’s environmental-history community emerged from the efforts of a small group of scholar-activists in the US in the late 1960s and early 1970s. It is clear in retrospect that this academic movement was connected to, and likely driven by, rising public interest in ecological issues, particularly in the wake of the publication of Rachel Carson’s *Silent Spring*.[[38]](#footnote-38) This interest was reflected in the first Earth Day in 1970. Between the late 1960s and the present, environmental history grew from just a handful of scholar-activists to a global community of thousands of scholars who were served by several journals with high impact factors. As environmental history has become part of the scholarly mainstream, environmental-historical research has become detached from its roots in the 1960s counterculture and political advocacy. As John McNeill has noted, the subsequent generations of environmental historians have become progressively less politicised and more strongly imbued with the ethos of scholarly objectivity than the founding generation.[[39]](#footnote-39) Despite the expansion of the number of scholars working in the field of environmental history, their research continues to be clustered around three main themes, which are identified by J. Donald Hughes as ‘the influence of environmental factors on human history, the environmental changes caused by human actions and the many ways in which human-caused changes rebounds on human societies, [and] the history of human thought about the environment’.[[40]](#footnote-40)

Like business historians, environmental historians are engaged with theory and adopt interdisciplinary approaches. Indeed, one could argue that they are among the most interdisciplinary and theoretical sub-fields of history: environmental historians draw on theories and facts from a wide range of the physical sciences and social sciences, often engaging with studies by biologists, climatologists, engineers, and botanists in order to bring a fuller understanding and appreciation to their topic.[[41]](#footnote-41) According to J.R. McNeill, this methodological diversity is at once environmental history’s great strength and a source of many challenges, especially when thinking about the different methodologies of each discipline.[[42]](#footnote-42) For example, climate history is based on a mixture of research methods derived from the physical sciences and documentary research.[[43]](#footnote-43) Indeed, some of the leading researchers in climate history have PhDs in the natural sciences. Articles on climate history have been published in scientific journals such as *Nature*.[[44]](#footnote-44) Climate history is perhaps the most policy-relevant branch of environmental history.

As environmental history matured as a field, several identifiable genres of environmental history emerged. McNeill labels them ‘material environmental history’, ‘cultural/intellectual environmental history’, and ‘political environmental history’. He observes that of the three, political environmental history is the most clearly compatible with traditional historiography, as it takes the nation-state as its primary unit of analysis and is focused on the making of environmental policy within nation-states. Cultural or intellectual history, which is about representations of nature, is compatible with many traditional sub-fields of history, such as art history and the history of religion. The research methods used by scholars of material environmental history are the most different from traditional historiography. A particular variant of material environmental history is concerned with macro-level issues and covers vast spans of time and space. This type of historical writing draws on the physical record (e.g., carbon dioxide levels in air trapped in glaciers) more than on the documentary sources familiar to most business historians. In works based on ‘nature’s archive’, it is rare for particular individuals to be mentioned by name. There are also microhistorical studies of particular localities that are based on similar sources. Environmental-historical research is done by academics ranging from humanities scholars who base their research on texts and a smaller group of academics who engage with theory and methods taken from the physical sciences.[[45]](#footnote-45) Based on our knowledge of the existing environmental-historical research literature, however we feel it is safe to say that this literature is characterised by a general lack of attention to business institutions and to ongoing research in both business history and in business and management studies more generally.

Evolution and current state of global environmental history

This special issue is about global environmental history rather than environmental history in general. It is, therefore, important to explain how global environmental history is distinct from world environmental history. Over the last decade, there has been a growing trend in environmental history to discard the nation-state as a unit of analysis and instead adopt a more global approach to research.[[46]](#footnote-46) Some scholars have promoted a ‘world history’ perspective, encouraging researchers to engage in international *comparative* analyses of environmental problems such as pollution and deforestation. As Richard Grove and Vinita Damodaran have pointed out, world environmental history originated in the imperialist geography of the nineteenth century, when European geographers made similar comparisons between humans, climates, and environments to justify colonisation and empire.[[47]](#footnote-47)

Other researchers, in contrast, have developed the tradition known as ‘global environmental history’. Global environmental history differs from world environmental history in that its focus is on connections over long distances rather than comparisons between countries or civilisations. By drawing from the long-standing tradition of the French *Annales* school, these researchers have engaged with a ‘long-durée’ or ‘big history’ approach to issues such as ice ages, El Niño, and the long-distance migration of flora, fauna, and other organisms.[[48]](#footnote-48) Such ecological processes are global in scope and scale (climate change, biological invasion, sea-level rise),[[49]](#footnote-49) but the scholars who study them depend on ‘nature’s archives’ in the form of ice core samples, tree rings, and paleo records.[[50]](#footnote-50) Others have adopted Wallerstein’s ‘modern-world-system’ to understand environmental transformations on a global scale, or the role of environmental and scientific knowledge in enabling these global commodity flows.[[51]](#footnote-51) As Alf Hornborg has emphasised, global environmental history is about examining how landscape changes in core areas (e.g., metropole, Global North) have been intimately tied to those in peripheral areas (e.g., colonies, Global South).[[52]](#footnote-52) The papers in this special issue address the theme of knowledge flows between the industrial core and the resource-producing peripheries of the global economy. Below, we explain why long-distance knowledge flows are a crucially important issue for both business and environmental historians and thus a suitable focus for this special issue.

Historians of the British Empire have played an important role in the development of global environmental history. Recent works on the environmental histories of the British Empire draw from new imperial histories to think about worldwide ‘geographies of connection’ through networks of people, commodities, ships, flora, fauna, and ideas.[[53]](#footnote-53) Such an approach moves beyond the traditional two-way model of metropole (e.g., Britain) and periphery (colony) used by John Robinson and Ronald Gallagher in their study of ‘the imperialism of free trade’ and by Peter Cain and Tony Hopkins’s theory of ‘gentlemanly capitalism’. Instead, this approach conceptualises Britain’s global empire as a ‘web’ of networks that tied intimately ‘nation’ to empire, which, in turn, produced different social and environmental consequences in particular times and places.[[54]](#footnote-54) Mobility and the circulation of things (plants, animals, commodities), environmental ideas, and botanical knowledge are key themes in recent global environmental histories of empire.[[55]](#footnote-55) Several of the papers in this special issue address the theme of imperialism.

Differences between environmental and business history

As the foregoing discussion makes clear, there are major differences in the types of theory with which business and environmental history engage: business historians tend to engage with theory derived from the disciplines typically taught in management schools, while environmental historians engage with theory drawn from either the humanities or the physical sciences. Business history is, of course, methodologically diverse. In recent years, there have been calls for business history to become more social-scientific through the use of more quantitative methodologies and hypothesis testing.[[56]](#footnote-56) In contrast, others have called on business historians to engage more closely with humanities methods.[[57]](#footnote-57) Stephanie Decker, Matthias Kipping, and Dan Wadhwani have argued that the sheer methodological diversity of business history is one of the strengths of the sub-discipline.[[58]](#footnote-58) Like Decker, Kipping, and Wadhwani, we are confident that business-historical journals will continue to publish many types of research. However, we note that none of the participants in the recent methodological debates about how to do business history has mentioned either research collaboration with natural scientists or the integration of scientific research findings into single-author papers by business historians. In contrast, environmental historians do debate the extent to which they ought to borrow research methods and findings from scientific disciplines such as biology and climatology. In our view, business historians ought to follow environmental historians by engaging more with the physical sciences. The environmental historian Christopher Pastore can serve as a role-model for business historians interested in collaborating with scientists to produce research that is characterised by rigour, social relevance, and impact on multiple disciplines.[[59]](#footnote-59) We recognise that engaging with the geophysical sciences is not the only research strategy open to those interested in writing the business history of the environment, but we are convinced that this approach will help us to increase the rigour, relevance, and impact of research. On a very crude and instrumental level, interdisciplinary research that blends qualitative research methods with those taken from the physical sciences is superior because it is likely to be cited by scholars in a wider range of disciplines. Moreover, there is, in our view, a strong philosophical case for bridging the ‘two cultures’ of the physical and the social sciences when doing environmental-historical research. More than half a century after C.P. Snow described the negative consequences of the gap between the humanities and the sciences,[[60]](#footnote-60) this breach is as wide as it was in 1996, when the environmental historian Donald Worster persuasively called for it to be closed.[[61]](#footnote-61) Our position is that the field of environmental-business history would be strengthened in both rigour and relevance if we could bridge the two cultures.

In an effort to help to bridge this gap, the guest editors’ multi-year interdisciplinary project, ‘Empire, Trees, Climate: Towards Dendro-Provenancing in the British North Atlantic’, brings together historians, human and physical geographers, and archaeologists to improve our understanding of how forests and climates were conceived in the nineteenth-century British Empire and how such understandings affected transnational flows of timber.[[62]](#footnote-62) Our approach integrates archival (timber business records) and museum research, dendro-provenancing (e.g., analysis of tree rings and isotopes in historic buildings and shipwrecks), and visualising techniques using geographic information systems (GIS) in order to uncover important insights into climatic conditions, and forest resource use, of the past. Historic timbers from heritage buildings and shipwrecks in Bermuda provide clues into past cultures and climates by documenting the military and economic importance of Canadian timber. A major outcome of our project is to devise an approach in ‘critical dendrochronology’, which combines dendro-provenancing with critical historical and geographical analysis that pays attention to histories of colonialism, unequal power relations, and racial and gender disparities.

As we noted above, business and environmental history have significant similarities, but they also have major differences. One major difference between environmental history and business history relates to the ideological centre of gravity of each intellectual community. As was noted above, environmental history emerged out of the environmentalist movement and the 1960s counterculture. Many environmental historians have expressed hostility to capitalism as a system, rather than simply opposition to the practices of particular firms or industries. In short, environmental history is an intellectual tradition whose political sympathies are with the left, or, to be more precise, the so-called New Left that emerged in the 1960s.[[63]](#footnote-63)

The default ideological setting in the business-history community is somewhat further to the right. Alfred Dupont Chandler, a seminal figure in the emergence of the modern business-history community,[[64]](#footnote-64) presented a positive – indeed, celebratory – view of business enterprise and the US mode of structuring companies in particular. Chandler was related to the family that controls the DuPont corporation and was a lifelong Republican. He argued that the M-form US corporations, such as General Motors, represented the highest stage in the evolution of capitalism.[[65]](#footnote-65) This viewpoint has been challenged by other business historians, as have many of the other specific claims made by Chandler.[[66]](#footnote-66) The British business historian Les Hannah, for instance, robustly challenged Chandler’s view of British business. Hannah’s meticulous research showed the separation of management from ownership of companies had actually progressed further in the UK than in the US on the eve of the First World War.[[67]](#footnote-67) However, while it is true that Chandler’s specific claims about the relative merits of the business systems of various capitalist countries have been challenged within the business-history community, most business historians are fairly sympathetic to business in general, notwithstanding the very recent rise of the history of capitalism movement in US history departments. Scholars of the history of capitalism tend to research business history from a distinctly left-wing perspective analogous to critical management studies, but they are still a minority viewpoint within the business-history community.[[68]](#footnote-68)

The core metanarratives of the environmental-history and business-history communities are different. The writings of many of the first generation environmental historians were informed by a declensionist metanarrative that involves a transition from a historical period in which human beings lived in harmony with nature to the modern industrial era of greed and pollution.[[69]](#footnote-69) As Gregory Cushman and Karl Offen have recently suggested, the popularity of declensionist narratives in climate history can be traced back to the influence of Alexander von Humboldt, who is widely regarded as the father of biogeography.[[70]](#footnote-70) In contrast, the foundational works in business history, most notably the works of Alfred Chandler, were informed by a Whiggish metanarrative of continuous improvement. In both scholarly communities, subsequent generations of scholars challenged the metanarratives produced by the founding generation. For instance, the US environmental historian Shephard Krech challenged the view that the pre-contact Native Americans were environmentalists who lived in harmony with nature.[[71]](#footnote-71) Similarly, business historians have challenged the Whiggish narratives that informed the writing of the first generations of business historians.[[72]](#footnote-72)

Another major difference between environmental and business history is that environmental history has a far more global research focus, even though most of the contributors to the leading environmental-history journals are employed in universities in Western OECD countries. The environmental impact of European colonialism is a major theme of environmental history, which means that environmental historians have been pushed to research many non-Western or tropical countries.[[73]](#footnote-73) In contrast, the pages of the leading business-history journals continue to be dominated by studies of firms in developed countries, despite a recent effort by the Harvard Business School to promote research into the business histories of nations outside of Europe, North America, and East Asia.[[74]](#footnote-74)

There is also far greater chronological diversity in environmental-history research. For instance, the span of years covered by researchers in environmental history ranges from 15,000 years, the period covered in Neil Roberts’s history of the Holocene era,[[75]](#footnote-75) to a paper on the environmental aspects of the Holocaust, an event that lasted four years.[[76]](#footnote-76) In contrast, papers in business-history journals tend to be on relatively short periods of time within the historical epoch known to environmental historians and geologists as the Anthropocene (i.e., the period in climate history after the Industrial Revolution).[[77]](#footnote-77) Indeed, the increasing focus on the most recent periods of business history has disturbed some of the leading business historians: in a 2013 book on the current state of business-historical research, Phil Scranton and Patrick Fridenson noted that the research interests of business historians have migrated towards the very recent past, a development they condemned as the rush to the recent.[[78]](#footnote-78)

What business and environmental history have in common: an interest in knowledge flows

As we have seen, there are profound institutional, methodological, and philosophical differences between business history and environmental history. However, business history and environmental history have much in common: they are highly interdisciplinary, theoretically informed, and have somewhat nebulous boundaries that transect the borders of academic disciplines. Moreover, scholars in both communities are increasingly interested in the question of knowledge flows. For instance, the theme of knowledge flows is central to business-historical research on topics that include – to choose four representative papers –Dutch soft drink production in the 1930s, family firms in Spain, the relations between shipping lines and shipyards, and the interwar Swedish copper industry.[[79]](#footnote-79) The influence of the knowledge-based view of the firm in management schools[[80]](#footnote-80) has likely contributed to the decision of business historians to focus on this theme. In environmental-history journals, knowledge flows are also an important theme. Recent papers in top environmental-historical journals have dealt with topics such as the sharing of knowledge between Amerindian and White environmental activists, the failure of Australian flood planners to take advantage of local knowledge, and acquisition of botanical knowledge in colonial Brazil.[[81]](#footnote-81)

A survey of the leading journals in environmental and business history would show that scholars in both communities are interested in stocks and flows of knowledge. It is likely that this preoccupation with knowledge flows is simply a reflection of an intellectual trend that influences university research culture as a whole: epistemology and the sociology of knowledge is now a major preoccupation of social scientists in many disciplines. To the extent to which we accept the view that present-day economies can be characterised by the label ‘knowledge economy’, it makes sense for researchers to prioritise the study of how people accumulate and use knowledge in the production of goods and service. Social theorists such as Karl Polanyi, Michel Foucault, and F.A. von Hayek published on this question and their works continue to be cited by thousands of scholars per annum, many years after their deaths. Moreover, many environmental scholars apply their ideas.[[82]](#footnote-82) The fact that respected journals such *Ecology and Society* and *Environment and Planning C* have published articles on flows of environmental knowledge helps to explain the apparent popularity of this topic in the environmental-history community.[[83]](#footnote-83) The research by non-historical environmental researchers has demonstrated that flows of environmental knowledge have a major impact on business via regulation[[84]](#footnote-84) and changes in consumer behaviour.

In recent years, historians in many sub-disciplines have begun to investigate the processes by which data have travelled in different historical periods. It is possible to speculate that historians turned towards this topic because their own working lives have been transformed by global information systems such as email. Today, most facts travel much more quickly than they did before the advent of electronic communication, when word of a forest fire or a potato famine might take months to cross the ocean. The sheer number of facts in transit has also increased dramatically, especially as the costs of moving data have steadily declined since the 1840s. A three-minute telephone call from New York to London cost $245 in 1930. In 1990, the same call cost just $3.[[85]](#footnote-85) With Skype, the marginal cost of an international phone call is close to zero. Flows of facts are connected to, but separate from, flows of knowledge, as both tacit and formal knowledge are more than simply the accumulation of raw facts. This issue was central to Mary Morgan and Peter Howlett’s edited collection, *How Well Do Facts Travel?*[[86]](#footnote-86) From the standpoint of a business-environmental historian, the key question is as follows: how have the changing costs of moving knowledge influenced the environmental behaviour of various actors?

How this special issue fits into the scholarly landscape

The focus of this special issue is on how *flows of environmental knowledge*, rather than *changes in environmental values*, have impacted the historical relationship between business and the environment. There is a large body of research on the history of environmental ethics.[[87]](#footnote-87) The subject of how shifting environmental values have influenced firms would indeed be an important topic. However, it is one that lies outside of the main focus of this edited collection. Moreover, this special issue is about global environmental history rather than environmental history in general. All the papers in this edited collection therefore pertain to the transmission of knowledge and commodities over long distances (i.e., between continents).

The papers in this special issue are, like most articles published in the field of business history, focused on Western countries and the historical period following the Industrial Revolution. The research methodologies in these papers are diverse. For instance, the paper by Josh MacFadyen employs a range of digital humanities technologies to explore a topic that lies at the intersection of climate history, weather history, and business history. MacFadyen’s paper is on the origins of the business of crop reporting and weather forecasting, which is today a multi-billion dollar industry. His article is based on the papers of Archer-Daniels-Midland (ADM), which was founded in Minneapolis in 1902. ADM staff collected weekly data from a range of sources – weather stations, agricultural experiment stations, grain elevators, farmers, and other businesses – and compiled circulars in an attempt to present the best possible environmental data for managers who then, in turn, determined the prices of US linseed oil and other chemicals. ADM quickly expanded its data collection operations to include foreign territories, such as Argentinean Pampas, in other parts of the temperate New World. ADM developed these data collection and processing capabilities because its managers deeply mistrusted government crop and weather data. ADM built an environmental-knowledge network that had both public and proprietary elements. The author traces the company’s changing use of environmental knowledge and crop reporting between 1911 and 1924. He also applies GIS to data from the Great Plains Population and Environment Project and the NOAA historical climate reconstructions. The NOAA data are used to measure the ADM’s fluctuating success rate in predicting what has been called the last unpredictable variable in food production and precision agriculture: the weather.

 Whereas MacFadyen’s paper draws on knowledge from the physical sciences, Dawn Berry’s paper in this issue deploys methodologies more familiar to traditional historians. Her paper concerns flows of environmental knowledge to Alcan, a North American aluminium producer. Her paper examines Alcan’s relationship with the Greenlandic mining industry during the Second World War. The ability of miners to produce a consistent flow of raw material in the harsh conditions of Greenland meant that weather and other environmental data were of crucial importance to the managers of an integrated global supply chain. Prior to the war, Alcan developed cryolite deposits in Greenland in partnership with Den Kongelige Grønlandske Handel, KGH, a Danish state enterprise. The KGH tightly controlled access to information about Greenland, which meant that Alcan’s Montreal headquarters had limited knowledge about a crucial site of production. The German occupation of Denmark in 1940 impeded the flow of information from Greenland to North America, which forced Alcan’s headquarters to alter its means of obtaining information from Greenland.

Berry’s paper is ultimately about the challenges a corporate headquarters faced in learning about environmental conditions in a distant locality. This theme is developed by George Colpitts’s paper. His paper relates to flows of environmental knowledge within one of the first multinational firms, the London-based Hudson’s Bay Company (HBC). His paper is informed by the knowledge-based view of the firm. Accounting historians have documented the HBC’s role in developing management accounting techniques and the importance of these techniques in explaining the longevity of that firm.[[88]](#footnote-88) Colpitts shows that the firm’s ability to process environmental data, as opposed to only financial data, also contributed to its success. From its inception in 1670, the employees of this fur-trading enterprise began recording and sharing environmental data. These data were relevant to the firm’s mid-level managers in North America and senior managers in London because the ability of a given territory to sustain fur-bearing animals fluctuated considerably from year to year. By the nineteenth century, the HBC’s operations extended across the North American continent and even reached Hawaii, a very different ecosystem. The HBC’s systems for processing actionable environmental knowledge evolved over time. Some of the environmental knowledge that flowed through the firm’s reporting system was processed by managers located in North America, while the most important pieces of environmental information reached London, where these data informed the decision-making process of the firm’s directors. The managers used this environmental information to plan conservation efforts and other strategies designed to maximise the long-term profitability of the firm. This paper improves our understanding of how one of the first multinationals incorporated environmental knowledge into its systems for monitoring and controlling distance workers.

Hayley Goodchild’s paper also deals with flows of environmental knowledge between continents. Her paper examines the knowledge problems created by the emergence of an export-oriented cheese industry in North America in the late nineteenth century. The need to produce cheese that satisfied British consumers exacerbated the need to understand the properties of milk at the same time that it made doing so more difficult. The challenge for cheese producers was increasing uncertainty about milk as a reliable conveyer of environmental knowledge. As industrial associations attempted to find technical solutions to these issues, they developed new managerial functions within the industry. Goodchild’s paper presents one model for merging environmental and business history without treating the environment as either a backdrop oras an immutable, deterministic force.

Conclusion

The research presented in this special issue demonstrates that business and environmental history can be hybridised in a variety of quite different fashions. At the same time, the special issue has a degree of unity because all the papers deal with the subject of flows of environmental knowledge over long distances. As such, the special issue advances our understanding of the emergence of one aspect of the knowledge economy, namely the ability of firms to manage environmental knowledge from distant parts of the globe. The term ‘environmental knowledge management’ did not exist during the historical periods covered by the papers in this special issue, but the business people discussed here were nevertheless engaged in this complicated task.[[89]](#footnote-89) The literature in management journals on so-called ‘green supply chains’ shows that practitioners in many industries are increasingly interested in the challenges involved in managing environmental knowledge.[[90]](#footnote-90)

Managers’ interest in this topic is driven by a range of factors that include climate change, which has the potential to tax the cognitive abilities of actuaries and regulators of global insurance hubs such as London and Zurich.[[91]](#footnote-91) The new Actuaries Climate Index is designed to help such practitioners.[[92]](#footnote-92) Social activists have also created a political climate in which even the most instrumentalist MNC headquarters needs to have access to environmental knowledge at its fingertips. The emergence in the late twentieth century of social movements and laws that hold multinationals’ headquarters accountable for pollution and other environmental externalities in distant sites of production: today, the executives working in headquarters of multinationals are expected to know about the environmental impact of the companies’ operations in distant parts of the world and to react swiftly to intelligence arriving from the field. The 1984 Bhopal disaster in India vividly illustrates how a failure to manage environmental knowledge can impact a multinational’s bottom line for a long time. In 2001, Union Carbide was taken over by Dow Chemical. As late as 2016, Union Carbide’s Houston headquarters was still dealing with litigation in US courts related to the 1984 incident, which killed thousands of villagers living near its Indian fertilizer plant.[[93]](#footnote-93) In short, dealing with long-distance flows of environmental knowledge is a major managerial challenge.

Information Technology is a part of the managerial response to this challenge. Today, managers in multinational firms are using technologies such as the Internet of Things and Big Data to manage transnational flows of environmental knowledge. Such technologies make it easier to obtain environmental knowledge from distant localities, although analysing incoming facts remains a challenge.[[94]](#footnote-94) Similarly, the managers discussed in this special issue used what was then cutting-edge communications technology to gather and process environmental knowledge. Readers will note how the limitations of communications technology influenced the flows of environmental knowledge discussed in the papers by Colpitts, Goodchild, Berry, and MacFadyen. Colpitts discusses how the HBC used quill pens and wooden sailing ships to move environmental knowledge from trading posts in Canada to its London headquarters, where it was analysed using techniques that were then state of the art. In the historical periods discussed by Berry, Goodchild, and MacFadyen, the technologies used to transmit environmental knowledge were more advanced. In effect, the papers in this edited collection can be viewed as pre-history of modern environmental-knowledge transfer.

We do not believe that ICT is a cure-all to the environmental challenges facing our planet, but we are inclined to believe that better management of environmental knowledge can help us to respond to these challenges. Knowing the history of how firms have managed flows of environmental knowledge is therefore valuable. For this reason, we believe the research presented in this special issue is of genuine social importance in an era in which issues related to local, national, and global environmental governance are near the top of the agenda. We hope that this special issue will inspire additional research into the historical interaction between firms and the environment and, in particular, in the history of how firms have managed flows of environmental knowledge.

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