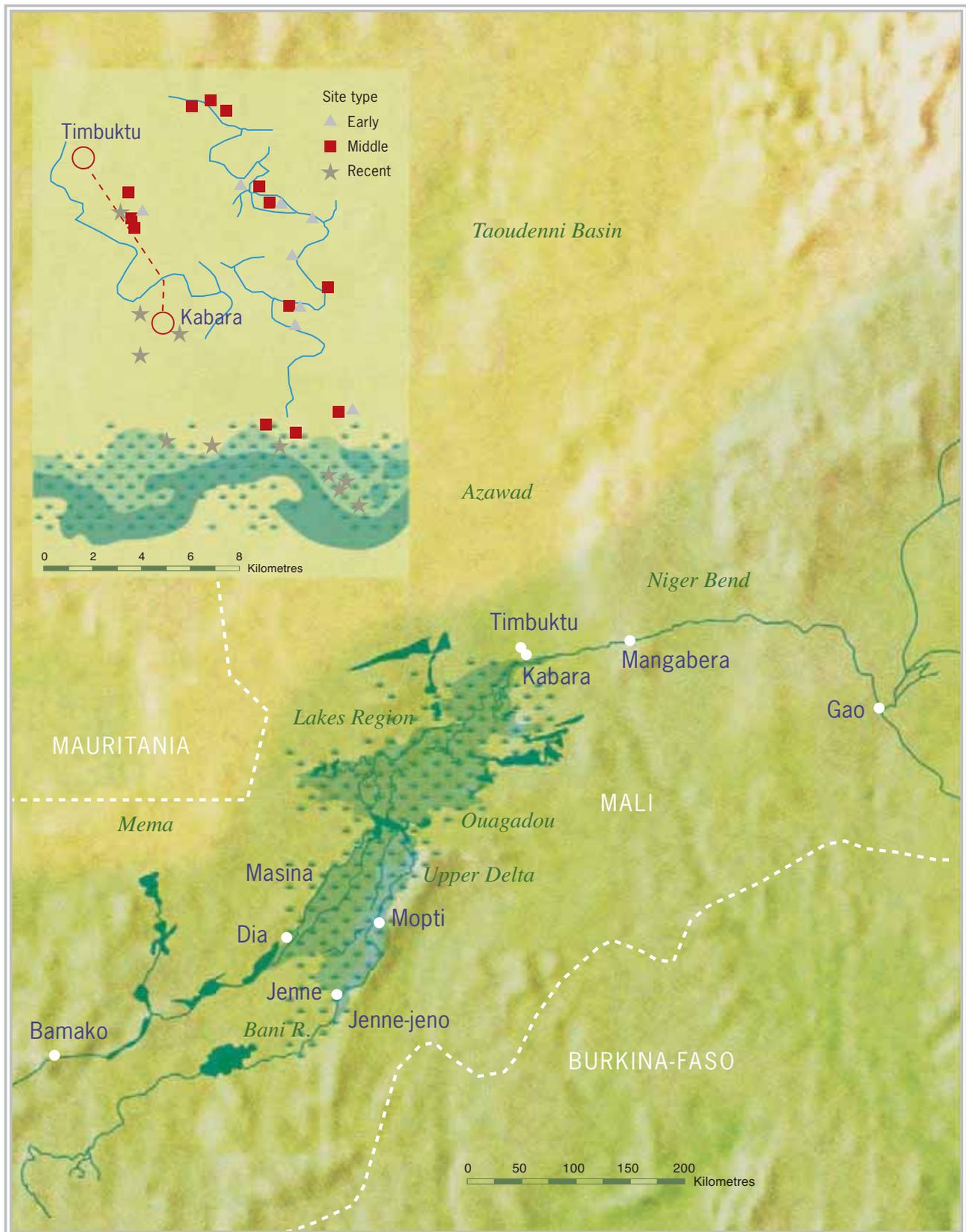
An aerial photograph of an ancient city, likely Timbuktu, showing a dense grid of buildings and streets. The image has a textured, aged appearance with a brownish, parchment-like background. The city is centered in the lower half of the frame, with a prominent road or canal running horizontally through it. The overall tone is historical and archaeological.

INTRODUCTION TO THE TIMBUKTU REGION

PART I



Before Timbuktu: cities of the Elder World

Roderick J McIntosh

The received foundation date of the early second millennium AD for historical Timbuktu now seems far too late. The archaeology of 'sister cities' elsewhere in the Middle Niger reveals an indigenous urbanism dating to the first millennium BC and there is no reason to think that the Niger Bend should have been excluded from this explosive, pervasive process. Excavations within today's Timbuktu have been few and inconclusive; survey within the immediate hinterland, however, reveals an ecology vastly different from that of today – and a quite unexpected settlement history. Timbuktu, the trans-Saharan trade terminus, appears to be a vestigial and much transformed remnant of an earlier, a very different 'Elder World'.

'A very different Elder World'...Alfred Tennyson, the Cambridge first-year, would surely have been dumbstruck by his own prescience when he penned the famous lines of his winning entry to the 1829 Chancellor's Competition for English Verse:¹

Then I raised my voice and cried, 'Wide Afric, doth thy Sun
Lighten, thy hills enfold a city as fair
As those which starr'd the night o' the Elder World?
Or is the rumour of thy Timbuctoo
A dream as frail as those of ancient time?'

One can only imagine the reaction to results of archaeological survey around Timbuktu of an older Tennyson, icon and poetic voice of an optimistic and expansionist England (although he surely would have bridled at that particular characterisation of his national role). Would he have accepted our current understanding of the numbers, size, importance and precocity of the cities 'starring' the ancient landscape of the Niger Bend during what we here will label its Elder World? Would his conception of the world have been able to transform so radically as to encompass not the 'argent streets' of his romantic idyll, the 'tremulous domes' and 'obelisks of ranged chrysolite' of his frail dream city, but an urbanism in Mali's Middle Niger as dense and expansive as those

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Around 8 500 years ago, the Azawad was an enormous 90 000-square-kilometre marshy (paludal) and lake (lacustrine) basin, probably with permanent flooding at the present locale of Timbuktu. In the present time, the Niger River is over a kilometre wide in places during the rainy season.



of Mesopotamia or the Nile Valley – and apparently owing nothing to those urban cradles for the birth of a citied landscape?

We have long relied on just six case studies to understand the emergence of such features of sociocultural complexity as state formation and urbanism. These are Mesopotamia and Egypt (c.3500–3000 BC), the Indus Valley and north China (c.2500 BC), and Mesoamerica and the Andes (c.0 AD). In recent decades it has become apparent that sub-Saharan West Africa must be added to this list, specifically the Middle Niger. Not only did this region experience indigenous development of complex cultural features, it did so in a way that offers a challenging perspective on generalisations about urbanism developed elsewhere.² The Sahel of West Africa offers, in particular but not exclusively, new opportunities for comparative research on responses to climate change and regional abandonment in arid lands.³ Just as the aforementioned six cases must now open the table to a Middle Niger seventh, those same six complex cultural traditions all experienced episodes of collapse and/or regional abandonment (not the same thing) that may be better understood with the comparative study of regional abandonment in West Africa.

Why this emphasis on regional abandonment? A basic premise of this chapter is that the familiar Timbuktu of the past several centuries is a vestige of a spectacular regional abandonment process and that hidden just beneath its present duned hinterland is a very different, dynamic fluvial and lacustrine ecology of a not-so-very-ancient Elder World. This Elder World of the Niger Bend may have been as city-dominated and certainly seems to have been as dense in demography as the Lakes Region of the Niger's interior flood plain and, indeed, as urbanised as the other basins comprising the Middle Niger. Those basins are, from south to north, the Upper Delta dominated by Jenne, the



An aerial view of the Niger River. The Niger Bend supported urban centres and long-distance commercial activity substantially earlier than dates allowed by traditional historical reconstruction.

Masina boasting ancient Dia, the Erg of Ouagadou just north of Lake Debo, the now-desert Méma abutting the Mauritanian frontier, the Lakes Region and Niger Bend and finally the Azawad dunelands north of Timbuktu.⁴ What I intend to do here is first briefly to describe the wind-dominated landscape of today's Timbuktu, arguing that perhaps as recently as the eleventh to thirteenth centuries AD a very different biophysical environment prevailed. Indeed, the familiar desert dominance may only have been in place since the seventeenth century, with the end of a minor pluvial coincident with the end of the 'Little Ice Age' of the upper latitudes. I show that the earlier lake and river environment extended far north into the present Sahara and, on analogy with archaeological settlement patterns known from better researched basins of the Middle Niger, almost certainly supported a denser network of towns, villages and temporary hamlets. I then summarise archaeological surveys conducted in the Timbuktu hinterlands, and the all too brief excavations in Timbuktu itself. I end with a suite of questions about whether some memory of this Elder World might subtly have conditioned the vision of the world (and of causation in human affairs and in human-land dynamics) expressed in the manuscripts of Timbuktu.

Timbuktu is a town at the frontier of the Niger's dead and live deltas, at the frontier between the Saharan Azawad and the Sahelian, annually inundated Lakes Region and Niger Bend. To the natural scientist, the Azawad sand plains (and the related Taoudenni palaeolake depressions further to the north) tell of the eventual triumph of wind over rain and flood. Barren though it may appear to some, the Azawad is nevertheless a mosaic of river, swamp, lake, and wind-borne deposits. So, too, are all six Middle Niger basins. Layered transformation is the best description of the cumulative effects of alternating agencies of rain, river and desiccation that caused the complex interweave of microenvironments throughout the Middle Niger. However, whereas

once the inundated area of the Middle Niger was up to 170 000 square kilometres, with the desiccation of the Méma and Azawad basins, the 'live' (annually inundated) Middle Niger today represents only some 55 000 square kilometres.

In the palaeolake region of Taoudenni, dunes trail downwind from tall columns of eroded lake deposits. South, in the Azawad proper, ancient shallow lakes (playas), permanent streams and once-generous rains left behind carpets of freshwater shell mixed with bones of massive perch, catfish and crocodile. However, for five millennia, the wind has tended to dominate. Each basin of the Middle Niger is a tight clustering of microenvironments, each rapidly shifting in potential with a volatile climate. The peoples of the Middle Niger have risen to the challenge of that environmental volatility by producing a web of specialised but articulated occupations,⁵ resulting in a reciprocity relationship that allowed an admirable resilience when responding to strong, abrupt climate oscillations. Thanks to a small number of innovative, multidisciplinary research projects in the Taoudenni and Azawad, we have detailed descriptions of the regions' climate, local environment and modes of adaptation.⁶ We therefore have a much-refined appreciation of the local and regional effects on local populations of Holocene wet periods (pluvials) of 8 500–3 000 BP that alternated with periods of sharp desiccation.⁷ The last such full pluvial period ended some 4 000–3 000 years ago. The familiar Sahara has been gaining in ascendancy ever since, although there have been significant periods (decades and even centuries, from 700 to 1100, for example) of annual rainfall at 120 per cent or more of the 1930–60 standard (the baseline average of temperature, rainfall or other climatic variables against which scientists assess deviations).

The environmental history of the Azawad has been the overlapping transformation of distinct local ecologies and micro-niches. By 8 500 years ago, the Azawad was an enormous 90 000-square-kilometre marshy (paludal) and lake (lacustrine) basin, probably with permanent flooding at the present locale of Timbuktu. In the deepest parts of the Azawad there were large permanent lakes (some over 500 km² in area). Some were fed by rainfall; some were recharged by groundwater exposed by low relief. Niger overflow fed most of the seasonal Azawad lakes and creeks (marigots) and especially the vast network of interdunal corridors between the massive late Pleistocene (longitudinal) dunes covering most of this basin. During the best of times, the lakes were home to abundant perch, tilapia and catfish, to several species of water turtle, crocodile, hippo, and a water python that could grow to an alarming four metres.

Lake and swampland temperature, salinity and oxygen levels can be recorded by silica-shelled algae (diatoms), molluscs, and bivalve crustaceans (ostracods).⁸ These tiny organic documents demonstrate that long periods of fresh, well-oxygenated water were periodically interrupted by high evaporation. Particularly affected by dry episodes were the backswamps, vast low-lying regions inundated each year by flooding (ultimately from the Niger). The annual floods probably extended north of Hassi el-Abiod only during exceptional years. These swamps and interdunal ponds served as nurseries for

great shoals of fish that thrived upon the abundant vegetation of marshes. Hippo, crocodile and at least two species of water-dependent antelopes (*Tragelaphus* and *Kob*), as well as African water buffalo (*Syncerus caffer*), roamed the swamps. The shallows would have been prime environments for wild, edible grasses, some of which were ancestral to domesticated sorghums, millets, fonio and African rice (*Oryza glaberrima*). The annual flood was spread throughout the Azawad by a network of palaeochannels extending over 180 kilometres north–south by 130 kilometres east–west. Most channels served to distribute Niger flood water brought into the Azawad by a great palaeochannel, the Wadi el-Ahmar, 1 200 metres wide at its southern end (at the Niger Bend, just east of Timbuktu).⁹ The channel's 70–100 kilometre northward meandering is clearly traced on satellite images and aerial photos, as are the great, long interdunal depressions (framed by the Pleistocene longitudinal dunes that, reanimated, visually dominate the landscape today) recharged year after year by the floods and by local rain.

The archaeological richness of the banks of these palaeochannels is essentially untapped. The revealing exception was a total survey of the proximal (southern) 13 kilometres of the Wadi el-Ahmar. The survey began at its point of departure from the Niger flood plain, about three kilometres east of Timbuktu.¹⁰ This survey provides the basic data for the conclusions about first millennium AD urbanism in the southern Azawad wastes and at the Niger Bend–Azawad interface, to be presented below. Let us end this discussion of the geomorphology, hydrology and environments of Timbuktu's Elder World by offering the stark image of a dune-dominated, trans-Saharan, trade-dependent Timbuktu and of its wilderness hinterland...with, just beneath the shifting blanket of saltating sand, a radically different palimpsest landscape of lakes, swamps, channels, and steppe-lands. This was the Elder World. Just as the diverse plant, fish and mammal resources of that Elder World supported a high Late Stone Age and Early Iron Age population, so too the Timbuktu–Wadi el-Ahmar survey demonstrated that, perhaps as recently as 700–800 years ago, Timbuktu's hinterland was indeed 'starr'd'.

But before turning to the results of the Timbuktu region survey (and of excavations within the city itself), let us see what research elsewhere in the Middle Niger suggests might be the patterns of settlement associated with the rich, aquatic and mosaical ecologies just described. The other basins of the Middle Niger share the same geomorphological features as the Azawad and Lakes Region and Niger Bend (longitudinal dunes, backswamps, playas, channel levees, etc.) – but in different proportions and, for each basin, in different signature arrangements. In the other 'dead' basin, the Méma, for example, the Pleistocene dunes forming the defining geographical structure are hidden much deeper under a maze of lake and swamp deposits.¹¹ Overlaying those aquatic deposits are the archaeological remains of cities (dating back at least to the end of the first millennium BC¹²) and villages (first appearing around 2000 BC¹³). The cities are classic *tells*, mounds built up to 10 or more metres in height, sometimes 50 or more hectares in area, constructed over the centuries by the melt of mud-brick houses, the

Overlaying those aquatic deposits are the archaeological remains of cities (dating back at least to the end of the first millennium BC) and villages (first appearing around 2000 BC).



The grand mosque at Jenne. Jenne-jeno, or old Jenne, is probably the oldest of the settlements in the area and the present mosque at Jenne is built on the site of one of the earliest mosques in West Africa.

accumulated garbage of the inhabitants – everyday debris of everyday lives. Clearly the Saharan–Sahelian ecology of the Méma could not today support cities, or the dense network of associated villages in the hinterland of each.

Large-scale, multidisciplinary research has only just begun in the Méma. But it seems certain that, when the end to urbanism came, it came very quickly. When one finds similar cases of rapid regional abandonment elsewhere in the world it usually means that the climate or hydrology changed precipitately, or that population size or its concentration in large groupings became unsupportable, or that exploitation habits were unsustainable leading to a moment of collapse – or a tangle of all of these. In the Méma, the end came by the thirteenth or fourteenth centuries AD – but the mass abandonment of these towns should not make us forget that a sustainable, resilient, citted landscape was the rule in this highly changeable Sahelian Middle Niger basin for a thousand years or more. And during much of that period, the flood-plain ecology of the Méma must have been no more aquatic, no less mosaical, no more resource rich (and no more subject to the notoriously oscillating precipitation patterns [interannual, interdecadal, intercentury] and shifting river regime of this northern fringe of the West African monsoonal system) than the southern Azawad and Niger Bend. Lesson number one to extrapolate to the Elder World of Timbuktu’s hinterland: we can come with an

expectation of an earlier, wetlands-adapted historical ecology, in which high densities of population could be supported – sustainably for a millennium or more – by a deep-time adaptive pattern of ecological resilience.¹⁴ All good things, however, must end.

Less radical forms of regional abandonment, too, ended ancient Middle Niger patterns of urbanism in the two ‘live’ Middle Niger basins to have received sustained archaeological attention, the Macina (Dia and its hinterland) and, especially, the Jenne and Jenne-jeno region of the Upper Delta. After some 30 years of excavation at these city mounds, combined with dedicated surveys in the cities’ hinterlands, we begin to know something of the chronology and patterning of indigenous Middle Niger urbanism. The first point to make is that this appears to have been an indigenous process. When excavations at Jenne-jeno began in the late 1970s I was as surprised and delighted as anyone by the lack of evidence for contact, colonisation or ‘stimulated directionality’ from across the Sahara. Cities begin by the third century BC in the Jenne region,¹⁵ and arguably some centuries earlier at Dia.¹⁶

These earliest cities grew out of (again, without intrusions of peoples or ideas from the outside) the aforementioned wetlands-adapted environments that characterised the Middle Niger since the Late Stone Age.¹⁷ One of the signal aspects of urbanism in each of the Middle Niger basins in which adequate regional coverage has been attained is that of multiple, non-primate, urban centres. In other words, each basin individually and, to judge from the homogenisation from Timbuktu to Jenne of the ceramic assemblages covering some 1 600 years, the whole of the 55 000-square-kilometre (or more) Middle Niger was a peer heterarchy – a vast field of interacting population centres with none of the oppressive regional settlement hierarchy that characterised other indigenous urban arenas in which the politics of despotism prevailed (such as post-Uruk-period Mesopotamia, or later Shang China). From this we can take lesson number two to extrapolate to the Elder World of Timbuktu’s hinterland: ancient Middle Niger urbanism, regionally, describes a field of multiple, non-primate, urban centres.

Lastly, taking to heart the classic definition of a city as a larger settlement of heterogeneous population that provides a range of services to a larger hinterland,¹⁸ the laborious process of digging through the metres upon metres of *tell* deposits had to be linked to hinterland surveys. In order to test the true urban nature of those settlements, there is no substitute for month after month of trudging over every landform of the hinterland, locating sites of all sizes and types, systematically recording the dateable ceramics on their surfaces, noting features and artefacts that might speak to the occupations and affinities of the inhabitants, and eventually excavating into the stratified deposits of those sites as well. This survey, first at Jenne-jeno, then at Dia and eventually at the Méma cities as well, provided a great surprise: clustered urbanism! Jenne-jeno is surrounded by no fewer than 70 satellite sites, all within very close proximity. After several seasons of surface recording, and now after excavation at 10 of the 70 sites, we are convinced that the entire assemblage of settlements (with a 4 km radius) comprises the city.

The mass abandonment of some of the towns should not make us forget that a sustainable, resilient, citted landscape was the rule in this highly changeable Sahelian Middle Niger basin for a thousand years or more.

Is this conclusion backed up by the results of several cycles of hinterland survey?¹⁹ Whereas evidence of all corporate activities are found at Jenne-jeno, at 29 other sites one finds only one, two or at most three represented. These activities may be subsistence based (fishing) or artisan (metallurgy, weaving) or 'miscellaneous' (ritual or symbolic, funerary). Apparently specialists were drawn together, yet resisted final absorption into a unitary city. Let us attempt an analysis of the clustering rationale: the clustered city was a stable solution (for greater than 1 000 years) to the complementary ecological problems (physical and social) confronting Middle Niger communities of the Elder World in the past. Firstly, this was a superbly productive environment, but one marked by highly variable rain and flood regimes. Secondly, to combat climatic unpredictability, artisans and subsistence producers grew increasingly specialised, yet must have been linked together into a generalised economy. Yet, thirdly, this was a highly complex society organised horizontally, a heterarchy with multiple sub-components representing overlapping and competing agencies of resistance to centralisation. (In over 30 years of excavation at Jenne-jeno and elsewhere around the Middle Niger, we have yet to find convincing evidence of kings, or even of clear elites, at these cities.) The dispersed clustered city was an instrument of that resistance. Such a view calls up profound and deep-time Middle Niger views of roughly equivalent, highly occult-charged power places distributed in a power grid across the landscape, an argument I make fully in my 2005 *Ancient Middle Niger: Urbanism and the Self-Organizing Landscape*. For our purposes here we can take lesson number three to extrapolate to the Elder World of Timbuktu's hinterland: the venerable Middle Niger pattern of urbanism created non-nucleated congeries of specialised parts, urban clusters, very different from the walled, citadel-dominated agglomerations with a depopulated near-hinterland that we associated with urbanism in other Old World flood plains such as Mesopotamia.

When survey began in the Timbuktu region in 1984, we never for a moment believed that these expectations about *flood-plain-adapted* Middle Niger urbanism might be applicable there as well. To summarise: i) an earlier wetlands-adapted historical ecology, in which high densities of population could be supported – sustainably – by a deep-time adaptive pattern of ecological resilience; ii) ancient Middle Niger urbanism, regionally, describes a vast field (over more than today's 55 000 km²) of multiple, non-primate, urban centres; and iii) individual cities here became non-nucleated congeries of specialised parts – urban clusters. How, then, do the archaeological settlement patterns of the Timbuktu hinterland fit with these expectations, or not as the case might be? And what of present Timbuktu itself, that desert-oriented wreck, foundering on the Sahelian shore of the great desert, washed onto a prevailing environment very far from the wetlands of the 'live' Middle Niger, terminus to the trans-Saharan trade and, if we believe the great *tarikhs*, dependent upon southern sister-cities such as Jenne even for the provisioning of its population.

In a word, the results of excavations at Timbuktu itself have been inconclusive. In 1998 a University of Cambridge student, Tim Insoll, excavated at three localities around the

city (at the 'Casbah Marocaine', next to the Sankore Mosque, and in the western Azalai area).²⁰ In the former two areas, digging stopped at around five metres depth, with AMS (high precision radiometric) dates still only in the eighteenth century. In the latter, archaeological deposits upon natural soil still yielded tobacco pipes (that is, still post-dating the very end of the sixteenth century). All Insoll could conclude was that '...the "mysterious" nature of Timbuktu still persists, and the *Tarikh al-Sudan* appears to be correct in stating that the building of Timbuktu, and the joining of all its parts together was only completed in the mid 16th century AD [mid-tenth century *hijri*].'²¹ Perhaps the Timbuktu we know now really was an artefact of a world, and of the trans-Saharan commerce, post-dating the Middle Niger's Elder World. Archaeological surveys, however, tell a different story.

In 1984, Téréba Togola, Susan Keech McIntosh and I conducted a preliminary reconnaissance of the Timbuktu hinterland and that of Mangabéra, some 90 kilometres further downstream along the Niger.²² Not knowing anything of the environmental logic of potentially early sites, this survey was entirely geomorphologically driven. Judgementally, we opted for thoroughly walking irregular transects, testing various Azawad and Niger Bend landforms – dunes, the recently constructed flood plain of the Niger itself, with its scoured fluvial deposits, and more interior palaeochannels. Much effort was spent on testing the banks of the Wadi el-Ahmar. Many new data were recovered and the work might be said to have altered our understanding of the human landscape of the Timbuktu hinterland. We covered roughly 50 per cent of the region, but in a way that was entirely judgemental and not strictly systematic in a probabilistic sense.

Frustrating data, too. Our initial (history-driven) expectation was that present Timbuktu would be a rather late (second millennium AD) desert outlier of the Middle Niger, flood-plain-oriented urban civilisation, an artefact of the trans-Saharan trade and, frankly, a parasite on older, indigenous cities to the south. Rather, we found a far denser network of sites oriented to the (constricted) flood plain and the dune-traversing palaeochannels. Briefly, in a 260-square-kilometre survey area in Timbuktu's vicinity, we found 43 sites. Curiously, no Late Stone Age sites remained on the surface and any Iron Age sites dating to before around AD 300–500 were quite ephemeral. Spectacularly, by AD 500 there was a dense network of villages and fully urban *tells*, in a pattern that closely recalls the classic Middle Niger urban clustering described above. The majority of these sites were abandoned by 1500 (how many centuries before, only proper excavation will tell) in a regional abandonment, the completeness (and abruptness) of which echoes that of the Méma.

Are any of these mute cities the lost localities of the Niger Bend mentioned, but still unidentified, in the Arabic sources – Awqham, Safanku, Tirekka, Bughrat?²³ Clearly an artefact of wetter times, was this an urban network anterior and independent of any historical settlements, such as Timbuktu? Or is that fabled town a vestigial – representing just a sad rumour, a residual of an earlier, denser settlement pattern? There, far

There were highly complex societies organised horizontally, heterarchies with multiple sub-components representing overlapping and competing agencies of resistance to centralisation. We have yet to find convincing evidence of kings, or even of clear elites, in these cities.

up the palaeochannel, the Wadi el-Ahmar, was an enormous town-size site (50 ha), apparently with a ring of satellites, abandoned most probably between 900 and 1200. An antecedent Timbuktu?

Thinking about the survey results in terms of hydrology, geomorphology and land use combined, it is clear from the numbers and positions of the sites dating to c.500–1500 that the Niger flood stage and/or local precipitation was significantly higher, such that the Wadi el-Ahmar (and other Azawad palaeochannels?) ran stronger seasonally, if not permanently. The shocking evidence of voluminous iron production in the hinterlands suggests that Niger flood alone was not responsible for the more dynamic hydrology. Indeed, the marigot of Kabara linking the Niger to Timbuktu (and the Badjindé ponds) may very well have held water year-round – further hinting that some occupation was likely at least by the first millennium AD at the present location of the town. However, when the Sahara triumphed and regional abandonment took place, a significant regional population either declined entirely, consolidated into the ‘primate’ situation at Timbuktu, or moved deeper into the ‘live’ basins of the Middle Niger.

And then there is the shock of discoveries at Mangabéra. We surveyed two small transects (50 km² total area) at a point 90 kilometres further downstream along the river, where the Pleistocene dunes pinch the river quite narrowly, selected at random. Never really expecting to find much in such desolation, there we stumbled upon a curious number of large, perhaps clustered *tells*. Was every stretch of the river bank and near dune landscape downstream of Timbuktu as heavily invested with substantial occupation? Our judgemental survey simply will not allow us to say. Does the history of urbanism in the Niger Bend parallel that of the broader flood-plain basins to the south? Our judgemental survey will not allow us to say, but that does appear to be the case in general. All we can say is that the Niger Bend supported urban centres and long-distance commercial activity substantially earlier than dates allowed by traditional historical reconstruction.²⁴

I end, then, with a series of interlocking questions. These questions have to do with the relevance of the Elder World to ‘our’ Timbuktu of scholars, merchants and the faithful. These questions come out of a recent development in archaeology and historical geography, called historical ecology.²⁵ Beyond the recognition of long-term recursive, back-and-forth impacts of environment (including climate change) upon humans and of humans upon the land, historical ecology takes this two steps further. The first step is the realisation that people act upon their *perceptions* of landscape and perception is moulded by all the beliefs and ‘para-scientific’ insights that go into any group’s social construction of reality. The second is that, just as the landscape we see today is a palimpsest of multiple past human actions on the land (that is, results of multiple, cumulative past decisions about where to live, where to farm, what locales have their own vital forces, etc.), so too are beliefs about landscape a palimpsest of multiple past experiences with or about the landscape. I have made the argument elsewhere that an unequal mapping of power

localities over the Middle Niger landscape is a feature of a very ancient perception of that landscape and that the persistent Mande practice of *dalimasigi* (knowledge pilgrimages by specialists) relates directly to that particular perception of the land.²⁶ Now, archaeologists who scrounge around in other people's garbage have only a tenuous link to the thoughts in those people's minds! Perhaps those with a command of the Timbuktu manuscripts can play with three questions that came to mind as I thought about the relevance of Middle Niger urbanism to a post-Elder World Timbuktu:

- ❖ By the time Islam penetrates Timbuktu, has the memory of the Elder World been so thoroughly effaced that no vestiges remain in the world view expressed in the manuscripts?
- ❖ Or, can an understanding of the antecedent landscape and settlement logic one day help us to understand the particular moral logic of West African Sufism that constructed a landscape of high-value pilgrimage sites?²⁷
- ❖ Might, therefore, archaeologists, historical geographers, historians (and peripatetic epigraphers such as Paulo de Moraes Farias) *together* have access to a palimpsest, written upon the Azawad and Niger Bend landscape, that is vital to our understanding of the progress of Islamic enculturation and to the evolution of the moral sciences in Timbuktu?

Asking such questions, then, is the ultimate utility, for archaeologists and historians alike, of concepts such as landscape (all physical, biological and cultural phenomena interacting within a region) and historical ecology (an appreciation of how humans, individually and as communities, acted according to their culturally conditioned perceptions of the biophysical world and of causation in that world) for giving an overall methodological and interpretive structure to research into the deep-time history of vital places such as Timbuktu.

Can an understanding of the antecedent landscape and settlement logic one day help us to understand the particular moral logic of West African Sufism that constructed a landscape of high-value pilgrimage sites? Might, therefore, archaeologists, historical geographers, historians, etc. together have access to a palimpsest that is vital to our understanding of the progress of Islamic enculturation and to the evolution of the moral sciences in Timbuktu?



NOTES

- 1 Tennyson (1829).
- 2 McIntosh (2005a).
- 3 McIntosh & Tainter (2005).
- 4 McIntosh (1998).
- 5 McIntosh (1993).
- 6 Petit-Maire (1986; 1991); Petit-Maire & Riser (1983); Petit-Maire et al. (1983); Fabre & Petit-Maire (1988); Raimbault (1990). The radiocarbon determinations reported by this project convincingly date the range of time for prehistoric occupation from 7000 to c.3500 BP. However, there are too few samples to convincingly date any one individual site, or determinations were run on materials such as shell that yield very large error factors.
- 7 Commelin et al. (1993); McIntosh (1994); McIntosh (2005b).
- 8 McIntosh (2003).
- 9 Rognon (1993); Risier & Petit-Maire (1986); McIntosh & McIntosh (1986).
- 10 McIntosh & McIntosh (1986).
- 11 DeVries et al. (2005).
- 12 Togola (1993).
- 13 MacDonald (1994).
- 14 McIntosh (2005c).
- 15 McIntosh (1995).
- 16 Bedaux et al. (2001).
- 17 McIntosh & McIntosh (2003); McIntosh (2005a).
- 18 Trigger & Pendergast (1972).
- 19 McIntosh & McIntosh (2003); McIntosh (2005a: Ch. 4).
- 20 Insoll (1998; 2000).
- 21 Insoll (2000: 484).
- 22 McIntosh & McIntosh (1986).
- 23 Levtzion (1973).
- 24 McIntosh & McIntosh (1986).
- 25 McIntosh et al. (2000); Ashmore & Knapp (1999).
- 26 McIntosh (2000).
- 27 Such as that, among many other generators of identity and sacrality, analysed by Paulo de Moraes Farias (2003) for the Niger Bend, from Timbuktu to Gao and Bentia and, recently, by Edmond Bernus et al. (1999) for the 420 000 km² Azawagh palaeochannel basin in eastern Niger, where they look at the archaeological landscape's role in the development of southern Berber history and identity, as well as specifically at In Teduq, a multi-component Sufi pilgrimage site, itself probably just one highly charged element within the larger sacred landscape.

REFERENCES

- Ashmore W & Knapp AB (1999) *Archaeological landscape: Contemporary perspectives*. Oxford: Blackwell
- Bedaux RMA, MacDonald K, Person A, Polet J, Sanogo K, Schmidt A & Sidibé S (2001) The Dia archaeological project: Rescuing cultural heritage in the inland Niger Delta (Mali). *Antiquity* 75: 837–876
- Bernus E, Cressier P, Durand A, Paris F & Saliège J-F (1999) *Vallée de l'Azawagh (Sahara du Niger)*. Editions Nigériennes No. 57. Paris: Editions Sépia
- Commelin D, Raimbault M & Saliège J-F (1993) Nouvelles données sur la chronologie du Néolithique au Sahara malien: *Comptes Rendus de l'Académie des Sciences Série 2*(317): 543–550
- De Vries E, Makaske A, McIntosh RJ & Tainter J (Eds) (2005) *Geomorphology and human palaeoecology of the Méma, Mali*. Wageningen: Alterra
- Fabre J & Petit-Maire N (1988) Holocene climatic evolution at 22–23° N from two palaeolakes in the Taoudenni area (northern Mali). *Palaeogeography, Palaeoclimatology, Palaeoecology* 65: 133–148

- Insoll T (1998) Archaeological research in Timbuktu, Mali. *Antiquity* 72: 413–417
- Insoll T (2000) The origins of Timbuktu. *Antiquity* 74: 483–484
- Levtzion N (1973) *Ancient Ghana and Mali*. London: Methuen
- MacDonald K (1994) Socio-economic diversity and the origin of cultural complexity along the Middle Niger (2000 BC to AD 300). PhD thesis, Cambridge University
- McIntosh RJ (1993) The Pulse Theory: genesis and accommodation of specialization in the Middle Niger. *Journal of African History* 34(2): 181–220
- McIntosh RJ (1998) *The peoples of the Middle Niger: The island of gold*. Oxford: Blackwell
- McIntosh RJ (2000) The Mande weather machine. In RJ McIntosh, JA Tainter & SK McIntosh (Eds) *The way the wind blows: Climate, history, and human action*. Historical Ecology Series. New York: Columbia University Press
- McIntosh RJ (2003) Climate change and population: history. In P Demeny & G McNicoll (Eds) *The encyclopedia of population* (Vol. 1). New York: Macmillan Reference
- McIntosh RJ (2005a) *Ancient Middle Niger: Urbanism and the self-organizing landscape*. Case Studies in Early Society Series. Cambridge: Cambridge University Press
- McIntosh RJ (2005b) Chansing Denekejugu over the Mande landscape: making sense of prehistoric and historic climate change. In R McIntosh & J Tainter (Eds) *Climates of the Mande*. Special section of *Mande Studies* 6: 11–28
- McIntosh RJ (2005c) Two thousand years of niche specialization and ecological resilience in the Middle Niger. In RJ McIntosh & JA Tainter (Eds) *Climates of the Mande*. Special section of *Mande Studies* 6: 59–75
- McIntosh RJ & McIntosh SK (2003) Early urban configurations on the Middle Niger: clustered cities and landscapes of power. In ML Smith (Ed.) *The social construction of ancient cities*. Washington DC: Smithsonian Institution Press
- McIntosh RJ & Tainter JA (Eds) (2005) *Climates of the Mande*. Special section of *Mande Studies* 6: 1–85
- McIntosh RJ, Tainter JA & McIntosh SK (Eds) (2000) Climate, history and human action (Introduction). *The way the wind blows: Climate, history, and human action*. Historical Ecology Series. New York: Columbia University Press
- McIntosh SK & McIntosh R (1986) Archaeological reconnaissance in the region of Timbuktu, Mali. *National Geographic Research* 2(3): 302–319
- McIntosh SK (1994) Changing perceptions of West Africa's past: Archaeological research since 1988. *Journal of Archaeological Research* 2(2): 167–173
- McIntosh SK (Ed.) (1995) *Excavations at Jenne-jeno, Hambarketolo and Kaniana: The 1981 season*. University of California Monographs in Anthropology. Berkeley: University of California Press
- Moraes Farias PF (2003) *Arabic medieval inscriptions from the Republic of Mali: Epigraphy, chronicles and Songhay–Tuareg history*. Oxford: Oxford University Press
- Petit-Maire N (1986) Homo climaticus: vers une paléanthropologie écologique. *Bulletin de la Société Royale Belge d'Anthropologie et de Préhistoire* 97: 59–75
- Petit-Maire N (Ed.) (1991) *Paléoenvironnements du Sahara, lacs holocène à Taoudenni*. Paris: CNRS éditions
- Petit-Maire N, Celles JC, Commelin D, Delibrias G & Raimbault M (1983) The Sahara in northern Mali: Man and his environment between 10,000 and 3500 years BP. *The African Archaeological Review* 1: 105–125
- Petit-Maire N & Riser J (Eds) (1983) *Sahara ou Sahel? Quaternaire récent du bassin de Taoudenni (Mali)*. Marseille: CNRS éditions
- Raimbault M (1990) Pour une approche du néolithique du Sahara malien. *Travaux du laboratoire d'Anthropologie et de préhistoire des pays de la Méditerranée Occidentale*: 67–81
- Risier J & Petit-Maire N (1986) Paléohydrologie du bassin d'Araouane à l'Holocène. *Revue de Géologie Dynamique et de Géographie Physique* 27(3/4): 205–212
- Rognon P (1993) L'Evolution des Vallées du Niger depuis 20.000 ans. *Vallées du Niger*, 49–51. Paris: Réunion des Musées Nationaux
- Tennyson A (1829) *Timbuctoo. Prolusiones academicae*. Cambridge Prize Poems. Cambridge: Cambridge University Press
- Togola T (1993) Archaeological investigations of Iron Age sites in the Méma, Mali. PhD thesis, Rice University, Houston, Texas
- Trigger B & Pendergast JF (1972) *Cartier's Hochelaga and the Dawson site*. Montreal: McGill-Queen's University Press

ثم حج الاضحية فبها طار ولم يرض
 ومعتبر غيره وجزمه والمريض استبرأه من
 يغنو عليه بطله ويرثها ارضه
 آية وعقود فدم الاضحية وان اوصى
 مجموعة معتبر اوصى الميراثها او يعقوب
 الاضحية بعد موته ينسبها وانما حجب الوارث
 ان يجمع او يجمع ثلث الجميع وينسبها

(Extensive marginal notes in smaller script surround the main text, providing commentary and additional rulings.)