

The 'Big Here and the Long Now':

Agendas for history and sustainability

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1. The Global Imagination

Space, in one sense, created the environmental revolution of the 1960s. NASA's Apollo missions and their view of the Earth from space gave immediacy to the idea that there is Only One Earth. The image of the small blue Earth floating in space is the Big Here. It reminds us of how fragile and alone the Earth's systems are. And it drives us all to imagine ourselves globally. *What* we imagine has changed because of this notion of who 'we' – the global citizens of Earth – are. But *how* we imagine has also changed dramatically since the 1960s.

- **the information technology revolution** – enables us to consider many variables simultaneously, and to model 'scenarios' from putative situations based on large data sets
- **The end of Equilibrium** – chaos theory, postmodernism and the end of the old idea of a 'balance of nature'.

Ecologists now say that there is no ultimate 'climax equilibrium' – or steady state. What this means is that saving bushland remnants cannot necessarily save whole ecosystems, rather conservation biology needs to

consider the needs of all organisms under multiple regimes of change. Change is part of the equation – so history is integral to ecology. As biologist-philosopher Daniel Botkin put it: ‘wherever we seek to find constancy ... we discover change ... We see a landscape that is always in flux, changing over many scales of time and space.’²

Environmental activism has had to shift acknowledge the loss of fixed targets – the motto of the Victorian National Parks Association (VNPA), established in 1952, was ‘for all people for all time’. The focus of the organisation and the conservation biology in that era was creating National Parks, fixed places in space. But in the ensuing years the edges of ecosystems have moved. Time is a crucial dimension in understanding ecosystems. The VNPA has now abandoned the idea of doing anything ‘for all time’: its new motto is simply ‘people caring for nature’.³

- **The Great Acceleration** - the phenomenal post-1950s surge in the human enterprise that has emphatically stamped humanity as a global geophysical force. Costanza, Graumlich and Steffen, use a range of sharply increasing global indicators such as human population, CO₂ and nitrogen emissions, and declining marine fisheries to define the Great Acceleration. They describe it thus:

The most remarkable phenomenon on Earth in the 20th century was the ‘Great Acceleration’, the sharp increase in human population, economic activity, resource use, transport, communication and knowledge–science–technology that was triggered in many parts of the world...following World War II and which has continued into this century... Other parts of the world, especially the monsoon Asia region, are now also in the midst of the Great Acceleration. The tension between the modern nation-state and the emergence of multinational corporations and international political institutions is a strong feature of the changing human-environmental relationship. The ‘engine’ of the Great Acceleration is an interlinked system consisting of population increase, rising consumption, abundant cheap energy, and liberalizing political economies.⁴

Embedded in the idea of the Great Acceleration is the J-curve. Whether it is population, economies, extinctions or numbers of Macdonalds outlets – there is suddenly no destination – rather, the story is all about growing. We are all up with Al Gore on the cherry picker reading a graph that has burst all previous limits, and doesn't look like it will stop – yet we also know that there is only one planet. So at some point the system will collapse, or change irretrievably. The 'Acceleration' is as important as the 'forces'. For acceleration is about change over time – and so is history. The sense of change, and the many scales at which change operates, are creating a new interest in history from all sorts of people. And the fact that we haven't been here before demands a closer scrutiny of what led us to this impasse. The nature of history itself is challenged by the contradictory ideas of limits and growth in this era of acceleration. And historians are by no means the only ones writing history

2. Changing Time and Responsibility

Time is both shrinking and stretching. Things that used to take years can be achieved via computers in shorter and shorter times, while we are also aware that what we are doing now might affect – for example, the Earth's carbon cycle, in decades, centuries and even hundreds of centuries from now. Brian Eno, the musician, in an essay whose title I borrowed for this talk, wrote about the 'long now' as a device that could link time to *responsibility* and stretch both over longer scales than that of what we normally think of as 'now' – longer even than a single human lifetime. The idea of the Long Now was to make people personally responsible for more than their own lives.

Eno commented on the cavalier attitude to time in modern New York lifestyles:

Everything was exciting, fast, current, and temporary. Enormous buildings came and went, careers rose and crashed in weeks. You

rarely got the feeling that anyone had the time to think two years ahead, let alone ten or a hundred. Everyone seemed to be 'passing through'. It was undeniably lively, but the downside was that it seemed selfish, irresponsible and randomly dangerous. I came to think of this as "The Short Now", and this suggested the possibility of its opposite - "The Long Now".

'Now' is never just a moment. The Long Now is the recognition that the precise moment you're in grows out of the past and is a seed for the future. The longer your sense of Now, the more past and future it includes.⁵

Eno's words became a manifesto for the Foundation of the Long Now, established in 1996 as the turn of the millennium was approaching fast, too fast for some:

Civilization is revving itself into a pathologically short attention span. The trend might be coming from the acceleration of technology, the short horizon perspective of market driven economics, the next election perspective of democracies, or the distractions of personal multi-tasking. All are on the increase. Some sort of balancing corrective to this short-sightedness is needed – some mechanism or myth that encourages the long view the taking of long-term responsibility, where the long term is measured at least in centuries.⁶

The first device they proposed was a Clock, very big and very slow. The proposal came from Danny Hillis, ironically a designer of very fast computers. This project was about stretching time, about embodying 'deep time for people'. This clock 'ticks once a year bongs once a century and the cuckoo comes out every millennium'.⁷

Hillis, Eno, science writer Stewart Brand and others have used the millennial moment to undertake projects that make people think differently about time and create a sense of responsibility for the long term. They already have a prototype for the 10,000 year Clock and have purchased land in Arizona to install it.⁸

The Clock of the Long Now was not the only time-keeping device manifesting anxiety about the new millennium – we also had a 'Millennium Clock' that was

designed to represent the historical highs and lows of the last thousand years – built and installed in Scotland. This Millennium clock keeps normal time – but the device that celebrates the hour, an elaborate dance of beautifully carved figures, only appears twice a day and only when the Royal Museum of Scotland is open to the public. The plan is to keep the clock running for as long as possible – maybe the whole of the next millennium – so they try to minimise wear and tear.

Such time devices, although they stretch time in interesting ways, place the time system of the Western world at their heart, counting millennia with a point zero in the Middle East about 2,000 years ago. The anxiety about the end of civilization itself reinforces the centrality of civilisation as ‘we’ the Western world understand it. I think we need to be always conscious of who ‘we’ are and who ‘we’ exclude, particularly when we are talking about human responsibility over the whole Earth and multi-millennial scales.

A different understanding of the Long Now is manifest in Julie Kennett’s art project, the ‘Table of the Long Now’. Julie is an Art School student at the Australian National University, and she is building furniture that cycles through time rather than following ‘time’s arrow’ to destruction. Her table is designed to last and work with the materials embodied in itself. She values the ‘time and place from which the object has come and ultimately been formed’. This starts time with the growth of the tree – the material of the table itself – not with a Gregorian or other human calendar. Such furniture is ‘sustainable’ long into the future, beyond present fashion and material knowledge. The boards are not rigid. The method respects the wood and minimises the need for ongoing repairs and replacements. The table is not a way of writing history, but making it has encouraged her, as she put it herself, to:

take a journey through the past that has allowed me to reflect and establish a foundation for my work in the present. Making my way through layers of memories and impressions is not to explore what has been lost but rather discover what there is to be found and make my way forward again.

This thinking also requires a reflection on what the forward cycles of history will do to the table itself, and how one can sustain an idea over time.

Change has its own imperatives. As soon as we consider change rather than stasis, we need the dimension of time and we become concerned about history.

3. History and New Scales

Having shown how history is entrenched in non-equilibrium ecological thinking, I now want to argue that ecology is also feeding back into historical thinking. But it is not the sort of history that has been classically taught in history departments. Earth system scientists want to write history differently, but they have identified a key issue: that 'questions of history' have traditionally overlooked the powerful natural forces that co-exist with human societies:

Human history has traditionally been cast in terms of the rise and fall of great civilizations, wars, and specific human achievements. This history leaves out the important ecological and climate contexts that shaped and mediated these events. Human history and earth system history have traditionally been developed independently...and there have been few attempts to integrate these histories ... across these fields of study.⁹

History is generally a separate domain from Earth systems science, but it is also interdisciplinary and eclectic in its own way. Not all historians have ignored ecological and climate contexts. Concerns about the politics of environmental issues initially provided reasons for understanding the environment, and the history of ideas about it, and environmental history has gained recognition inside and outside history and humanities departments since the 1970s.¹⁰ There are few official academic positions and institutions in this field, but, as historian John McNeill has commented, its 'youth' has enabled people to 'migrate into it from several sorts of backgrounds, within and without the historical profession'.¹¹

Environmental history has been described in a recent paper by Tom Griffiths as the subdiscipline that provides a response to the 'contemporary sense of crisis about the human ecological predicament'. It 'bridges planetary and deeply local perspectives' taking history beyond the traditional territory of the nation state and the timescales of human dynasties. Since 'environmental history frequently makes more sense on a regional or global scale than it does on a national one', it stakes 'a claim for histories that are bound intimately to place and also embrace the natural world, histories that are deeply attentive to human and biological parochialism'. By moving 'audaciously across time and space and species', environmental history 'challenges the anthropocentric, nationalistic and documentary biases of the craft' of history writing. It is deeply informed by science, particularly ecological science. Yet, Griffiths concludes, 'environmental history remains, at heart, one of the humanities', because it is fundamentally 'concerned with cultural, moral, economic and political questions, and founded in narrative'.¹²

While there are no formal barriers to entry, environmental history has been emphasised differently in different places. In the United States, it developed from 'frontier' history and studies of the American West, with another strand dealing with ideas of 'wilderness'.¹³ Countryside planning and the 'brown' issues of urban pollution and smog have been more central in British and other European studies, though studies of the far northern forests and water courses have been prominent in Scandinavia, and disasters like Chernobyl provided reasons to integrate the urban issues of energy production with forest history.¹⁴ In Africa, environmental history is often part of the history of social justice.¹⁵ In South Asia, political ecology and colonialism are at the forefront of environmental history.¹⁶

World history preceded the formal study of environmental history in China, and the span of ancient Chinese environmental history makes the distinction between them somewhat spurious. The ecological and environmental elements of Confucianism, Daoism and Buddhism, especially what Bao Maohong

summarises as 'harmony of heaven and humankind', were key questions not only for Chinese scholars, but also for ecological philosophy internationally.¹⁷ Much 'Pacific History' is also environmental; McNeill commented that the 'most consistent supporter of environmental history among history journals not specifically devoted to it' was *Pacific History Review*.¹⁸ In Australia and New Zealand, environmental historians are as often found in science departments as in traditional history, and perhaps enjoy a closer relation with scientists than elsewhere.¹⁹

Geography has been a sympathetic home for historical environmental writing for much longer than history in most places. The issues identified by Carl Sauer in his 1952 Bowman lectures, *Agricultural origins and dispersals*, which interwove human ecology with histories of plants and domestic animals laid out a fundamental set of global questions for post-war historical geography.²⁰ Clarence Glacken's *Traces on the Rhodian Shore: Nature and culture in Western Thought from Ancient Times to the End of the Eighteenth Century* considered the history of ideas across a transnational, if not global span, and a time scale of roughly two thousand years, and inspired geography teaching for decades.²¹ But as geography departments focused more closely on land and 'natural resource management' and the policy and regulatory instruments associated with them, historical geography moved away from global concerns to applications for management and 'social movements' with national and local scales. Scale, more than substance, drove environmental history to become an alternative to both historical geography and national history.

World history also sought to write history on a different scale. The *Journal of World History*, the official journal of the World History Association, first appeared in 1990. It engaged with 'historical forces [that] simply do not respect national or even cultural boundary lines, but work their effects instead on a regional, continental or global scale', in the words of Jerry H. Bentley, the foundation editor of the journal.²² He identified population movements, economic patterns, climate,

technology transfers, disease and pandemics, transnational trade and the spread of religions as 'world' issues, rather than national ones.

Patrick Manning, in *Navigating World History*, identified two sorts of World History, internal and external to the historical profession. The internal (humanities) version arose from the legacies of many traditions assembling 'knowledge about human communities' at different scales, from genealogy through to dynastic chronology. By contrast, the external world history view grew out of environmental science and the information revolution.²³

Here at the University of Cambridge, gathered a recent workshop gathered together (in its own words): 'a variety of theoretical approaches, united only in their rejection of 'the nation' as a basic unit of historical analysis.'²⁴ The scale of this workshop was 'transnational' rather than 'global', as it focused on such issues as European expansion and imperialism, and the comparative approach to migration and trade networks or colonial and post-colonial law. Transnational history is another growing field, perhaps because 'world history' has a worrying span for historians who are sceptical of stories of progress and triumph. Historian of Africa, Tilman Dederig commented on this in a thoughtful review paper:

Many academic historians regarded world historians as incompetent intruders on unfamiliar fields of expertise, rushing into widely disparate areas of research, insensitive to the hazards of oversimplifying, exaggerating or even completely overlooking important trends in the detailed work produced by empirical historians, especially if world history is explained in terms of unquestioned assumptions of a Eurocentric 'rise of the West'.²⁵

This sentiment was aired in a different forum at the Mapping World History Research Agenda Symposium in Boston in November 2006, where the discussion dwelt on 'the question of whether world history as practised, particularly in North America reflected a "Western" rather than a global perspective on the past'.²⁶ A global view demands 'approaches from different regions and eras, and also from writers who are not professional historians',

participants argued.²⁷ Some world history has a public intellectual role and a non-specialist audience, and this perhaps accounts for a strong emphasis on the modern era, where it functions as 'essentially the pre-history of globalization'.

To counter Western triumphalism, Alf Hornborg, John McNeill and Joan Martinez-Alier designed *Rethinking Environmental History: World-System History and Global Environmental Change*, to present history from the perspective of the environmentally disadvantaged:

Rather than focus on the abstract accretion of landscape changes or technological innovations as a collective human experience over time, [this book] seeks to highlight how such changes are distributed in space. It acknowledges that humanity is not a single 'we' but deeply divided in terms of reaping the benefits versus carrying the burdens of development.²⁸

The idea of 'unequal exchange' created a rather different scholarly community of experts; of the 22 authors, only one was a natural scientist while the others were anthropologists, economists, historians, geographers and sociologists.

In the latest proposals of the World History Network, the 'cliometric' (quantitative) urge is strong. Manning is working to unite his 'internal' and 'external' world histories, connecting the new (internal) knowledge emerging from social, geographic and economic history with the (external) knowledge gained from geology, zoology, plant physiology and linguistics, and many other disciplines that have taken a historical turn in recent years.²⁹ The information technology revolution has shaped not just science but also history and other humanities. In a recent initiative to establish a 'World-Historical Database Design Group', Manning urged a systematic review of the needs and potential of global and historical databases on social-science and health variables:

Our historical data are contained within national and local boxes that are distributed very unevenly across the globe, and social-science theory tends to assume each localized society has distinctive rather than shared global characteristics. As a result, we have only the most

minimal observations on global patterns in economic activity, social structure, gender relations, demographic patterns, and health conditions before the mid-twentieth century.³⁰

The problem is not that historians and non-historians do not have a common view of the task of world history, but rather that the entrenched national scale is not amenable to scaling up to global work. Nor is the 'national' either relevant or flexible enough to deal with the dynamics of change in the natural world. Large data sets, independent of national collecting agencies or even in a form suitable for transnational comparison, are rare.

The difference between 'environmental' and 'world' histories is looking increasingly arbitrary, as scale becomes more fluid. 'Few writers of world histories of any kind would dare to omit "the environment"', I.G. Simmons commented in a review of world environmental history. He identified 'global environmental change' as the biggest hitting key word in the field, but commented that while such change is global, this does not mean it is *interconnected*, and that this is the distinctive feature of history on the world scale, whether it is historians, geographers or earth system scientists who are conceiving it.³¹

The other common ground is founded in the ideas of the 'long now', in particular the idea of responsibility. If the twentieth century has been the era of human rights, it seems the twenty-first may become the era of human responsibility. And while individual responsibility is important, there is also an overwhelming need for a collective responsibility. And the responsible community is no longer any one nation state – but the community of Earth.

4. Global Moments in History: UNESCO and History in the Atomic Age

Other events, just sixty years ago, also created a moment when long-term global responsibility needed history. The United Nations was founded in the final years of the second world war, taking over from the earlier League of Nations. Its task

was to find methods for living at peace in a world where the atomic bomb had made it possible for a single nation to have global effects. The scientific community, which created the knowledge for nuclear technology, felt compelled to direct it to creating an international peace.

An Educational and Cultural Organisation was proposed for the United Nations, but by November 1945, it became UNESCO – the ‘S’ for Scientific was added in recognition of the importance of science to global peace-making. Julian Huxley, the first Director-General of UNESCO and Joseph Needham, the first head of the Natural Sciences section, were leading lights in an earlier interwar movement for ‘social responsibility of science’ and together they saw unique possibilities for international and ‘universal’ outreach in a scientific secretariat within the United Nations.³² As the preamble to the UNESCO constitution, famously declared: ‘since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed’

UNESCO’s first task was to facilitate the ‘reconstruction and rehabilitation’ of democratic societies by promoting and organising international co-operation, particularly for such issues as world health and agricultural development, which could benefit from scientific expertise. Significantly, the first non-government organisation to affiliate with UNESCO was the International Council of Scientific Unions (ICSU), which had been established in 1931. From 1937 it had a committee on ‘science and its social relations’.³³ Funding for programmes of post-war reconstruction underwrote ICSU and other scientific unions created for specific UN purposes.

The International Union for the History of Science (IUHS), which subsumed an earlier International Academy of the History of Science, was one of the first ‘scientific unions’ to join UNESCO.³⁴ In a surprise move that probably reflected the concerns of Huxley and Needham, rather than the broader scientific community, IUHS was affiliated with ICSU, rather than the International Social Science Council. It was charged with publishing and the international distribution

of major works of science, with popularising science and with taking responsibility for the 'social relations of science'.³⁵ In a sense, science communication began with history. Eventually the Union became the International Union of History and Philosophy of Science, and the interdiscipline of 'HPS' became established in universities, generally in science rather than arts faculties, following the UNESCO pattern.³⁶

A Scientific and Cultural History of Mankind.

Joseph Needham, who had worked extensively in China and was himself both a scientist and a historian, cast around for ways to 'break down the barriers', and sought a project that demonstrated the 'mutual indebtedness of all peoples', as part of the post-war peace-making enterprise. In 1947, UNESCO voted to embark on what has been described as 'the Ultimate Odyssey', a *Scientific and Cultural History of Mankind*.³⁷ Huxley was a great supporter of this concept. In his 1946 essay, *UNESCO: Its Purpose and Philosophy*, he identified the task of writing a 'history of the development of the human mind'. It was to be a history of the progress of civilisations, for only 'one kind of progress seems certain – and that is the progress of knowledge'.³⁸ Huxley wanted 'the development of culture in ...the Orient [to] receive equal attention to that paid to its Western growth' and Needham suggested that 'emphasis might well be placed on the factors which have *united* mankind throughout history, rather than those which have *divided*'.³⁹

Initially the history project was part of Needham's own Natural Sciences Division of UNESCO, but with the foundation of the IUHS, it transferred to Armando Cortesão in the History of Science Division who worked with Lucien Febvre, a historian and member of the French National Commission, to sketch an outline for a grand six volume history. It included a description of 'the stages of societies' and considered such issues as 'stagnation' and 'culture contact'.⁴⁰ The idea of 'stagnation' was a bridge, in a way, between the older historical ideas of 'end of empire' manifest in works such as Gibbon's *Decline and Fall of the Roman Empire*, and later ideas about the 'collapse' of societies, which I will discuss more

later.⁴¹ The Australian archaeologist, Gordon Childe, who was part of the first steering committee, anxious that views on the progress of 'culture' might be controversial, suggested that a history that focused on the natural sciences might be more likely to engender agreement across the member states than cultural or religious histories. Huxley concurred and developed the idea further as a *History of Mankind*. Heloisa Maria Bertol Domingues recently uncovered a document in Huxley's archive that traced his plan to follow a historical continuum from the first microorganisms, through plants and animals to human societies.⁴²

What happened to the UNESCO history?

The grand plans of Febvre and Huxley did not proceed exactly as proposed. In 1950, a new Editorial Committee was appointed to the *Scientific and Cultural History of Mankind* Project. Febvre captured the faith of his organisation in history: 'only History could place upon the already fruitful work of UNESCO the crown of hope for which is gathering the flowers and the leaves, one by one'.⁴³ But 'one by one' proved to be the operating mode. When the first volume of *The Scientific and Cultural History of Mankind* finally appeared (in English) in 1963, it was a set of separate chapters that each dealt with the 'specific contributions of various civilisations to scientific and technological progress'.⁴⁴ It lacked the original 'integrative' brief to detail the history of mutual influences and exchanges. Soon after Huxley's original articulation of his vision for history, the international political mood shifted from scientific optimism and openness, to mistrust. As UNESCO was increasingly forced by Cold War politics to respect and ensure the national security of its member states, the idea of an international 'history of peace' lost momentum. The truly 'global' vision for a history that Huxley and others had hoped would make peace remained frozen in Cold War nationalist politics.

5. History for Sustainability

I now want to move into the present era and consider the latest global history writing. Some big new histories are also the work of scientists, who like Huxley and Needham, are concerned about the social responsibility of science. Jared Diamond's *Collapse* and Tim Flannery's *The Future Eaters* and his more recent *Weather Makers* are examples histories that engage with the new imperative of sustainability and its converse, collapse. In *Something New Under the Sun*, historian John McNeill writes a story of the twentieth century that shows how it different from all earlier centuries. Using scientific material he creates a grand history of the Great Acceleration. Diamond, Flannery and McNeill all show in different ways that sustainability is not a steady or climax state, it is a dynamic process, and collapse is about crossing thresholds and being unable to return to previous states. More than any other concept, collapse embodies 'time's arrow', and narratives of sustainability need historical context and multiple scales, including the global one.

The Global Change Community

What motivates the 'new historians'? Most of them self-identified as members of the 'Global Change community', a relatively new term used primarily to describe the interdisciplinary environmental scientists who are most directly concerned with the effects of human-induced climate change on Earth systems. Many of them work with the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), which together created the Intergovernmental Panel on Climate Change (IPCC).⁴⁵ If the atomic bomb brought together the scientists of the Huxley era, it is climate change that has created a new need for a global community and raised again the issue of responsibility among scientists.

A Global Change Open Science Conference in Amsterdam in 2001 brought together 1400 participants (from more than 100 countries) who signed the *Amsterdam Declaration on Global Change*, which called for strengthening the cooperation amongst global environmental research programmes internationally.

It focused on 'the impacts of climate change on water supplies, wildlife, the environment, and human society'.⁴⁶

At about the same time Nobel Prize winning chemist Paul Crutzen defined the **Anthropocene** – the new Geological Epoch in which humans are changing the face of the earth. The precise date of onset of the Anthropocene is arguable, but Crutzen set it to coincide approximately with James Watt's invention of the steam engine in 1784, because of analyses of air trapped in polar ice that dated the rapid growth of carbon dioxide and methane concentrations to the late 18th century. These effects have become more magnified since the 1950s, with the Great Acceleration. The Anthropocene is not just a new way to look at the past; it strongly affects the future.⁴⁷ Crutzen argued, for example, that anthropogenically induced carbon-dioxide emissions may affect global climate for the next 50 000 years – a very long now.

As the biophysical sciences grapple with uncertainty and the dynamics of Earth systems in the unfolding revolution of the Anthropocene, they are increasingly turning to history for explanations. How does anthropogenic change unfold? What triggers shifts in the biophysical system? Why, for example, did the 1950s mark the beginning of unprecedented economic growth, terrestrial species loss and population expansion?⁴⁸ These are all historical questions, with both cultural and biophysical ramifications.

In May 2003, theoretical physicist and Earth system scientist, Hans Joachim Schellnhuber, led a major workshop in Dahlem, Germany, on 'Earth System Analysis for Sustainability'. The workshop evaluated the operation of the planet under such different circumstances as massive volcanic eruptions, bombardment by asteroids, differently distributed continental masses and other (literally) world-shattering events.⁴⁹ In 2005 another Dahlem workshop was held to tackle the 'unnatural' events induced by anthropogenic changes. The ambitious research project to write an *Integrated History and future Of People on Earth (IHOPE)* was launched. The first IHOPE publications are appearing this year, including a major

book *Sustainability or Collapse?* edited by Bob Costanza, Lisa J. Graumlich and Will Steffen, and a paper of the same name accepted by *Ambio* for publication later this year.⁵⁰ Earth System science and ecological economics are prominent in the framing of the lines of historical inquiry.

Ecological economists have commented that there is a problem with ‘the mismatch between the scales at which human and natural systems organize. These lead to failures in feedback, when, for instance, benefits accrue at one scale, but costs are carried by another’, echoing the ‘bottom up’ history of the environmentally disadvantaged written by Hornborg and colleagues.⁵¹ Prominent ecological economists, including Robert Costanza, one of the editors of *Sustainability or Collapse?*, have framed the IHOPE agenda using the multiple scales of their discipline, but the difficulty of actually representing the people who are environmentally disadvantaged – the local outcomes of global change - remains.

The Global Change community implicitly privileges not just ‘science’, but the elements of society that have a place at the policy table in the big institutions concerned about global scale. The human societies that cause and are affected by changes in climatic patterns and in other aspects of the environment have their own values, cultures and institutions are somewhat independent of the science/policy community at the heart of the Global Change enterprise. Indeed these are the focus of the work of traditional humanities. The natural world may also be studied differently, particularly in the ecological humanities, where the ethical duty of care to the non-human world (which is of course, just as affected by climate change) is prominent. The emphasis in sustainability science is on the ecosystems that underlie *human* well-being. By contrast, eco-histories (and philosophies) seek to go beyond the notion of ‘natural resources’ (that is, the non-human world defined in terms of human consumption and benefit) – so we have the paradox that as the sciences demand more ‘human dimensions’, it is the humanities that are calling for more care of non-human ‘others’.⁵² The latest

IHOPE documents are increasingly informed by interaction with humanities scholars like Sverker Sörlin in Sweden, and a group of us in Australia, which are co-ordinating an Australian IHOPE that uses the exceptional ecology and history of our continent to test some of the global claims created in the nexus between Europe and North America. Our contribution is most evident in the latest documents' efforts to get beyond the language of natural resource management, for example, with cautionary statements that 'humans are a part of nature, not separate from it'. Throughout the new documents there are references to 'humans and the rest of nature'.⁵³ While the responsibility is undoubtedly a human one, the environmental rights must be shared with non-human others.

The challenge to historians is to engage with these urgent stories of our time, and to build our history together – not in separate silos. The generalisations possible at different scales vary – and while not everyone is confident about speaking at global scales or about scientific processes like the carbon or nitrogen cycle, to be truly global, this history needs to grapple with detailed regional knowledge. And if we – as regional or transnational historians, or simply concerned citizens from outside the Global Change community, do not engage with the histories of the Long Now - the era of the Anthropocene - others will tell those stories. It's our Long Now too, and there has never been a better time to think about history.

¹ This paper is further developed in Robin, Libby and Will Steffen, 'History for the Anthropocene', *History Compass*, Vol. 5 July 2007, http://www.blackwell-compass.com/subject/history/section_home?section=hico-world. I would like to thank the IHOPE-Australia team Will Steffen, Mike Smith, Tom Griffiths and Deborah Rose for stimulating discussions on and around these subjects, and also Rodney Hayward and Julie Kennett from the ANU School of Art.

² Daniel Botkin, *Discordant harmonies*, 1990; Stephen Bocking, *Nature's experts*, 2005: 69.

³ On the origins of the VNPA see Libby Robin, *Defending the Little Desert: The Rise of Ecological Consciousness in Australia*, Carlton: Melbourne University Press, 1998.

⁴ Robert Costanza, Lisa Graumlich, Will Steffen, 'Sustainability or Collapse: What Can We Learn from Integrating the History of Humans and the Rest of Nature?', *Ambio* (in press).

⁵ Brian Eno, 'The Big Here and the Long Now', <http://www.longnow.org/views/essays/articles/BrianEnoLongNow.php>, May 2000.

⁶ Stewart Brand, *The Clock of the Long Now: Time and Responsibility*, London: Phoenix, 1999, 2.

⁷ *Ibid.*, p. 4.

⁸ <http://www.longnow.org/>

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- ⁹ IHOPE Science Plan v. 4 6.9, 2.
- ¹⁰ eg *Environmental History* established 1976 by the American Society for Environmental History.
- ¹¹ John McNeill, 'Observations on the Nature and Culture of Environmental History', *History and Theory*, Theme Issue, 42, (2003): 5-43, quote 11.
- ¹² Tom Griffiths, 'How Many Trees make a Forest?: Cultural Debates about Vegetation Change in Australia', *Australian Journal of Botany*, 50/2 (2002), 375-89, quotes 377-78.
- ¹³ Alfred Crosby, 'The Past and Present of Environmental History', *American History Review*, 100/4 (1995): 1177-89; P. Coates, 'Emerging from the Wilderness (or, from Redwoods to Bananas): Recent Environmental History in the United States and the Rest of the Americas', *Environment and History*, 10/4, (2004): 407-38.
- ¹⁴ Verena Winiwarter (ed.) et al., 'Environmental History in Europe from 1994 to 2004: Enthusiasm and Consolidation', *Environment and History*, 10/4, (2004): 501-30.
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- ⁴⁵ WMO is the specialized agency of the United Nations, founded in 1951 for meteorology (weather and climate), operational hydrology and related geophysical sciences. See: <http://www.wmo.ch/web-en/about.html> (accessed 7 May 2007). The first World Conference on Climate was held in 1979, which led to the establishment of the WMO World Climate Programme and later to the WMO's sponsorship of the IPCC in 1988. See: http://www.wmo.ch/web-en/wmo_milestones.html (accessed 7 May 2007). WS recalls the use of the term at the time IGBP was being planned in 1987.
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- ⁴⁹ H.- J. Schellnhuber, P. J. Crutzen, W. C. Clark, M. Claussen and H. Held (eds.), *Earth System Analysis for Sustainability* (Cambridge Mass.: Massachusetts Institute of Technology Press, 2004); This was one the workshops arising from the initiative that sought to bring together a range of scientific ideas was sponsored in the 1970s by the *Deutsche Forschungsgemeinschaft* (German Science Foundation) and the *Stifterverband für die Wissenschaft* (Association for the Promotion of Science Research), which together in 1974 established the *Dahlem Konferenzen*, a series of workshops held in the science district of Berlin, that aimed to 'promote an international, interdisciplinary exchange of scientific information and ideas'.
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