

### LONG ABSTRACT

The writing of "history" is itself a historical practice, situated in the development of recent urban societies and related to their changing circumstances. The Western conception of history is inseparable from the processes which gave rise to European nation-states, and their global involvement in the last five centuries of the second millennium CE. The future development of such disciplines within the educational institutions of contemporary societies is constrained both by their inherited organisational frameworks and by their perceived role in providing skills of relevance to the contemporary world. Nevertheless the degree of intellectual autonomy traditionally afforded to academic institutions provides the opportunity to respond creatively to new sources of knowledge about the past, and the improved degree of understanding which it allows.

Certain features of the traditional academic division of labour must be noted. One is the fundamental separation of "time" from "space" in the Organisation of academic inquiry: the divorce of "history" from "geography" - a distinction unfamiliar to Herodotus. When the scope of historical inquiry was principally limited to individual states and their immediate neighbours, this had some logic; but as the scope of inquiry has become global in scale, this distinction has less relevance. The second, and closely related, feature is the institutional separation of synchronic from diachronic disciplines, and the methodological contrast which still characterises this division, however much it has been eroded in recent years: the emphasis on narrative sequence *versus* tactical comparison. Since these approaches are arguably complementary (and closely related in practice), their *de facto* separation into "historical" and "social science" disciplines is of diminishing relevance; and it has a deleterious effect in dividing theoretical model-building from practical interpretation - a division which is as inhibiting to disciplines like economics as it is to history. These boundaries are increasingly eroded in practice, as can be seen in the expansion of the subject-matter of history itself: from a concentration on affairs of state to areas of life formerly left to amateur antiquarianism. The scope of historical inquiry within the Western paradigm has consistently expanded over the past century, with the development of economic, social and cultural history - a process within which the *Annales* school has played a prominent role. The current shift of emphasis in the "social" sciences, from "society" to "culture" (and hence to relations with subjects hitherto considered as humanities and "fine arts" disciplines, which have themselves experienced a comparable broadening of subject-matter from elite to popular culture), is symptomatic of this broadening of scope, from a largely textual to a visual emphasis, and a wider notion of sensual experience. Some of the most lively areas of current interest occur at the boundaries of these traditional divisions: the study of consumption and its relation to economic growth and social change is a good example. A final feature is the more assertive stance of biology and the natural sciences in general, in offering (often reductive) explanations of historical phenomena. This reflects the shifting balance of academic prestige, from "arts" to "science" subjects.

All of these developments offer a challenging opportunity to a discipline whose traditional goal has been to offer a convincing narrative account of the human past, and which is now invited to provide a more comprehensive vision which can appeal to humankind in general, rather than simply to local segments of the world's population. It is my contention that archaeology is an essential component of this enterprise, and that it forms a crucial element in the realignment of approaches that it requires. Archaeology is of relevance in two particular respects: both methodologically, in how (at its best) these complementary elements can be mobilised and integrated within a comprehensive approach to historical reconstruction and explanation; and as one component of a nested series of understandings, beginning with the emergence of humanity itself from its biological origins and moving in successively more complex sets of relationships to the realities of the contemporary world.

This is an ambitious task, which can be no more than caricatured in a short account. If it casts the archaeologist in the role of hero, it must also be recognised that many if not most practitioners of the craft are as wedded as their historical colleagues to local perspectives and the particularities of local problems. Nevertheless it is motivated by a belief that the comprehensiveness of the archaeological vision, spanning as it does either 99% or 99.9% of the human past (depending on one's definition of humanity), must be a principal component in the construction of a "Universal History".

The initial chapters of the "story of humankind", from its African origins to the beginnings of farming at the onset of the present interglacial phase some 10,000 years ago, are episodes with which every historian should be familiar; but time is too short to tell them on this occasion (in the spirit of the paragraph entitled "New Readers Start Here" in a serial-story); more relevant is the perspective which this starting-point brings to the subsequent chapters, and the theoretical expectations to which it gives rise. Clearly, any book which encompasses both *Homo erectus* and *homo economicus* is a particular kind of narrative, which leaves plenty of scope for other genres with a finer focus or a more thematic plot. It runs the risk of being simply a touristic exercise, like those histories of art which begin with a brief look at French Palaeolithic cave-paintings, before rapidly moving on to the invention of perspective. Many world histories can be so caricatured, though (as ever) the work of W.H. McNeill distinguishes itself, by its active engagement with the archaeological evidence for earlier periods. Most examples of this type of history have a characteristic inverse relationship between the length of the periods they consider and the amount of space devoted to discussing them: the shorter the time-span (as they approach the present day), the more words are devoted to them. Even corrected for the growing numbers of the human species and the increasing complexity of their relationships, such accounts show a logarithmic increase in the attention that they give to successively more recent periods. This is a direct reflection of the amount of academic effort devoted to them, and the relative sizes of academic departments specialising in particular periods of the human past. Such exercises usually do no more than mechanically aggregate the output of these different sectors of the history-producing industry. I want to ask a more fundamental question, based on a different apportionment of effort. What would a historical narrative look like if more recent periods were treated in no greater detail than their predecessors?

This is no abstract theoretical question, for there is now at least one example that can be attributed to this genre: Jared Diamond's *Guns, Germs and Steel*. It is characteristic of its time in that it is written by a practising (though admittedly polymathic) biologist, and brings a characteristically biological perspective to human affairs. Without offering a detailed critique of its contents, I would like to note what seems to me to be an important feature of writing on this scale, namely its ability to articulate the seemingly obvious. This is not intended as an insult: indeed, I hail it as the beginning of a methodological breakthrough. Detailed historical accounts (especially of areas unfamiliar to their principal readership) often begin with the "geographical setting"; but this is frequently no more than the provision of local colour or a description of the places in which the subsequent text is set. What Diamond does is to point out how the shapes of the continents, and their differing endowments as a result of their particular geological and biological histories, have determined important characteristics of the human events that have unfolded there. Such exercises were more common in the nineteenth century, when universal history and geography were less distinct and did not form professionalised disciplines; and it is in recapturing this scope, as a legitimate scale of inquiry, that Diamond takes the first step both towards re-integrating their separate insights, and in pioneering a distinctive discipline in its own right.

The implications of this approach are fundamental. When historical inquiry is focussed upon particular segments of the time/space continuum, the accepted structure of explanation will be on a commensurate scale - albeit with excursions to other places (of a similar size). Explanations will thus be framed within the limitations of the chosen units of analysis, and give weight to factors which are perceptible within its grid-size. Weber's account of the origins of capitalism are a good example (especially since they were made within an explicitly comparative framework, ranging far beyond the immediate area of interest). It is not essential that his answer was primarily an ideological one, since one could easily envision a similarly specific answer based on subsistence or technology - the Brussels sprout rather than the Protestant ethic, in the manner of Lynn White - but the nature of the "answer" is largely the outcome of the scale on which the problem is posed. The alternative is well exemplified in another recent book, Andre Gunder Frank's *ReOrient*, which resembles Jared Diamond's scale of analysis in finding an "answer" (to a rather differently-defined version of the same problem) in the structure of global economic relations. While both of these books have received appropriate critical scrutiny from the historical community - and it is symptomatic that both of them have aroused a flurry of interest even in the more traditional segments of that community - their importance here is in providing starting-points and end-points to a distinctive form of historical narrative and scale of understanding, which is central to any conception of Universal History - while not excluding the insights provided by comparative, thematic and locally-focussed studies. It is nevertheless the most obviously missing element in any coherent, comprehensive synthesis of the human experience; and moreover it raises its own theoretical problems, which (while different in scale) are not separate from issues like those of "culture and consumption" which are increasingly prominent in other forms of historical writing.

The components of this larger view are already evident from earlier discussion: the reintegration of time and space (" history " and " geography "); and the re-integration of cultural, social, economic and political factors in a single approach which respects

their constant interrelatedness, rather than artificially separating them into distinctive entities which are then treated in terms of "interactions". All of these must be simultaneously seen as operating on a variety of scales, from the global to the local, and without initially privileging any one of them as more fundamental than the others. It is in this respect, as well as in its provision of the essential information about the intervening millennia, that archaeology can contribute to the larger historical enterprise. The following account sets out what must be honestly describe as a personal vision of the nature of this larger process, by a Europe-based archaeologist with an omnivorous interest in historical problems on a global and millennial scale. Since labels are useful (if not taken too seriously), its perspective and 'assumptions can be summarised as representing a structural-interactionist view of the long-term development of the human species as a culture-bearing organism; and its principal message is that culture itself has developed in an "organic" way, which is susceptible to systematic description, analysis and comparison. hope to show that this perhaps alarming manifesto has its own coherence, both in theory and practice.

#### PRINCIPLES:

- Growth of human population
- Growth of exchange networks
- Unique conjunctions of circumstances, and nodal areas which transform those around them
- Axial routes
- Regional differentiation
- Dialectical interaction
- Uneven surface leads to asymmetric propagation (esp land v. sea transport costs)
- Growth of "added value" in core regions, and asymmetry between manufacturing (ideologically charged artifacts) and raw-material supplying regions
- Instability of this contrast (ie continuity of propagation)
- Organic propagation of urban networks
- Differentiation of higher-order metropolitan centres
- Shifts of routes with increasing bulk
- "Catastrophic" shifts of axial routes: changing centrality
- Interaction between centres (Mesopotamia/China, prefiguring aspects of Europe/Americas -Increasing scale of network and density of transactions
- Relative disembedding of entrepreneurial activity
- Technological change, investment and capital concentration

*..... all of these as relevant to 4th millennium Mesopotamia as to 18th century Europe; bu consistent growth in scale and emergent properties.*

**ILLUSTRATIONS: maps of the consistent growth of urban networks, 4000 BC to A 1600.**

2000 words

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cultural, social, economic and political factors in a single approach which respects their constant inter-relatedness, rather than artificially separating them into distinctive entities which are then treated in terms of "interactions". All of these must be simultaneously seen as operating on a variety of scales, from the global to the local, and without initially privileging any one of them as more fundamental than the others. It is in this respect, as well as in its provision of the essential information about the intervening millennia, that archaeology can contribute to the larger historical enterprise. The following account sets out what must be honestly described as a personal vision of the nature of this larger process, by a Europe based archaeologist with an omnivorous interest in historical problems on a global and millennial scale. Since labels are useful (if not taken too seriously), its perspective and assumptions can be summarised as representing a structural-interactionist view of the long-term development of the human species as a culture-bearing organism; and its principal message is that culture itself has developed in an "organic" way, which is susceptible to systematic description, analysis and comparison. I hope to show that this perhaps alarming manifesto has its own coherence, both in theory and practice.

That it is possible to outline a set of principles describing the regularities of human behaviour over this timescale and on a global canvas is due to the astonishing accumulation of archaeological observations over the last half-century. Only the cellular insularity of the various historical disciplines has managed to disguise what should be one of the most celebrated achievements of historical inquiry over this period. Even if the term "history" is limited to the study of urban societies generating a written record, that record extends back a dozen times the length of period which now separates us from the Renaissance; the story of modern - creatures indistinguishable from ourselves - extends some ten times back than the creation of the first written records, while the bifurcation point between the story of our own ancestors and that of our closest surviving relatives is a thousand times greater still. Archaeologists, whose discipline includes specialist students of all parts of this continuum, regard with puzzlement the institutional barriers which separate departments of "modern" from those of ancient" history: a border set at only two or three times the length of time which separates us from the European Renaissance. When we are now asked to contemplate " global ", as opposed to " national " history, an inflation of the spatial cope of our inquiries by a factor of some 2000 is contemplated (crudely calculated the ratio between the surface-area of the United Kingdom and that of the continental surface of the globe): a comparable inflation of temporal scope (again sing the Renaissance as a baseline) would take us back to a million years ago roughly the time at which human ancestors first expanded out of Africa. The suggestion that a global history of humanity should begin in the Stone Age seems unreasonable.

I propose to outline an interpretative framework that I have found useful in organising a coherent account of the global development of human cultures and societies in this long-term perspective. Since the occurrence of "historical" (ie textual) evidence is simply one additional source of information that can be used reconstructing these processes (one which is symptomatic of the growing complexity of city-centred societies), the model makes no distinction between prehistory" and "history", beyond recognising the increased scale of Organisation lied by the regular use of writing.

Many different types of societies were culturally linked and sometimes economically interdependent, and the appropriate methodologies for investigating them, whether textual or archaeological, are local problems of tactics rather than global ones of strategy: where possible, both should be deployed simultaneously. Nevertheless the breadth of approach (and material is) which characterises the archaeologist's attitude to pre-historical communities is one which may usefully be deployed in historical periods, and provides one possible way of providing structure to "Universal History". Since it is the very complexity and abundance of evidence which makes this project so able a task, the reductiveness and crudity of the prehistorian's grid becomes positive advantage in roughing-out a shape which can convey the broad outline of events. Although its perspective is in some sense a neutral one (in simply listing important phenomena in time and space, according to its own methodological criteria), its choice of subject-matter and interpretative stance are of course theory-laden and contemporary in their outlook - and indeed bear obvious similarities to various schools of interpretation which have their current centres of interest in later historical periods.

These congruencies with certain current trends in historical thinking are not accidental, and indeed form a pattern which extends beyond the historical and social-science disciplines into biology and even physics and cosmology, whose common characteristics are to some extent appropriately designated by the label "complexity theory" (mathematically closely related to "catastrophe theory" and "chaos theory"). Their characteristic is that they deal with the interactions of large numbers of similar entities, rather than a few large ones (as in Newton's gravitational model of the solar system), and that these complex networks of relationships give rise to emergent properties of self-organisation. (The emphasis is thus on the number of entities and the richness of their connections, rather than on any essentialist description of the entities themselves.) Such an approach complements, rather than replaces, the purely Darwinian view of selection as the major source of directional change; and it is one which applies equally to culture-bearing creatures as to biological organisms - so avoiding the dangers of "social Darwinism" which have so often attended any attempt to find a common framework for biological and cultural phenomena, which is at the heart of any description of the early development of humanity. This emphasis on interaction, and on emergent structures, is what underlies my description of this approach as "structural-interactionist".

Of course, such a meta-theory is itself not isolated from contemporary social trends (and nor is the renewed interest in Global History itself), and it is worth making this context explicit. One important factor is the breakdown of large entities (the USSR, the Cold War Balance, the Welfare State) which has made "deconstruction" such an appealing metaphor; another is the long-term (and certainly non-linear) shift in economic power from the Atlantic to the Pacific. These have reduced the credibility of stadial, evolutionary models (which imply that all countries are following broadly similar paths, like development theory) by comparison with structural models (which treat the allocation of the world's resources as a zero-sum game, as with dependency theory). This altered perception, with the degree of contextual relativism that it implies, has questioned the usefulness of a purely comparative ("case-study") approach, treating analytical categories as real and stable; instead it has suggested the relevance of the organic view, which rejects a purely analytical approach of dividing the subject-matter into thematic or time/space entities, and tries to formulate a

description in terms of continuity, with emergent properties of scale. In practical terms, this implies that it is less useful to look for the beginnings of "capitalism" (or "industry", or whatever) than to recognise a consistent - though again not unilinear - process of disembedding of economic activity from its social matrix and a correlative increase in the scale of production and exchange; we should refuse to erect strict divisions and revolutionary transitions. It is with this sense of continuity of process that a start in the Stone Age may be seen as logical and appropriate.

The broad outline of the story, then, is something like this. Modern humanity solved, largely in Africa, for some two million years before the appearance of creatures just like ourselves, around two hundred thousand years ago. By twenty sand years ago, human groups living by hunting and collecting existed in all world's continents except Antarctica, and some of them were creating the cave which is still appreciated today. By ten thousand years ago, when the last lacial episode drew to its close, the human population existed as a thin veneer over much of the Earth's surface, still sustained by plant-gathering, hunting, and fishing. In the ten thousand years of warmer climate that followed, human numbers grew a thousandfold: five-fold by 2000 BC, ten-fold by 1000 BC, fifty-fold by the n of the Christian Era, seventy-five-fold by AD 1000, 225-fold by AD 1800, a further 775-fold since. This instability in numbers had begun at least a lion years ago when meat became a significant proportion of hominid diet, and possible the first expansion out of Africa; but the sustained millennium on millennium growth occurred in the last ten thousand years, with increasing sedentism, and especially in the three nuclear areas of western Asia, China and middle America where farming began. This new pattern of concentrated growth was associated with an increasing elaboration of the artificial environment, in the form of a permanent construction of houses and meeting-places, and a continuing accumulation of material possessions including the regular importation of exotic materials. It was accompanied by new forms of social arrangements and ideological sanctions, which permitted communities numbered in the hundreds and thousands. It was also inherently expansive, spreading outwards from the initiating areas both demographic movement and cultural imitation of its lifestyle and propensities; and it was continuously innovative in terms of technological changes and ramifying networks of exchange. The pace of change was continually increasing.

This dynamic picture may be surprising to the (text-based) historian, since historical accounts - of whatever period - typically begin from a static baseline, when an unchanging world was awoken from its slumbers by whatever events the historian wishes to chronicle. This is a literary fiction, even if one shared with economists, whose works contains more fiction than most. The truth is that the times have always been a-changing, and the Neolithic looks slow to us only in the same way that we appear slow to our children: the previous generation always does. Perhaps the most important point to recognise in constructing a Universal History, therefore, is that each episode of its unfolding is nested within a previous one - on a slower timescale, but itself representing a dramatic acceleration over its predecessor. These episodes form an infinite regression, back through history to prehistory, from prehistory to biological evolution (and within this from multicellular to single-celled organisms, and even to processes of cosmological change back to the Big Bang). There is a sense in which Herbert Spencer's 1860s vision - for all its shortcomings - was essentially

correct. The demonstration lies in the historians's most fundamental tool, chronology, and the new precision in estimating early events; for the key turning-points in the history of the Universe, Life and Human Existence (as they are recognised by the specialist practitioners of the relevant disciplines) show the same pattern of continuous acceleration that is evident from the growth-curve of human population size over the last 10,000 years. The point is well made in Nigel Calder's brilliant book *Timescale: an atlas of the fourth dimension* (1984), in which he quotes (and puts to practical use in the Organisation of his book) an earlier aphorism of mine, that history on this scale "requires a logarithmic imagination, successively to encompass the massive scale of biological change in the Cenozoic, the hundred-thousand-year rhythms of the Pleistocene Ice Age, the ten thousand years of postglacial development, and the five thousand years of recorded history" (Sherratt 1980, *The Cambridge Encyclopaedia of archaeology*). It is this sense of processes occurring on different scales, and at different speeds, and yet organically related to one another, that Braudel sought to capture in his account of *The Mediterranean*; but it requires an even more sustained exercise of imaginative skills to pursue this approach consistently on a global and universal scale.

It is not, however, simply a matter of flexibility in organising narrative, and telling a dozen stories simultaneously, all developing at different rates - challenging as this would be to even the most accomplished composer of epic. For if it is conceded that successive episodes depend on their predecessors and develop from them in an organic way, then this affects the kinds of explanations that are offered at each point in the narrative - as I hinted above in alluding to Weber. The crucial point is that it is not any specific "breakthrough" (in technology, or Organisation, or human relationships, or ideology, or whatever) that is critical to understanding the emergence of new properties, but rather the basic size and interconnectedness of the system. The point is easily demonstrable mathematically, from a simple thought-experiment. If a scatter of buttons lying on the floor are successively threaded one to another, pair by pair and in a random order, there comes a point at which the buttons start to form successively larger clusters, and ultimately form a single network of interconnected threads; lifting any one of them will pull all the others from the floor. While any one of the later joining-episodes may appear to be the "magic move" which has created a whole new set of behavioural characteristics, it is in fact a mathematical property of the system itself that such critical phase-transitions should occur within it. This is why the structural-interactionist approach is sceptical of any explanation which appears to privilege a particular sector of human activity - whether material or ideological, ecological or organisational - at the expense of understanding the system as a whole. The most basic skill in historical narrative consists of maintaining a balance between abstraction and specificity, without imposing artificial categories on a seamless web of relationships. Since the strength of these relationships has an obvious correlation with geographical distance (and increasingly so the further back in time), geography is a fundamental component of their description; and a major task of Universal History must be to re-integrate the complementary insights of disciplines dealing with the respective properties of time and space.

Such a proposal may seem to reduce history to a skeleton, emptying it alike of interest and empathy. Quite the reverse is true: it is only the recognition of these lying structural properties that can free the narrative from determinism and essentialism. There is no role here for *a priori* categories such as "base" and

"superstructure"; no essentialist equation between a "people" and its achievements" - to take typical examples of the pathologies of Left and Right respectively. Treating what actually happens as a series of unique outcomes within spaces of the possible, we can recognise that even "human nature" (as evolutionary psychologists now tell us) was a historical accident within the regularities of biological evolution, and that rare conjunctions of conditions have precipitated unexpected forms of change. Universal history, at its best, can be as exciting as a good biography.

The pattern of relentless growth that characterises our own times has its immediate origins at the beginning of the Holocene (the interglacial in which we live), some thousand years ago. Climatically, the Holocene is like a dozen other such warm periods which preceded it, roughly every 100,000 years; but culturally it is unique, cause of its unceasing innovations. It is important to note that "human nature" including the propensity to truck and barter, and hence the existence of long-distance exchanges of such substances as attractive kinds of stone or shell - was long before this, and at least during the preceding glacial period. It could be argued (following Jane Jacobs, *The Economy of Cities*) that the desire to occupy particular locations that were propitiously situated for trade was one of the motivations for developing agriculture, in order to support communities in places where they could not be sustained simply by hunting and collecting. At any rate, it is not necessary to suppose that changes in subsistence necessarily preceded the ability to trade; the two grew together in a way that was mutually reinforcing. What is noteworthy, however, is that this synergy was only possible in a specific conjunction of circumstances: for western Asia one could cite (a) the fact that trade routes between contrasting sets of resources crossed generally arid areas with rivers and oases, (b) that large-seeded wild grasses occurred on nearby hills, (c) (for want of alternatives) these labour-demanding foods were already being used, and (d) that the grasses could be sown artificially in the oases. The outcome as an early form of cereal-farming, which altered demography and settlement, affected relationships between human populations and between humans and plants, and altered the whole nature of material culture (architecture, pots, stone tools) in a fundamental way, and which then spread outwards like a cultural explosion. My point is that the conjunction of circumstances was rare, but that the effects were nevertheless far-reaching and universal. The success of the formula was no accident; but its discovery arguably was.

An "explanation" of this event would appeal equally to calories and to structures of meaning, on a diversity of timescales. In terms of simple energetics, one could note the fact that symbiotic relationships between animals and plants have often led to their mutual success (though most previous examples have involved insects rather than vertebrates); in terms of mentalities it should be noted that the desired commodities were sea-shells and obsidian, important in display and visual communication of gender- and status-relationships, embedded in symbolic structures of the human mind which were only possible after the appearance of art in the Upper Palaeolithic: but these are technicalities, adduced here only to show that explanation cannot be reduced to a single dimension or timescale. A crucial part of the "explanation" for why farming began when and where it did must lie in geography: the unusual characteristics of western Asia on a complex late-glacial boundary at the conjunction of contrasting climatic zones, themselves contorted into an unusual configuration by the topography. This

explains both the complementarity of desirable resources within a set of distances traversable on foot, and the existence of large-seeded annual grasses which could be transferred between habitats by human intervention. It is a classic *conjoncture*.

Western Asia was just one of three such nuclear areas where such factors coincided, and which led to comparably explosive patterns of cultural and geographic expansion, each of which (a) transformed the surrounding areas, (b) led to further intensification (including urbanisation), and (c) ultimately interacted with each other - western and eastern Asia via the Silk Route two thousand years ago, Eurasia and the Americas via the Atlantic, some 500 years ago. These interlinkages (which amongst other things spread formerly local crops worldwide, wherever climatic conditions suited their cultivation) were preceded by lower and less direct forms of contact, which involved non-urban as well as urban populations. Innovations pioneered in the "nuclear" areas spread widely beyond them, in the form of technology and religious ideologies, which transformed even areas unaffected by agriculture: echoes of advanced practices like horse-harnessing reached the Arctic in the form of the dog-sled, essential for the colonisation of the icy northern regions by the Inuit (Eskimo); elements of Buddhism spread amongst the shamanic hunting populations of north-west Siberia.

The spread of farming and its associated patterns of ideology and material consumption provided a relatively dense layer of human population (by comparison with the late-glacial "veneer"), whose communities circulated a few commodities like attractive stones and shells) over long distances, and heavier ones (like livestock and agricultural surpluses) over very much more localised ones. The spread of farming was in most cases the result of temporary transactions, in which acquisition of crops and livestock resulted in no continuing set of relationships with the donor communities. It can therefore be modelled in much the same way as the spread of a disease, and the word "diffusion" (although much abused) is perhaps appropriate to this largely passive process. In contrast with this, the spread of urban networks was much more like a process of organic growth and incorporation, articulating local populations into successively wider sets of continuing relationships, and continuously transforming their consumption patterns, ideologies and ways of life. It linked their exchange-networks with wider patterns, reformatted their activities, altered the flow of commodities, and gave rise to regional specialisation and differentiation. Since this was the point at which writing was regularly employed to track these flows of goods and people, and such societies form part of the conventional subject-matter of "history", I shall devote the remainder of this account to this phase of later Holocene development, in the last six thousand years.

Cities (and "civilisations") appeared independently in each of the nuclear areas, some four thousand years or so after the beginning of farming. The genesis of urbanism can be described in much the same way as the genesis of farming; but it introduced new properties of the kind that modern historians have treated as typical of "world systems" - as opposed to those earlier events, also global in the scope of their effects, which merely resulted in demographic expansion or the movement of crops. Such phenomena of course continued to play their part in the development of world systems; but now as part of growing patterns of structural integration. It is in this context that the analogy of organismal growth becomes striking in its relevance.

The critical distinguishing feature of urban systems is their complexity and scale. The scale is most evident in the importance of the movement of bulk products (as opposed to earlier "preciosities"), and in the consequent commoditisation of such goods (reflected for instance in the appearance of standardised transport containers). Transport systems are therefore important, and often show technological improvement. Since water-transport is approximately ten times cheaper than overland transport, the genesis and growth of such systems is critically determined by the presence of navigable waters, such as broad rivers, lakes, or sheltered seas, and more generally by patterns of accessibility in many directions. These flows of goods are used to sustain privileged lifestyles in particular types of settlement (often with a hierarchical structure in several levels), where resources are preferentially consumed - both in the literal sense of daily supplies, and in the derived sense of accumulating in the form of elaborate architecture and art. Both writing and narrative pictorial representation appear for the first time in these contexts. The complexity is thus expressed both in the structure of human relationships and the differentiated flows of material goods between them. Again, an "explanation" of these developments would appeal to several timescales and related dimensions of activity, in which meaning and Materiality are intertwined. While much has been made in the past about the development of irrigation systems, these are best seen (as with farming itself) not objectives in themselves but as means to an end. An important point to make out the regional structure of early cities, as of all urban systems, is that they end on the import of non-local materials, paid for by their re-export in the form of manufactured goods (classically textiles) to which value has been added by the ing process. This "value" is both ideological as well as simply an expression of labour-time: it has to have an appeal in mobilising the desire to consume. Indeed, it is precisely in this increased volume of meaning-laden artifacts the characteristics of "civilisations" can be most clearly discerned: the constant association with textile-production is not fortuitous, since it is accompanied by the discovery of "nakedness" and appropriate ways of covering the human body in social interactions. This is part of a wider transformation of religious ideas, which are integrally associated with the altered meanings of material objects, and with forms of social differentiation and competition.

The regionally differentiated structure of urban systems, with sustaining-areas lying raw materials, is an important cause of the further accelerated pattern of growth which now becomes evident; for raw-material suppliers, in constant contact with manufacturing heartlands, have the motive to develop their own manufacturing skills and ideological base - opening up their own hinterlands and propagating the system further. While the opportunity to do so is always constrained, and the progression by no means inevitable, the historical record of civilisations and trade routes" (as admirably portrayed, for instance, in Colin McEvedy's series of Penguin Historical Atlases) does show a consistent pattern of contagious expansion. It is this with the consistencies of this process of organic growth that my final remarks will be concerned, since it is this which most clearly offers a structure upon which to erect a description of Universal History, in the conventionally "historic" portion of its total span.

These consistencies can be no more than briefly enumerated here, though I hope demonstrate them in cartographic form at the Oslo meeting. They are exemplified principally from the growth of the urban network in the western Old World. The first

point is the continuing increase in the total range and scale of the network, as new participating regions are added. Once set in motion, the area of an life consistently increased in size (although not in a simple concentric fashion). Partly because of geographical constraints, but partly (I suspect) from factors of competition, certain axial routes predominated as the principal arteries of contact, along which urban systems propagated - leaping over intervening areas of lower productivity to stimulate new nodal areas with their own local links. Following the transport-cost surface (most often corresponding to enclosed bodies of water like the Mediterranean) the system grew in preferred directions; but this unevenness resulted in discontinuities in the pattern of growth, as new routes short-circuited old ones and introduced a new topology of connections. The shift from a Gulf axis to a Mediterranean axis around 2000 BC is a good example replicated on a smaller scale by "switches" between alternative trans-European routes over the next two millennia. These ups and downs in local prosperity as a result of these relatively sudden shifts and restructurings have been seen by some evidence for a set of long waves or cycles; but it is more likely that the classic Kondratieff and other long cycles should be seen as resulting from the rapid succession of such phenomena as the system reaches near-global scale and coherence - in short, that it is impossible to treat time and space as separate components, and that history and geography are as necessary to one another from tenth century onwards as they are from the fourth or the tenth millennium BC.

The increase in scale which is evident from McEvedy's maps is not just one of extent but also one of volume and density of transactions. This is evident in the emergence of a new class of "metropolitan" cities in the first millennium BC (> 100K inhabitants), typically situated at nodal points and constrictions or break-of-bulk points within an intercontinental scale of traffic. From this point onwards topological development of the western Old World system began to be by its interaction with the eastern Old World one, prefiguring in slow motion the catastrophic shifts which would occur as a result of trans-Atlantic and oceanic linkage in the sixteenth century AD. Thus the Indian Ocean began to gain of the centrality which previously sustained the prosperity of the Mediterranean - symptomatically reflected in the shift from Rome to Byzantium. Since overland crossings were still necessary to go from one to the other (either by Gulf or the Red Sea), western Asia entered on an era of renewed prosperity. In the development of bulk routes around the Cape by the Portuguese and Dutch came then once again, transferring their former centrality to the cities of the Atlantic coastlands. These successive increases in scale, and hence in the degree of centrality for those cities fortunate enough to find themselves at nodal points within a developing topology, permitted unprecedented concentrations of capital levels of investment, which went hand in hand both with technological innovation and the further disembedding of entrepreneurial activity which characterised modern capitalism and the Industrial Revolution.

If this account has a cartoon-like character, let us remember the original intention of the *cartons*, which was to provide a preliminary sketch of the disposition of the parts, before the detail was added to the eventually painted form. The artist's lay-off in this first sense of structure, and in the subsequent expression of the detail the choice of colours, textures and treatments which marked the final masterpiece. The last few paragraphs are a prehistorian's *cartons* of the panorama of documentary history, sketched in a manner to suit its position in a sequence of compositions which began - like Piero di Cosimo's great cycle - with the origins of humanity and the dawn of arts.

## NOTES

1. This prospect may be alarming in its institutional implications - since it involves inviting unlettered prehistorians to cross the *limes* which demarcates historical scholarship - and may arouse fears that the newcomers might outbreed the established citizens. Since the numbers are disproportionately small, there seems little danger that historians will be demographically swamped by their prehistoric brethren; yet the suspicion is well founded, for *foederati* are notoriously prone to sow dissent and on occasion to seize power - often with the connivance of dissatisfied minorities (like cultural historians concerned with issues such as consumption). Indeed, this analogy owes its force to the fact that the events to which it alludes are precisely mirrored in the academic division between text-based historians studying Roman or Byzantine politics, and archaeology-based prehistorians studying barbarian migrations. That cultural historians (in recognising the importance of the sensual appeal of material objects) have reinvented the principal methodology of the archaeologists should arouse suspicions that a major shift in the balance of power is about to take place: the barbarians are already within the gates. Well then; it is time to begin learning their language.

2. This is equally true, of course, of 18th century England - and probably of any other episode of intensification.