
Macrohistory: The Play of Scales¹

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ABSTRACT

I use the label 'macrohistory' for study of the past on very large scales. Macrohistory includes the scales of world history and historical sociology, as well as the even larger scales of 'big history', which embrace geological and even cosmological time. Macrohistory is interdisciplinary, because it crosses the boundaries between the humanities and the sciences. One of its main themes is what Jacques Revel has called 'the play of scales', the way in which our sense of significance, agency and causality can shift when we view the past on different scales and through different frames. This paper explores the current state of macrohistory and suggests how it may evolve as a teaching and research field. As a teaching field, macrohistory can enrich students' sense of their own identity and place in the larger scheme of things. As a research field, the methodology of macrohistory will be closer to that of historical sociology than to that of archival historical research. It will probably be dominated, at first, by scholarly raids into other disciplines that can help historians raise new questions and see old questions in new ways. The paper offers examples of macrohistorical research on different scales and includes a sample bibliography of macrohistorical scholarship.

We have inherited from our forefathers the keen longing for unified, all-embracing knowledge. The very name given to the highest institutions of learning reminds us, that from antiquity and throughout many centuries the universal aspect has been the only one to be given full credit. But the spread, both

in width and depth, of the multifarious branches of knowledge during the last hundred odd years has confronted us with a queer dilemma. We feel clearly that we are only now beginning to acquire reliable material for welding together the sum total of all that is known into a whole; but, on the other hand, it has become next to impossible for a single mind fully to command more than a small specialized portion of it.

I can see no other escape from this dilemma (lest our true aim be lost for ever) than that some of us should venture to embark on a synthesis of facts and theories, albeit with second-hand and incomplete knowledge of some of them – and at the risking of making fools of ourselves.

So much for my apology (Schrödinger 2000: 1).

DEFINITION AND THEMES

In this article, I will suggest a definition of what macrohistory is (or what it may turn out to be) and describe some of the possibilities and challenges of this unfamiliar approach to historical enquiry. What is macrohistory? Or what might it turn out to be if it emerges as a viable and significant field of historical scholarship? The term ‘macrohistory’ has been used in several senses, sometimes as a near-synonym for ‘world history’². Here, I will use the label to refer to explorations of the past on scales even larger than those of world history. So I will define macrohistory as **the project of exploring the past on many different large scales up to and including the largest scales of all, those of cosmology**. Defined in this way, macrohistory is what I have described elsewhere as ‘big history’³. In this paper, I use the term ‘macrohistory’ primarily to highlight the contrast with ‘microhistory’.

Unfortunately, at present we have few examples of what macrohistory is or might be. *Micro*-history is an established genre of historical scholarship, and we have many examples of its possibilities, including, of course, the work of Carlo Ginzburg⁴. The situation is very different with macrohistory. Here, the absence of a recognized corpus of works means that, at present, arguments about the possibilities and difficulties of macrohistory are bound to

seem speculative⁵. And they inevitably refer to a small, and perhaps idiosyncratic, sample. The arguments in this paper are shaped very much by my own experiences of teaching a history course on macrohistorical scales for almost fifteen years, and writing a survey of the past on macrohistorical scales (Christian 2004). But I hope in the near future it will be possible to discuss a much wider sample of works and courses on macrohistory. I say this partly because there are now a number of courses in macrohistory taught within several different disciplines; and there is also a small literature in the field⁶. And I know of at least one other historian's version of macrohistory that is in the works. I hope that an increasing number of courses and books on macrohistory will eventually show it is possible to walk the walk of macrohistory. Meanwhile, we have to talk the talk, to discuss what macrohistory *could* be, on the basis of a small sample of works and syllabi that illustrate some of its possibilities.

As I have defined them, macrohistory and big history are close relatives of world history. World history also explores the past on large scales. Typically, world historians survey the past on a continental or global scale and within time scales ranging from a few hundred years to many thousands of years. So many of the arguments for doing macrohistory are similar to those for doing world history. But there are also important differences. Macrohistory includes the scales familiar within world history, but also moves beyond them. This difference is crucial. While world historians can normally remain within the methodological and conceptual borders of the history discipline, would-be macrohistorians have to cross these borders. World history *can* be interdisciplinary; macrohistory *has to be* interdisciplinary. So macrohistorians will have to be willing to use different techniques, paradigms and forms of evidence, and they will find themselves engaging as much with scientists as with historians. Macrohistorians are particularly likely to encounter scholars from other disciplines who share a concern with change over time, from archaeology to palaeontology, to geology and cosmology⁷.

To move beyond conventional disciplinary boundaries in this way can be disconcerting. But historians have much to gain from such interdisciplinary cooperation. Indeed, those who choose to engage in scholarship on these scales will soon find they are taking part in the larger project that E. O. Wilson has described as ‘consilience’⁸. By ‘consilience’, Wilson means a bringing together of insights from many different disciplines. Faith in the possibility of consilience depends on a conviction that there is no fundamental chasm between different branches of knowledge; and that the existing fragmentation of research and knowledge is not a reflection of the nature of reality, but rather, as Wilson puts it, an artefact of scholarship (Wilson 1998: 6). If Wilson is right, there is, waiting to be discovered in the gaps between different disciplines, a massive intellectual synergy of which modern big bang cosmology, with its blending of astronomy and sub-atomic physics into a new way of understanding the Universe is just a first example. This is how the physicist, Murray Gell-Mann puts it:

There is... a growing need for specialization to be supplemented by integration. The reason is that no complex, nonlinear system can be adequately described by dividing it up into subsystems or into various aspects, defined beforehand. If those subsystems or those aspects, all in strong interaction with one another, are studied separately, even with great care, the results, when put together, do not give a useful picture of the whole. In that sense, there is profound truth in the old adage, ‘The whole is more than the sum of its parts’.

People must therefore get away from the idea that serious work is restricted to beating to death a well-defined problem in a narrow discipline, while broadly integrative thinking is relegated to cocktail parties. In academic life, in bureaucracies, and elsewhere, the task of integration is insufficiently respected (Gell-Mann 1999: 61–62).

By engaging in macrohistory, historians will ensure they play a role in the intellectual revolution of consilience. As William McNeill has written:

World History [on very large scales] has an obvious and honourable part to play in the emerging convergence of the

sciences... A first step would be to meld ecological history more fully into the cultural history of humankind. More generally, history written with awareness of the physico-chemical flows that sustained human societies – surveying how our predecessors tapped organic and inorganic sources of energy – would seat the human career on earth more squarely within the biological and physical sciences than I ever thought of doing (McNeill 1998: 13).

Another difference between world history and macrohistory is that macrohistory, as defined above, explores a very wide range of spatial and temporal scales. So anyone writing or teaching macrohistory will have to get used to moving between many different time scales. Indeed, I suspect that the ‘play of scales’ will turn out to be one of the dominant thematic and methodological concerns of macrohistory. Macrohistory is *about* scale. It is about what musicians might call ‘diapason’: the contrasts, juxtapositions and insights that can be achieved by moving through the complete range of available scales.

Because it operates on many different time scales, macrohistory is peculiarly sensitive to what we may call the ‘problem of framing’. In history writing, as in an art gallery, frames determine what we see and how we see it. By telling us what is inside and what is outside they suggest what is and what is not important. So frames can hide at least as much as they reveal. And it is all too easy to forget, when studying what is inside the frame, how much lies outside. Of course, historians are familiar with the problem. Nevertheless, the familiar time-frames of modern professional historiography have been so powerfully legitimized by convention and habit that we can easily forget how much they hide. The danger was described well by the Australian anthropologist, W. E. H. Stanner, in a series of lectures given in 1968, just one year after a referendum on giving full citizenship to Aboriginal Australians. Why, he asked, had so much Australian historiography been blind to the history of indigenous Australians. Stanner answered that:

Inattention on such a scale cannot possibly be explained by absent-mindedness. It is a structural matter, a view from a window which has been carefully placed to exclude a whole quadrant of the landscape. What may well have begun as a simple forgetting of other possible views turned under habit and over time into something like a cult of forgetfulness practised on a national scale. We have been able for so long to disremember the aborigines that we are now hard put to keep them in mind even when we most want to do so (Stanner 1969; 1991: 24–25).

If the frames through which historians conventionally view the past can hide 50,000 years of Aboriginal history this efficiently, there is clearly something to be said for experimenting with other frames. In principle, each time scale can add something new to our understanding of the past, and each scale can also help us understand all the other scales. And this suggests one of the most important single reasons for exploring the past through the multiple frames of macrohistory: **seeing the past through many different time frames ought to offer a richer, fuller and more coherent understanding of the past in general.** This is how Fernand Braudel put it:

The way to study history is to view it as a long duration, as what I have called the *longue durée*. It is not the only way, but it is one which by itself can pose all the great problems of social structures, past and present. It is the only language binding history to the present, creating one indivisible whole⁹.

In teaching macrohistory, I have found it helpful to raise these issues by asking students to explore the simple and naïve question: ‘where do I live?’ Using maps with different scales, you can construct a rich and powerful answer, moving from the street to the city, to the country, to the world. Each scale offers new insights and new answers. At the regional level, students can begin to understand why local weather patterns are as they are. With larger scales, they may begin to see how their home town fits into national and international systems of trade and transportation. The global maps can help them understand their place on planet Earth as a whole.

Each frame reveals a new facet of the original question and suggests new answers. And the result of exploring many different scales is a richer and more complete sense of one's place on Earth. This exercise also raises the powerful question: what is the world map of time? Is there a frame so large that no frame can be larger?

Defined in these ways, macrohistory appears not as the opposite of microhistory, but as its complement. This is true even if the particular insights it can offer may seem very different from those of microhistory. Macrohistory and microhistory are really just different ways around the circle. As Carlo Ginzburg's work has shown, the historian's microscope, like that of the biologist, can reveal large patterns within the microcosm. By looking at the very small you can sometimes glimpse the very large. But the opposite is also true; by trying to grasp very large themes, you can sometimes find to your surprise that you are closing in on the intimate and the personal. Macrohistory may prove surprisingly good at speaking to our sense of individuality by helping us understand the unique place each of us occupies within the larger structures of society, the biosphere and the Universe. So macrohistory and microhistory may turn out to have a lot in common. Once again, the analogy of big bang cosmology, which combined the insights of the very large and the very small, is apposite. What modern cosmology demonstrates is that the very large scales and the very small scales can be combined to generate insights that could never be achieved by staying within a narrower middle ground.

MACROHISTORY AS A TEACHING FIELD

General definitions of the field and its possibilities are all very well. But what will macrohistory look like in practice? And what can working historians hope to gain in return for the considerable effort required to teach or research on scales so very different from those of most historical scholarship? This is where the shortage of recognized samples of macrohistory makes discussion difficult. It may help to distinguish between macrohistory as a teaching field and as a research field.

As a teaching field, macrohistory is, in one sense, very ancient. By offering accounts of the past on all possible scales, it does what creation myths have done in all traditional human societies¹⁰. Indeed, the parallels between macrohistory and creation myth go a long way. By offering attractive and authoritative accounts of how everything began, from our own communities to the animals that live near us, to the Earth, the moon and skies, creation myths provide universal maps with which people can imagine their own existence and figure out their individual roles in the larger scheme of things. Creation myths are powerful because they respond to our deep spiritual, psychic and social need for a sense of place and a sense of belonging. By drawing lines between the personal and the universal, they provide a fundamental sense of orientation. So it is not surprising that, like the Genesis story in the Judaeo-Christian tradition, creation myths are often integrated into religious thinking at very deep levels.

Despite this, modern societies do not normally teach such stories, even though they have access to more hard information about the past than any earlier societies. Instead, from schools to universities, to research institutes, we teach bits and pieces of information about origins, without ever assembling the fragments into a single, unified account. This is rather like teaching geography without ever using a map of the world. Students never get a sense of history as a coherent whole because, as teachers, we do not normally ask what might be the temporal equivalent of the world map. Indeed, the absence of a unifying story may be an important ingredient in the pervasive quality of loss and disorientation in modern life that the French sociologist Émile Durkheim referred to as 'anomie'. Anomie is the sense of not fitting in, and it is hard to avoid anomie if you have no sense of the totality to which you belong.

As a subject to be taught in schools and universities, macrohistory can help create the sense of intellectual coherence that was once created by creation myths. I have found, in practice, that many students enjoy the sense of intellectual vertigo that is

inevitable when you first look at the past on very large scales. And this may be one reason why macrohistory makes for powerful teaching. It can help students think clearly and seriously about their place in the total scheme of things by giving them a sense that there is a universal map of time into which all other maps fit. Ranke, whose work is often taken as the epitome of detailed, archive-based historical research, expressed the need for such a unified account of the past when he wrote: 'Universal history comprehends the past life of mankind, not in its particular relations and trends, but in its fullness and totality',¹¹.

But even if some of its functions may be ancient, macrohistory is very new as a branch of modern historical education. Fifteen years ago, it would have been hard to find any examples of macrohistorical teaching, certainly within university history departments. But now, courses in macrohistory are taught in a number of history departments, and courses that could probably be classified as macrohistorical are also taught in many university departments of astronomy, geology and biology. So macrohistory does exist, in a small way, as a teaching field. And those of us who try to teach macrohistory have accumulated a certain amount of experience with both the problems and possibilities of teaching on these scales. I started teaching macrohistory as a historian, and within a history department, almost fifteen years ago, and John Mears started teaching it at Southern Methodist University in Dallas at about the same time. By now, I am aware of at least eight university level courses in big history taught in history departments in the US, Holland, and Australia, and I am sure there are others I do not know about.

A macrohistorical syllabus

As an example of what a historian's version of macrohistory might look like as a teaching field, I will list the main topics in a recent version of the big history course I have been teaching now for almost fifteen years. The timeline included as an appendix to this article is an attempt to help students grasp something of the

colossal time scales through which this syllabus moves.

Week 1: Framing the Past in New Ways: discussion of creation myths and the content and aims of this course

Week 2: The Beginnings of Everything! Big bang cosmology and the creation of galaxies and stars

Week 3: The Origins of the Solar System and the Earth

Week 4: The Origins and Evolution of Life on Earth

Week 5: What is Science? What is History? Fundamental questions about what knowledge can be trusted

Week 6: The Evolution of Human Beings: the evolution of hominids over 8 million years

Week 7: The Beginnings of Human History: the origins of modern humans, and societies of the Palaeolithic

Week 8: The Transition to Agriculture: agriculture as a fundamental turning point, intensification

Week 9: Cities and States: population growth, cities and new power structures and hierarchies

Week 10: The Evolution of a World Dominated by Agriculture: evolution of agrarian civilizations and their neighbours

Week 11: Explaining Modernity: theories of modernity

Week 12: Break-through to the Modern World: globalization and industrial revolution

Week 13: The Twentieth Century: acceleration and intensification

Week 14: Looking at the Future: long trends and different futures

Week 15: Revision: General Discussion and Overview: what can we learn from a big history view of the past?

What can teachers expect to gain by teaching history through these many different time-frames? I will try to illustrate some of the possibilities by focusing on a single issue, that of identity. What answers can macrohistory offer to the question: who am I? There is a profound connection between history, memory and the sense of identity, so identity is a central theme in all history teaching. As Anthony Smith puts it: 'there can be no identity

without memory (albeit selective), no collective purpose without myth...' (Smith 1986: 2). In a study on changing identities in today's global society, Manuel Castells writes: 'who constructs collective identity, and for what, largely determines the symbolic content of this identity, and its meaning for those identifying with it or placing themselves outside of it' (Castells 1997: 7). For these reasons, there is no mystery about the very close connection between historical syllabi and the needs of the modern nation state. On the other hand, the sense of identity is a powerful historical force in its own right, because our self-definitions shape our behaviour at very deep levels¹². A clear sense of identity can tell us who is friend and who is foe. Where similar identities are shared by many people they shape collective behaviour, which is why collective identities can be such potent historical and political forces. They map the fault lines across which conflict is most likely to occur, and the zones of safety within which cooperation is more likely.

Less often stressed is the fact that our identities are always multiple. Conventionally (at least in the English-speaking world), historians learn and teach about identity within a conceptual landscape dominated by issues of nationality, ethnicity, and language. These are important identities in the modern world, but, as historians are uncomfortably aware, the conceptual frames of nationalist historiographies have excluded many other identities. By viewing the past through multiple frames, macrohistory can help us see some of these other identities more clearly, because each time-frame brings new identities into focus. The next section suggests how teachers of macrohistory may be able to help students explore different types of identities, on seven different time scales.

1. The scales of microhistory: the individual and particular. The microhistorical scales are particularly good at reminding us of our identities as individuals, each with our own eccentricities, whose lives are shaped not just by large cultural forces, but also by accidents, bad decisions, and unpredictable twists and turns of many

kinds. On this scale, what comes into focus is the contingent and personal nature of identity. But, as Carlo Ginzburg has shown so well, microhistory can also hint at large patterns of identity as well.

2. The conventional scales of modern historiography: ethnicity and nationality. The conventional scales of most modern historical research and teaching range from a few decades to a century or two. The identities that stand out most crisply on this scale are ethnic and national. We see ourselves as citizens or products of particular nation states or regional cultures or civilizations. In a world dominated politically by the nation state, it is right that we should explore how states shape our sense of identity. And it is no surprise that this is the scale with which modern educational authorities feel most comfortable. But national and ethnic identities also hide many other ways of understanding who we are, and in a world with nuclear weapons it is surely dangerous to focus too much on the identities that divide us into distinct groups. As Ross Poole has argued, ‘A national identity is always a form of difference and thus a form of exclusion’ (Poole 1999: 42).

3. The Global History Scale: 500 years: modernity, cultural zones, and ‘the west’. Within contemporary world history, the study of the last 500 years is emerging as a strategic sub-field in its own right. Sometimes work on this scale is referred to as ‘global history’ because this was the first era in which humans were aware of global interconnections (Mazlish and Bultjens 1993). Fernand Braudel and Immanuel Wallerstein have done much to legitimize historical study on this scale. What is less obvious is the thematic unity of global history. It is inevitably dominated by the modern, European, world system and the emergence of world-wide patterns of interaction, so it is the natural scale on which to study modernization and globalization. The identities that stand out most clearly on this scale are those that link or do not link individuals with modernity, or the west, and it is these identities that provide the fundamental dichotomies of modernization theory: tradition and modernity. It is no surprise that in contemporary global

history, the problem that stands out most clearly is the issue of Europe's role in the rise of modernity¹³.

4. The World History Scale: 5,000 years: civilizations. The 5,000 year time-scale dominates most modern world history textbooks. It brings into sharp focus the role of literate, agrarian civilizations, a type of human community that appeared for the first time about 5,000 years ago. On this scale, questions of identity turn largely on what it means to be civilized, and on issues of progress. The distinctive features of particular agrarian civilizations also stand out. Prehistory is often blurred on this scale; and communities not based on agriculture, not organized within states, and without literacy can fall away to the margins. Their identities can all too easily seem irrelevant or, at best, secondary.

5. The Human History Scale: 100,000–4 million years: human beings as a species. This is the scale on which to explore the history of human beings as a unified species. Oddly, this scale has been somewhat marginal in modern world history. That is a shame because the identity that stands out on this scale is the identity of *being a human being*. This is the first scale on which issues of identity no longer divide one group of humans from other groups of humans. Instead, on this scale, the strategic questions concern what is distinctive about human beings as a whole. It is the scale on which to discuss the distinctive identity we share as human beings. This is also the scale which takes us across the border from world history into macrohistory.

6. The Planetary Scale: 4.6 billion years: our place in the biosphere. This is the scale on which to explore the human relationship with the environment and the biosphere. Like the first satellite images of the Earth, which made such an impact in the 1960s, this scale highlights the integration of our identity as humans within the larger identity of living organisms. It highlights the unity of what James Lovelock has called 'Gaia', the large interrelated system of all living things that has shaped the surface of the Earth for almost four billion years¹⁴. At a more practical level, this is a strategic scale on which to study issues of the human

impact on the biosphere because on this scale we can explore how the human impact compares with other major impacts, such as those of asteroids or other new types of organisms.

7. The Big History Scale: 13 billion years: a sense of totality. The most striking aspect of this scale is that it offers a sense of completeness. Only on these vast scales can we seriously explore the relationship between the personal, the human and the universal. So, on this scale, we can help students understand how they, as individuals, fit into the larger scheme of things, according to modern scientific thinking. This scale can be humbling, but it can also induce a certain realism about the place of human beings in the Universe, and about the nature of human history. As Mark Twain wrote, 'If the Eiffel Tower were now representing the world's age, the skin of paint on the pinnacle-knob at its summit would represent man's share of that age; and anybody would perceive that that skin was what the tower was built for. I reckon they would, I dunno'¹⁵.

I hope the payoff is clear. By looking at issues of identity through many different time-frames, we can convey a sense of both the richness and the coherence of the many different identities that shape us all. Doing this ought to be a powerful antidote to the narrower and more rigid sense of identity that is still taught overtly or covertly in many modern history syllabi. And what is true of issues of identity is true of our understanding of the past in general. Taught well, macrohistory ought to be able to convey a sense that many different historical themes can look quite different when seen on different scales. But it can also convey the sense that, beneath this bewildering complexity, there may be an underlying coherence to the past. The past is complex; but it is not meaningless.

MACROHISTORY AS A RESEARCH FIELD

What macrohistory might look like as a research field is harder to pin down. But not quite impossible. As Fred Spier has pointed out, there already exists a small body of scholarship in macrohistory. Spier has compiled a bibliography of works that fit the definition of macrohistory or big history (whether or not their authors were

aware of it), and I include a modified version of this at the end of this article. Spier argues that existing works on big history fall into three main groups, which we might loosely characterize as historical, cosmological and geological.

1. Works on **'Human history within a bigger frame'**, written by scholars from the social sciences – the work of Alfred Crosby might fit in here, alongside Spier's pioneering attempt to theorize big history;

2. **'Cosmic history including human history'** – Spier cites as examples works by Erich Jantsch, Eric Chaisson and Armand Delsemme;

3. **'Earth history including human history within a bigger frame'** – Spier cites as an example, work by the late Preston Cloud (private communication, November 2001).

The corpus is not large (though it is embedded in a vast literature of more specialized works in each of these fields). But it suggests some broad generalizations about macrohistory as a research field. Here, I will focus on what macrohistory may look like for historians, rather than for geologists or biologists or astronomers.

I have already suggested that the main agenda of macrohistory will probably be 'the play of scales'. Macrohistory will explore the insights and perspectives that can be attained by learning to move easily across multiple chronological scales. Context, context, context. For historians, I suspect this will mean, at first, that macrohistory will seem like a series of booty raids into neighbouring disciplines. If they succeed, those who make these raids will return with new insights, methods, questions and even paradigms that may have a lot to offer historians working on more familiar scales. And there is a lot of conceptual and methodological loot out there for historians willing to do the work and take the risks of research in a field that has, as yet, no clear status and few guidelines.

As for methodology, it is clear that macrohistorical scholarship will not be based primarily on archival research. But this does *not* mean that it will not generate serious historical scholarship. The appropriate model to bear in mind, I think, is historical sociology or the philosophy of history. Macrohistorical research done by historians will consist, mainly, of work that tries to integrate the

insights of researchers in many different disciplines, including history. But its large-scale hypotheses and the variety of approaches to the past it adopts should offer valuable conceptual and methodological raw materials for those engaged in more conventional kinds of research. For the most part, macrohistorical research will be synoptic rather than archival. But there is no need to exaggerate this difference. Once the possibilities of macrohistory are more widely appreciated, I would expect that historians engaged in traditional archival research may find that at least some of the problems they are tackling require occasional forays into macrohistory.

A good illustration of how this may work is Alfred Crosby's *Ecological Imperialism* (Crosby 1986, and see also Crosby 1972). Crosby's swashbuckling style is itself suggestive of a booty raid. This is a book with a clear thematic focus on specific aspects of modern ecological history. It arose out of sharply focused research on aspects of what Crosby has called 'the Columbian exchange'. But, in order to appreciate the full implications of these global ecological exchanges, the myriad ways in which humans and the domesticates surrounding them have spread and mingled throughout the world in recent centuries, Crosby carries us back more than 200 million years to geological time scales. On these scales, continental plates ferried whole biota from region to region, so that they engaged in migrations and minglings similar to those that modern humans achieve using human communications technologies. What the reader gains by moving up and down the time-scales in this way is a vivid understanding of the ecological significance of modern human migrations, and of the ways in which human history repeats, but also diverges from, older patterns of symbiosis and competition. Crosby helps us see surprising similarities, but equally important differences between human history and geological history. Above all, by contrasting the leisurely time-scales of plate tectonics with the more hectic pace of human history, he illustrates the astonishing acceleration in ancient processes caused by our own species of animal. By moving from the million year time-scales of plate tectonics to a human scale of

decades or centuries, Crosby helps us see how human history is embedded within the larger history of the biosphere, and that can help us more easily to distinguish those aspects of human history that are really unique.

How much conceptual or methodological booty is really out there? Historians who attempt the odd macrohistorical raid into neighbouring disciplines will find there is a vast amount of research done outside the conventional time-frames of modern historiography, by researchers in other disciplines, that nevertheless has a powerful bearing on what historians do.

To illustrate some of these possibilities, I will focus on a complex of questions about the uniqueness of our species and of human history. How different are human beings from other animals? Answering this question is not just a matter for philosophers or historiographers. It is vital for research historians, because the more clearly we can define what is distinctive about our sort of animal, the more clearly we can define the domain of scholarship that historians are engaged in. Clear and rigorous answers to questions about the extent and nature of human exceptionalism should help historians clarify the discipline's underlying questions and research agendas, and the way its rules of change differ from those of other historical fields, including evolutionary biology. These are questions that can best be approached on the scales of macrohistory because only on these scales can we compare and contrast human history with *other* histories.

I will discuss the issue of human uniqueness at three strategic time-scales; 1) the 'human scale', of 200,000 to 4 million years; 2) the 'Gaian' scale of planetary history; and 3) the cosmological scale. At each scale, I will argue that there is a payoff for research historians working at more familiar time scales¹⁶.

1. The Human Scale

The human scale, of perhaps 100,000 to 10 million years, is the smallest scale on which we can focus clearly on the distinctiveness of human history, because it is the smallest scale on which we can grasp human

history as a whole. It is also the smallest scale on which we can compare human history with other, analogous histories. It is good comparative methodology to understand a phenomenon by comparing it with other phenomena that are similar but not identical. So what should we compare human history with? Presumably, with the histories of other, related species. Are there fundamental differences between the histories of humans and other, closely related species? Of course there are. But what exactly do these differences consist in? Why has the history of humans been so radically different from that of chimps? Or, to take an even closer comparison, with that of Neanderthals. Neanderthals probably had larger brains than us, and it was long assumed that they belonged to the same species as us, though recent studies, using remnant DNA from Neanderthal fossils, suggest that the human and Neanderthal lines diverged perhaps as much as 700,000–550,000 years ago. But, while our closest relatives went extinct as recently as 30,000 years ago, our own species has flourished to become, by any standards, the dominant large animal on Earth¹⁷.

Why have the histories of these closely related species been so different? The clearest single finding is that humans have displayed exceptional ecological versatility. Unlike other animals, including other hominids, they have learnt to survive in an astonishing range of different environments across the entire world; and, eventually, they have begun manipulating environments to create entirely artificial niches. What is the source of this astonishing ecological virtuosity? Here is a clear research agenda for those who study human history. One plausible line of argument is that the critical distinction is associated with language. The precise, but open-ended languages of modern humans enabled them to adapt to their environments not just as individuals, but as a species, because it meant that the learning of each individual could be shared with others, and accumulated over time. So the species, as a whole, could build up an accumulating stock of knowledge. In this way, human language, and the ‘collective learning’ that it made possible, introduced entirely new mechanisms of change that were faster and in many more ways more flexible than the principles of natural selection that had dominated processes of change in the non-human world. If this line of argument is correct, the process of

‘collective learning’ counts as a fundamental dynamic force in human history and accounts for the distinctive emergent properties of human history. So exploring how collective learning worked during the 200–100,000 years during which humans have existed should be a central concern of the history discipline. I will not try to take this argument any further, but perhaps this is enough to hint at some of the ways in which the human scale can illuminate the research agendas of modern historical scholarship.

This is also the best scale on which to explore the complex relationship between human nature and human culture as a way of better understanding issues such as aggression, territoriality, and sexuality. Here, we are at the border between the Darwinian rules and those of human history. So this is the scale on which historians have to engage seriously with the questions, the models and the conclusions of biologists, evolutionary psychologists, and palaeontologists. Operating at smaller scales, it is possible to ignore such debates, but on the human scale it is not. Evolutionary psychology, like sociobiology, is distrusted by many historians, because writers in these fields have often drawn too easy a line between genes and culture. I share this distrust. But it is a mistake to ignore the questions being debated in these fields or to leave these debates exclusively to evolutionary biologists. These debates matter to historians because they affect how we deal with some central historical problems, from warfare to gender. They can also suggest ways of describing what is distinctive about the rules of change that operate within human history. And this means they offer ways of defining human history as a distinctive field of scientific scholarship. So it is important that historians engage seriously in debates about these issues. But to do so, they will probably have to engage in some form of macrohistory.

The human scale is also the appropriate scale on which to explore many large historiographical questions about the general shape of human history. Is there progress? In a famous article published in the 1970s, Marshall Sahlins argued that Stone Age societies were, in important senses, ‘the original affluent

societies'¹⁸. They had more leisure time and ate as well as the affluent consumers of modernity. One does not have to accept Sahlin's argument in its entirety to understand that this is a powerful way of raising fundamental questions about the directionality of human history.

Meanwhile, modern discussions about the general shape of human history have been dominated not by historians but by specialists in neighbouring disciplines such as palaeontology and biology. Recently, a biologist, Jared Diamond, has shown what powerful historical questions the human scale can bring into focus. Not all historians will agree with the arguments of a book like *Guns, Germs and Steel*, but few can doubt that it has raised profound questions about the nature of human history. Is it true that the domestication of large animals counts as one of the key differences between the histories of Afro-Eurasia, the Americas, and Australasia? Is it true that the east-west axis of Eurasia has encouraged technological diffusion, while the north-south axis of the Americas inhibited it? Such questions can only be seen and debated on the scale of 100,000 years. Yet they have implications for historians working on problems on much smaller scales, from the nature of the Eurasian epidemiological impact on the Americas and Australasia to the role of Eurasian societies in the creation of the modern world. In a similar but less well known work, the Australian palaeontologist Tim Flannery has explored the ecological impact of early humans in the virgin lands of Australia, New Zealand, and Papua New Guinea¹⁹.

It is time for historians to join the palaeontologists and biologists who currently dominate serious discussion on these scales.

2. The Planetary Scale

On the planetary scale, of 4.5 billion years, we can begin asking questions about the larger significance of human history. Is human history merely a repetition of phenomena that have occurred many times in the history of life on Earth? On what scales will human history be visible? Does human history count as a significant chapter in the history of the planet and the

biosphere? Such questions may seem abstract at first sight, but they offer powerful ways of helping us understand what is distinctive about the subject matter of human history.

Discussions of the human impact on biodiversity suggest some striking answers to these questions. By multiplying so rapidly and using so much energy, humans have deprived other species of energy, resources, and space. Currently, it seems likely that humans are using or diverting to their own use anything from 25 % to 40 % of the energy that comes into the land-based parts of the biosphere from photosynthesis²⁰. No wonder that the multiplication of humans has been associated with a significant dwindling of biodiversity, even though some species, such as rats, sheep, and cows, have flourished as members of the human ecological team. Rates of extinction can be measured, roughly, and they provide a scale on which we can estimate their significance, for palaeontologists have measured rates of extinction over much of the last one billion years, at least since the appearance of the first multi-celled organisms just before the Cambrian era. Here are some figures. Currently, c. 1,096 of 4,629 mammal species (24 %) are thought to be 'threatened'; 1,107 of 9,627 bird species (11 %); 253 of 6900 reptile species (4 %); 124 of 4,522 amphibian species (3 %); 734 of 25,000 fish species (3 %); 25,971 of 270,000 higher plant species (10 %)²¹. And the pace of extinctions is, if anything, accelerating, so we can expect a lot more in the near future. If palaeontologists visit this planet in one billion years time and try to decipher the history of the planet using the tools of contemporary human palaeontologists, they will identify a major extinction event associated with the flourishing of our species. And they will be able to compare it with five or six other events of similar magnitude that occurred during the previous billion years. What this means is that the impact of human beings will be visible on a scale of at least a billion years. That makes human history a phenomenon of planetary significance.

Another question that can usefully be explored on these scales concerns the nature of progress on evolutionary scales. Is human

history, as many once believed, the pinnacle of evolutionary development on Earth? Or does it perhaps represent a new level of complexity, the culmination of evolutionary processes that began at the very beginning of the Earth's history? Such questions have been debated vigorously by biologists, and historians have much to learn from these debates. The late Stephen J. Gould argued forcefully that there is no direction to evolution: evolutionary processes do not tend towards greater levels of complexity even if, occasionally, they can throw up more complex entities (such as the human brain). On the other hand, John Maynard Smith and E. Szathmáry have argued that there is a clear directionality to evolutionary processes, and that human history represents a new level of complexity within the biosphere²². Whichever side one takes in these debates, it is clear that they have much to tell us about the wider significance of human history.

The work of James Lovelock illustrates a rather different way of understanding how human history fits into the wider history of the biosphere. Lovelock has argued since the 1970s that there is an important sense in which the entire biosphere functions as a single, complex system with its own internal checks and balances. Indeed, he has stressed the extent to which the entire system, through complex feedback mechanisms, seems to have regulated conditions at the surface of the Earth to maintain environments supportive of life. There is no need here to debate how true the 'Gaia' thesis is. More important is the fact that it can help us think about the larger significance of human history. Is human history a quite novel phenomenon? Are humans disrupting the complex feedback mechanisms evolved over millions of years by Gaia? Or has Gaia, perhaps, seen it all before?

3. The Cosmological Scale

It may seem that the cosmological scales are so huge that they can offer little to working historians, but this is not necessarily true. Even on the cosmological scales, there may be insights and models that can be of value at the time-scales of modern historiography.

One example concerns the nature of change itself. The theory of thermodynamics has much to offer historians as a framework within which to analyze the general nature of change, the better to understand what is distinctive about *historical* change. In studying change through time, we are studying the nature of ordered, patterned entities, from human societies to biospheres to galaxies, and we are studying how such patterns are created, how they evolve, and how they perish. One of the deepest insights of the theory of thermodynamics is that on any scale there is a price to be paid for constructing ordered entities. The second law of thermodynamics seems to tell us that all ordered entities disintegrate unless sustained by a constant flow of energy. The default state of the Universe seems to be a sort of static, like the snow on a broken TV screen. This makes the ubiquity of order and pattern, including the order and the patterns we see in human history, a deep mystery. How can there be so many ordered entities if the general tendency of the Universe is to become more and more featureless? In a universe in which disorder seems constantly to increase, maintaining order is a bit like trying to build a house in a hurricane, or climbing up the down escalator. And, as these images suggest, it would seem that the more complex the pattern, the greater the effort needed to build and sustain it, the more difficult it should be to construct, and the rarer it may be. This line of argument raises some deep questions about the role of energy flows in human history and the degree of complexity we are dealing with in discussing the history of human societies.

In a recent work that belongs within any emerging canon of macrohistory, Eric Chaisson has explored these issues at all levels, from those of the Universe to human society. He has argued that there appears to be a rough correlation between degrees of complexity and the density of energy flows through a particular system (Chaisson 2001) [see Table 1]. This conclusion is extremely significant for historians, as it suggests that human societies are some of the most complex entities in the Universe. If this is true, it is no wonder that historians have struggled to generate

large paradigms for their discipline. Biologists are already dealing with phenomena significantly more complex than those of physics and chemistry. As Martin Rees has written, ‘a star is simpler than an insect’²³. But human societies, it seems, are even more complex than the communities of other living organisms because of the rich and complex ways in which humans can interact with each other through language.

This line of argument has profound implications for the methodology of historical research, for it suggests that historians are juggling with phenomena at an extraordinarily high level of complexity. Perhaps this helps explain why history has yet to yield laws of change analogous to those of physics or even biology. Perhaps the methods of quantification so familiar in the sciences are inappropriate in a discipline dealing with phenomena of such complexity. But exactly how complex are modern human societies? The observation of planets orbiting nearby stars, and discoveries of living organisms in what were once thought to be impossibly harsh environments, suggest that life may be relatively common, at least where there exist stars and planets. But intelligent life forms that can share information as humans do? There are reasons to think that this may be an extraordinarily rare phenomenon. If intelligent, information-sharing creatures were common, it would be remarkable that we had not yet met them. On a visit to Los Alamos in 1950, the physicist Enrico Fermi put this argument in the form of a simple question: ‘But where are they?’ If we are within a few centuries of being able to travel to other stars, perhaps even quite fast, then it is extremely odd that somewhere amongst the millions of planets which must exist around the 100 billion stars of our galaxy, other life forms have not reached the same point long ago and moved well beyond it²⁴. Perhaps the networked intelligence we see in human history is extremely rare even on cosmological scales. If so, it may be that historians are handling phenomena which are extraordinarily rare because they are exceptionally complex.

These arguments may or may not work in detail. What is important here is to suggest that arguments on the cosmological scale have significance for historians working on more familiar scales. Here we have a powerful conceptual framework within which to explore the nature of human society and the construction of the large, highly structured entities that loom so large in human history, from the first cities to the global economy of today. For example, this approach suggests how vital it is to study the energy flows that sustained the increasingly complex networks of interaction that evolved in the course of human history²⁵ [see Table 2]. How are these networks paid for in ecological terms? Is there any correlation between energy flows and complexity on the scale of human history? And what is it about human beings that has made possible the construction of such exquisitely ordered entities?

Table 1

Some Estimated Free Energy Rate Densities
Based on Eric Chaisson, Cosmic Evolution, p. 139

<i>Generic Structure</i>	<i>Free Energy Rate Density: Energy flowing through a given mass in a given amount of time (ergs per second per gram)</i>
Galaxies (e.g. Milky Way)	0.5
Stars (e.g. Sun)	2
Planets (e.g. Earth)	75
Plants (biosphere)	900
Animals (e.g. Human body)	20,000
Brains (e.g. Human cranium)	150,000
Society (e.g. Modern human culture)	500,000

Table 2

Average Daily per capita Energy Consumption in Different Historical ErasBased on I. G. Simmons, *Changing the Face of the Earth*, p. 27

Units of energy = 1,000 cal's per day

	Food (incl. animal feed)	Home & Commerce	Ind. & Ag.	Transport	Total per cap.	World Pop. (Mills)	Total Energy Consumed (Mill. Kcal)
Techno. Soc. (Now)	10	66	91	63	230	6,000	1,380,000
Ind. Soc. (100 BP)	7	32	24	14	77	1,600	123,200
Adv. Agric. (1000 BP)	6	12	7	1	26	250	6,500
Early Agric. (5000 BP)	4	4	4		12	50	600
Hunters (10000 BP)	3	2			5	6	30
Proto- Humans	2				2	/	/

There is another side to the issue of complexity, which also leads us back to more familiar time-scales and agendas. On many different scales, complex patterns seem to form through the locking of complex entities into even larger and more complex patterns. Here is how this process is described in a book discussing how complexity seems to increase in the course of biological evolution:

One reason for discussing events as different as the origin of the genetic code, of sex, and of language in a single book is that we think that there are similarities between the different transitions, so that understanding one of them may shed light on the others. One feature in particular crops up repeatedly. Entities that were capable of independent replication before the transition could afterwards replicate only as part of a larger whole (Maynard Smith and Szathmáry 1999: 19).

As examples, the authors give the cooperation of genetic material within a cell, the linking up of genes in chromosomes, the joining of cells through symbiosis into eukaryota, the creation of multi-cellular organisms, the emergence of animal societies, and, finally, the emergence of human language and human society. But similar processes exist at other scales as well. As the early Universe cooled, there took place a process of linking up on many scales, from protons and electrons to the joining of atoms in molecules, to the creation of stars and galaxies.

These analogies suggest that, within the conventional terrain of history, there may be a lot to be said for focusing on the way in which communication systems of various kinds have linked small human groups into larger and larger networks, from hunter-gatherer bands to villages, to cities and states. At each level, new forms of complexity generate new forms of interdependence and new emergent properties, in human history as in physics, chemistry and biology. If there is a coherence to human history as a whole, it may be that this is where we are most likely to find it, in describing, and trying to explain, how human communities have linked up into larger and more complex networks, and how those

networks transformed the relationships of humans to their environment and to each other.

These arguments may have a significant bearing on one of the hot topics in world history today: the role of Europe in the rise of the modern world. If we try to identify the large networks of material and informational exchanges that have operated throughout human history, it is clear that, for many thousands of years, there have existed a number of quite distinct networks. As Jared Diamond has emphasized, human history was played out in several quite distinct arenas, in Afro-Eurasia, the Americas, Australia, and the Pacific. The Afro-Eurasian networks were the most varied, the largest, and the oldest, so it may be no accident that commercial and informational (and even ecological and epidemiological) synergies were greatest here. Viewed more closely, though, it is also clear that these synergies were more potent in some regions of Afro-Eurasia than in others. Because of its central position, Mesopotamia was a natural recipient of information and goods from many different regions of Afro-Eurasia, and it is surely no accident that it plays a critical role in both the agricultural and urban revolutions, or that the Islamic world lay at the hub of trans-Afro-Eurasian exchanges for almost a thousand years. Then, from 1500, the geography of exchange networks was transformed with the coming together of worlds that had once been quite separate. The linking of all parts of the world after 1500 CE created an entirely new, and now global, geography of exchange networks. And in this new geography, the crucial hub region was no longer Mesopotamia, but the Atlantic seaboard. Not only was the scale of exchanges now much greater than ever before, but there existed a new hub region. And many arguments about the rise of modernity turn on the high density of the informational and commercial flows that passed through western Europe after 1500 CE²⁶.

Again, the point is not to insist on the correctness of such arguments, so much as on the value of pursuing the questions they

raise. I hope these illustrations are enough to establish the general point: that historians working within conventional time-frames have much to gain from the insights, the questions, the models, and the ways of thinking to be found by exploring the many different time-scales of macrohistory. Macrohistory offers a wonderful way of suggesting new research agendas and new questions and insights about familiar historical processes.

WHAT CAN HISTORIANS OFFER MACROHISTORY?

Macrohistory has much to offer historians, as teachers and researchers. But historians also have much to offer macrohistory. If we really are on the verge of an accelerating unification of knowledge across many disciplines, then it follows that something like macrohistory is going to be done more and more. If historians do not do it, then others will. And scholars from other fields may well do macrohistory extremely well. But they will not necessarily do it to the taste of historians, as critics of the work of E. O. Wilson or Jared Diamond will surely agree. What historians have to offer on these scales is a skepticism about large schema that is bred by long experience of the difficulties and dangers of constructing such schemes within the conventional terrain of historical research and teaching. Aware of the extreme complexity and contingency of the phenomena they try to describe and explain, historians may be able to resist over-rapid attempts to generalize about long-term trends or driving forces in history and to inject into such discussions the sense of particularity and contingency that is characteristic of most professional historical research.

Macrohistory, as underdeveloped as it may seem at present, is very likely to prove a powerful shaper of historical thinking over the next decade or so. This will be true whether or not historians engage in the writing of macrohistory. But macrohistory will surely be a richer field if historians do choose to engage in it more seriously and start treating it as a legitimate part of historical scholarship and teaching.

APPENDIX: A MACROHISTORICAL TIMELINE

It may be easiest to get a sense of the different time scales of macrohistory with the help of a simple chronology that compresses 13 billion years into 13 years.

Table 3

The Chronology of the Universe Compressed into 13 Years

If the Universe had begun 13 years ago, then, at this moment ...	
The Earth would have existed for about	5 years
Large organisms with many cells, for	7 months
The asteroids that killed off the dinosaurs would have landed	3 weeks ago
Hominids would have existed for just	3 days
Our own species, <i>Homo Sapiens</i> , for	53 minutes
Agricultural societies would have existed for	5 minutes
The entire recorded history of civilization, for	3 minutes
Modern industrial societies, for	6 seconds

A SAMPLE BIBLIOGRAPHY IN MACROHISTORY

This bibliography (*together with the works marked with asterisks in the list of references*) lists works (mostly in English) that attempt to explore the past on scales larger than those of world history, or to see human history in its wider context, or to provide methodological frameworks for such attempts. This is a very loose definition, and there are doubtless many works that could be included under it. The authors come from many different fields, and the books vary greatly in approach and quality, so there is plenty of room for argument as to which do and which do not

really count as ‘big history’ books. This is a very preliminary bibliography, based on a list compiled by Fred Spier. It excludes books so technical that they cannot possibly be of use to historians or general readers. But it also excludes a vast number of books that operate on large scales and have much to offer historians, but do not quite fit the definition of macrohistory because they do not systematically move across multiple time-scales.

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NOTES

¹ This is a slightly revised and updated version of a paper first given at a panel on 'Macrohistory and Microhistory' organized by Gale Stokes at the annual conference of the American Historical Association, in January 2002; the other panelists were Carlo Ginzburg and Jacques Revel (whose book *Jeux d'échelles* provided the sub-title for the panel and for this paper [Revel 1995]).

² For example, in Collins 1990, or in Stokes 2001.

³ See David Christian 1991, 2004; Spier 1996; and Hughes-Warrington, 2002. When I first used the label, 'big history', in the early 1990s, I felt it was simple and catchy; and it helped me avoid some clumsy circumlocutions. In retrospect, I fear the label was also grandiose, portentous, and somewhat pretentious. So I need to make it clear from the start that I use the phrase with some hesitation. I continue to use it because it has acquired some currency in the last ten years, and... I can't think of anything better!

⁴ Two of Ginzburg's best known works are *The Cheese and the Worms* (1980, 1992) and *Ecstasies* (1991).

⁵ For a brief discussion of possible objections to macrohistory, see Christian 2004: 8–11.

⁶ There have also been two panels on big history at two major American historical conferences: at the American Historical Conference in 2002 and at the conference of the Historical Society in 2004; for a list of works in the field, see the sample bibliography at the end of this article.

⁷ Panels on big history at the 2004 conference of the Historical Society included presentations by two astronomers who teach courses about the evolution of the universe, Eric Chaisson and Tom Gehrels.

⁸ Wilson 1998; see also McNeill 1998.

⁹ Braudel 1980: viii, from the 1969 Preface to a collection of his historiographical essays.

¹⁰ The ancient roots of macrohistory are discussed in Hughes-Warrington 2002.

¹¹ Leopold Von Ranke, cited in Marwick 1970: 38. The profound Eurocentrism of Ranke's 'Universal History' is less important in this context than the fact that he took the project seriously. See Hughes-Warrington 2000: 260.

¹² For some recent discussions of the role of identity in a globalizing world, see Castells 1997: 6–7, and the fuller discussion in Poole 1999, particularly Ch. 2, 'National and Other Identities'.

¹³ See, for example, the recent discussion in Pomeranz 2000.

¹⁴ On the 'Gaia' hypothesis, see Lovelock 1979, 1987, 1988, and 1991.

¹⁵ Mark Twain, 'The Damned Human Race', cited in Margulis Sagan 1987: 194.

¹⁶ I have explored these issues in Christian 2003.

¹⁷ In France, there is haunting evidence that Neanderthal communities survived as late as 30,000 years ago in south-west Europe, and may even have tried to borrow some of the new technologies of their neighbours. But they had little success with it. It is just possible that a similar story was played out at about the same time at the eastern end of the Eurasian land mass as well, as evidence has emerged that other hominid populations may have survived there as late as Neanderthals, vanishing perhaps as late as 50,000 or even 27,000 years ago (Klein 1999: 395, on the possible survival of hominids distinct from modern humans in Java as late as 53–27,000 BP, and 477 ff on the survival of Neanderthals in western Europe to perhaps 30,000 BP).

¹⁸ Sahlins 1972: 1–39.

¹⁹ Diamond 1998; Diamond's earlier book (1991) on human evolution is also full of valuable insights and questions for macrohistorians; see also Flannery 1995, 2001.

²⁰ Simmons 1996: 361, adapted from Diamond 1987: 479–480; and see the discussion in Leakey and Lewin 1995.

²¹ *World Resources* 2000: 246, 248.

²² Gould 1996; see also the marvellous discussion of directionality in history in Gould 1989; Maynard Smith and Szathmáry 1999.

²³ Rees 1999: 46.

²⁴ Prantzos 2000: 162–169; as Prantzos points out (164), Fermi's question had already been raised by Fontenelle in the eighteenth century.

²⁵ Questions about the role of energy in human history have been explored by anthropologists such as Leslie White and archaeologists such as V. G. Childe. Environmental historians have also engaged with them, but such approaches remain marginal within the history discipline as a whole, with the striking exception of Smil 1994. There is a brief discussion of such work in Johnson and Earle 2000: 4; see also Simmons 1996, 1993.

²⁶ Similar arguments are discussed in Sherratt 1995.

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