The Garamantes of Fazzan

An Early Libyan State with Trans-Saharan Connections

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Introduction

The discussion elsewhere in this volume of trans-Saharan trade routes in pre-Islamic Africa recurrently focuses on a Saharan people called the Garamantes. They have become increasingly central to research on pre-Islamic Saharan trade in recent years and this short contribution seeks to explain why this is so and to outline the broader implications of the new knowledge to our understanding of the early cultural heritage of Africa. Hitherto, the contribution of the Garamantes has been minimized or overlooked in general books on the archaeology, civilization and historical geography of Africa.[1] But I contend that they represent the earliest indigenous urbanized state in the central Sahara, a veritable civilization that made the desert bloom through sophisticated irrigation methods. They were also a focal point in pre-Islamic times for communication and trade networks that linked the Nile, Mediterranean and the Maghreb with the Sub-Saharan societies around Lake Chad and the Niger Bend.[2]

One reason why they have frequently been underestimated and undervalued concerns their depiction in the Greco-Roman literary sources. When these classical sources described native peoples it is clear that they did not do so in an objective way, but rather they reflected the biases and preconceptions of the time. In the first section below, I shall review briefly some aspects of the ancient literary picture and contrast this with the impressive testimony of the archaeological data relevant to the Garamantes of the Libyan Sahara.

As we shall see, the testimony of the ancient sources is far from neutral or impartial and the comparative lack of archaeological exploration of Libyan and Maghrebian indigenous settlement and society has allowed the Greco-Roman view to stand largely unchallenged.[3] The 19th- and 20th-century colonial rule of the Maghreb, compounded this problem through the construction of a research agenda that prioritized (and continues to do so) urban classical sites and classical art at the expense of pre-Roman and rural settlement.[4] The problems are particularly acute for the desert-dwelling peoples of the northern Sahara, whose modern descendants the French and Italian colonial governments characterized as troublesome tribal nomads. The ancient desert dwellers were in general assumed to have been much the same and this view appeared to receive some support from the ancient sources.[5]

The Garamantes are an important exception to the general rule that we lack archaeological data for these people, in that they were the subject of pioneering Italian research in the 1930s, some large-scale but poorly published investigations by Mohammed Ayoub in the 1960s and in-depth investigation by Charles Daniels in the 1960s and 1970s.[6] Two syntheses have appeared in German in the 1980s–1990s and the Garamantes and their region of Fazzan have been dealt with in the *Encyclopédie Berbère*.[7] Important excavations by an Italian team led by Mario Liverani on some outlying Garamantian settlements in the region of Ghat (*c*. 400km south-west of their heartlands) have been followed by a series of important publications.[8] From 1997–2001, I directed an interdisciplinary team (the Fazzan Project or FP), focused on survey of the heartlands of the Garamantes and excavation at their oasis capital Garama (modern Jarma) in southern Libya.[9] The final publications of that project have also encompassed the task of bringing to press the full results of the earlier work by Daniels, establishing a new baseline of knowledge about the Garamantes.[10] This work has been continued since 2007 in a new collaboration, the Desert Migrations Project (DMP).[11]

The Garamantes in the ancient sources

Ancient writers from the time of Herodotus to the end of the Roman period depicted the Garamantes as the epitome of a barbarian people, menacing the Mediterranean world from their desert strongholds. The Garamantes were referred to by Herodotus in his famous account of the oasis dwellers of the Sahara and featured in the works of most later sources dealing with this region, though the majority of such references simply repeat information from Herodotus or offer one of a number of other stereotypes of the tribe (Herodotus, *Histories*, 4.174; 4.183).[12] The overriding images are of a warlike and exotic barbarian people, first subdued under Augustus when a remarkable long-range raid by his general Cornelius Balbus penetrated to the Garamantian heartlands in the al-Ajal.[13] Pliny's account of the resulting triumph suggests that the conquest of the desert landscape was being celebrated as much as was the military victory (in the same way that Caesar's crossing of the ocean at the world's end excited an exaggerated response in Rome, far beyond the merits of his actual achievements in Britain) (Pliny, *Natural Histories*, 5.35–37). Thereafter, the Augustan poets describe the tribe as belonging to the limitless empire of Rome (Vergil, *Aeniad*, 6.791–97). However, that they were not truly part of the empire is emphasized by their subsequent role in revolt and warfare both in Augustus' later years and under Tiberius. Tacitus denigrated the rebels as brigands (*latrocines*) and stated that the Garamantian king was a 'receiver of stolen goods and partner in the raids, not by taking the field with an army, but by dispatching light-armed troops, whose numbers report magnified in proportion to distance'(Tacitus, *Annals*, 4.23). At the end of the Tacfarinan war (AD 17–24), the tribe sent envoys to Rome, where their outlandish appearance caused a minor sensation.[14] In AD 69, the Garamantes were taken as allies by Oea, one of the coastal cities, in a squabble about territory with her greater rival Lepcis Magna. The Garamantes besieged Lepcis and looted the surrounding countryside before being chased off by Roman army units, who then pursued them into the desert and secured a victory (Tacitus *Histories,* 4.50 and

Pliny *NH*, 5.38). Their booty was recovered apart from that which they had sold as 'they wandered through inaccessible villages'. Only the barest outline of events is given by our sources and we learn almost nothing of this people beyond their reputation for being warlike and ungovernable, that they habitually engaged in banditry on their neighbours and were devious in covering up the well heads with sand to hinder pursuit when retreating from raids to the north.[15] Tacitus' view of the Garamantes, then, seems remarkably similar to the French writing about the troublesome Tuareg, concentrating on their propensity for raiding, their nomadic lifestyle and their impermanent settlements.[16]

In the later 1st century AD, there were several further Roman expeditions to Fazzan, one by a man described as Septimius Flaccus, probably to be identified with the governor of the mid-AD 80s, Suellius Flaccus (Desanges, 1978: 197–213; Mattingly, 1995: 71–4). There are hints here though of a changing relationship. Flaccus evidently visited Garama after first crushing a revolt by another desert tribe, the Nasamones. He then travelled south from Garama in company with the king of the Garamantes, who was evidently hunting Ethiopians (presumably a slaving raid) (Ptolemy, *Geography*, 1.8, 1.10). A few years later, a certain Julius Maternus again travelled far south of Garama to a lake where the rhinoceros was to be found, almost certainly Lake Chad (Ptolemy, *Geog.*, 1.8.). Both these journeys seem to have taken place with the active assistance of the Garamantes, implying some closer treaty relationship. In the mid-3rd century, informal documents from a Roman fort on the desert route north of Fazzan at Bu Njem refer several times to Garamantes being encountered by patrols or outposts on desert trackways (Marichal, 1992: 110–14). Some of the tribesmen were evidently trading with the garrison. Troublesome raiders, whilst still carefully watched, seem for the most part to have been converted into trading partners.

Several other snippets of information in our literary sources suggest that the Garamantes were not quite the nomadic barbarians, they have often been taken for. We learn that they were a populous people whose major settlements were evidently of urban or proto-urban character, even if their dwellings are elsewhere dismissed as huts (*mapalia*). Garama was described by Pliny and Ptolemy as the Garamantian capital and as a *metropolis* of the tribe, and several other sites are referred to specifically as *oppida (*Pliny, *NH,* 5.36; Ptolemy, *Geog.*, 4.6.12). Herodotus mentioned both agricultural and pastoral practices among the Garamantes, referring to the spreading of loam onto the salty soil before cultivating it and to their peculiar, long-horned backward-grazing cattle (Herodotus, *Hist.*, 4.183). Disappointingly, Mela and Pliny gave no up-to-date information on Garamantian farming, although it must have existed following the campaign of Balbus. Lucian's 2nd-century work is typical of the more persistent Roman stereotypes that located the Garamantes in a land of sand and snakes:

> Who could live in a land so savage and barren and consumed by drought? … Only the Garamantes live on its borders, a lightly clad, agile tribe who dwell in tents and live mainly by hunting (Lucian, *Dipsades*, 2).

Even after archaeological exploration of Fazzan began in the 1930s, considerably more credence was placed in the sources which depicted the Garamantes as tent-dwelling (Lucan and Lucian) or as warlike and intransigent (Tacitus). Resistance was interpreted as nomadic antipathy for sedentary peoples and 'civilizing' powers, and little credence was given to the specific reference to oasis agriculture. It was a particular challenge of Daniels' work in the 1960s–70s to start to challenge these preconceptions.

The Garamantes and Saharan trade

There has been a long debate about the origins of trans-Saharan trade, polarized between two conflicting views. In one camp are the specialists of Africa in the Islamic Age, such as Michael Brett, who deny that there was any true trans-Saharan trade in pre-Islamic times:

> although [the Garamantes] traded with Rome, there is no clear archaeological evidence of trans-Saharan trade before the 'golden age' of Islam created a substantial market for Sudanese gold and slaves, supplied by camel (Brett, 2006: 271).

At the other extreme of the debate is Mario Liverani, who has argued that trans-Saharan trade of a sort existed already by the 6th century BC, based on a line of incipient oasis communities, reported on by Herodotus, running for 4,000km west and south-west from the western Egyptian desert to the Niger Bend.

> though the volume of this trade may have been fairly small, the passage of Herodotus … forces us to accept that the main caravan route from Siwa to the Niger was already known during the 6th century BC (Liverani, 2006a: 458–9).[17]

There are several compelling reasons to accept the logic of Liverani's argument. First, is the fact that the development of the oases communities demanded regular communication between them. It is striking that the repeated figure of 10 days journey between the spring mounds referred to in the Herodotean account correlates with the most common journey stage length of Islamic accounts (Herodotus, *Hist.*, 4.183–85; Thiry, 1995, 399–448). The significance of the 10-day figure is that it constitutes the maximum comfortable travel time between major water points for a caravan carrying goods and the water for its sustenance.[18] Second, we can observe the movement of 'things' – primarily plants, animal species, ideas, knowledge and technologies along this line in the period in the late 2nd and 1st millennia BC. Herodotus provides information on a small group of the Nasamones people (whose home oases lay south of Cyrenaica and the Gulf of Sirte) making a long journey south-west across the Sahara till they reached a substantial river, clearly in the Sub-Saharan zone and almost certainly to be equated with the River Niger (Herodotus, *Hist.*, 2.32–33). The third and crucial point is that we can now recognize in the evidence from southern Libya of the emergence of an early state in the central Sahara, the Garamantes.

I must own up to having been sceptical at an earlier stage about the scale and significance of Garamantian-Roman trade and the extent to which this made a significant contribution to the economy of Tripolitania, the Roman coastal territory of the great cities of Lepcis Magna, Oea and Sabratha (Mattingly, 1995: 155–7). However, my direct engagement with the evidence in Fazzan has convinced me that this trade was very substantial indeed and potentially highly profitable on both sides. There is also growing evidence that the Garamantes traded with the Sub-Saharan zone, though relatively few

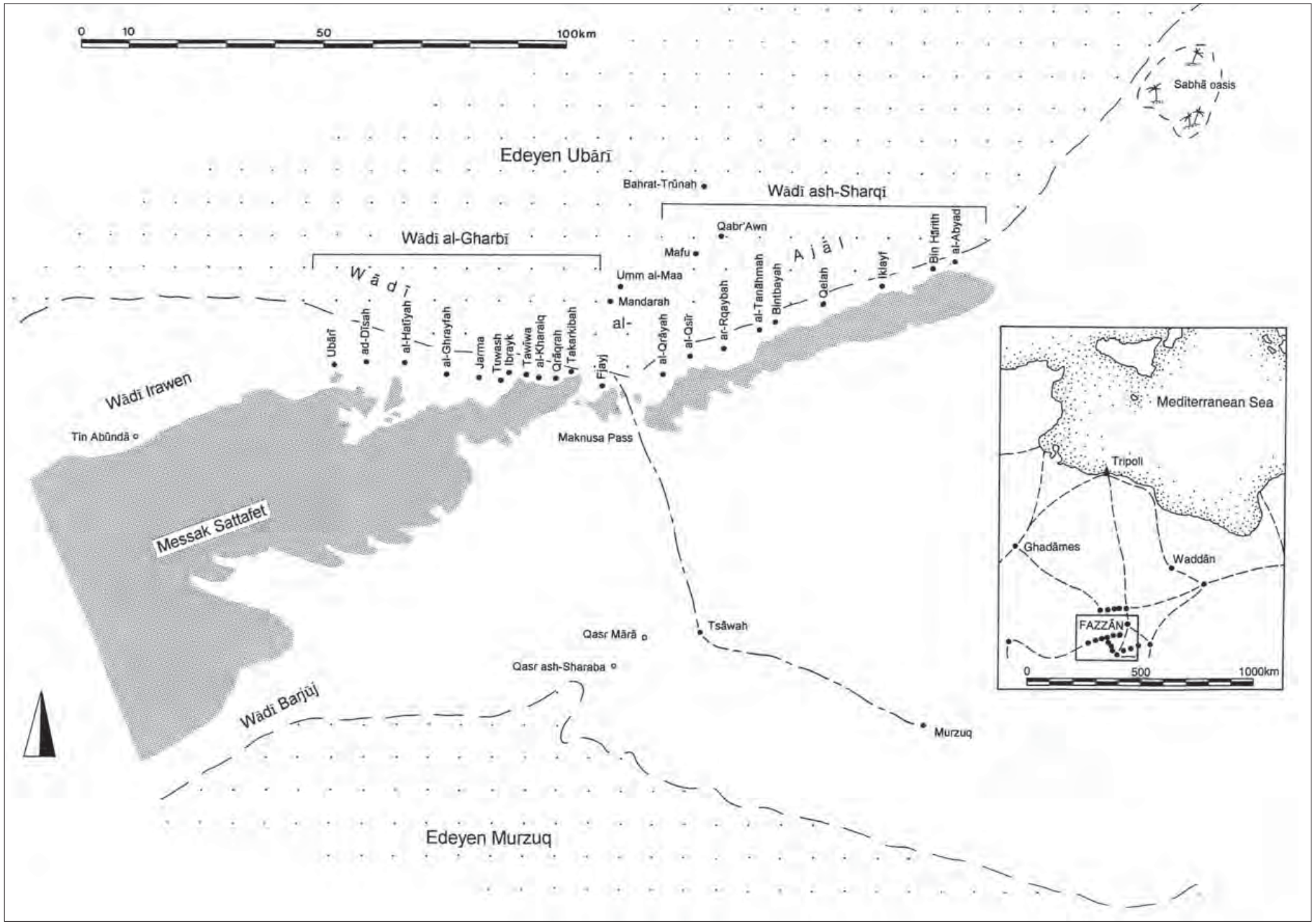

Plate 1 The Garamantian heartlands in the Wadi al-Ajal

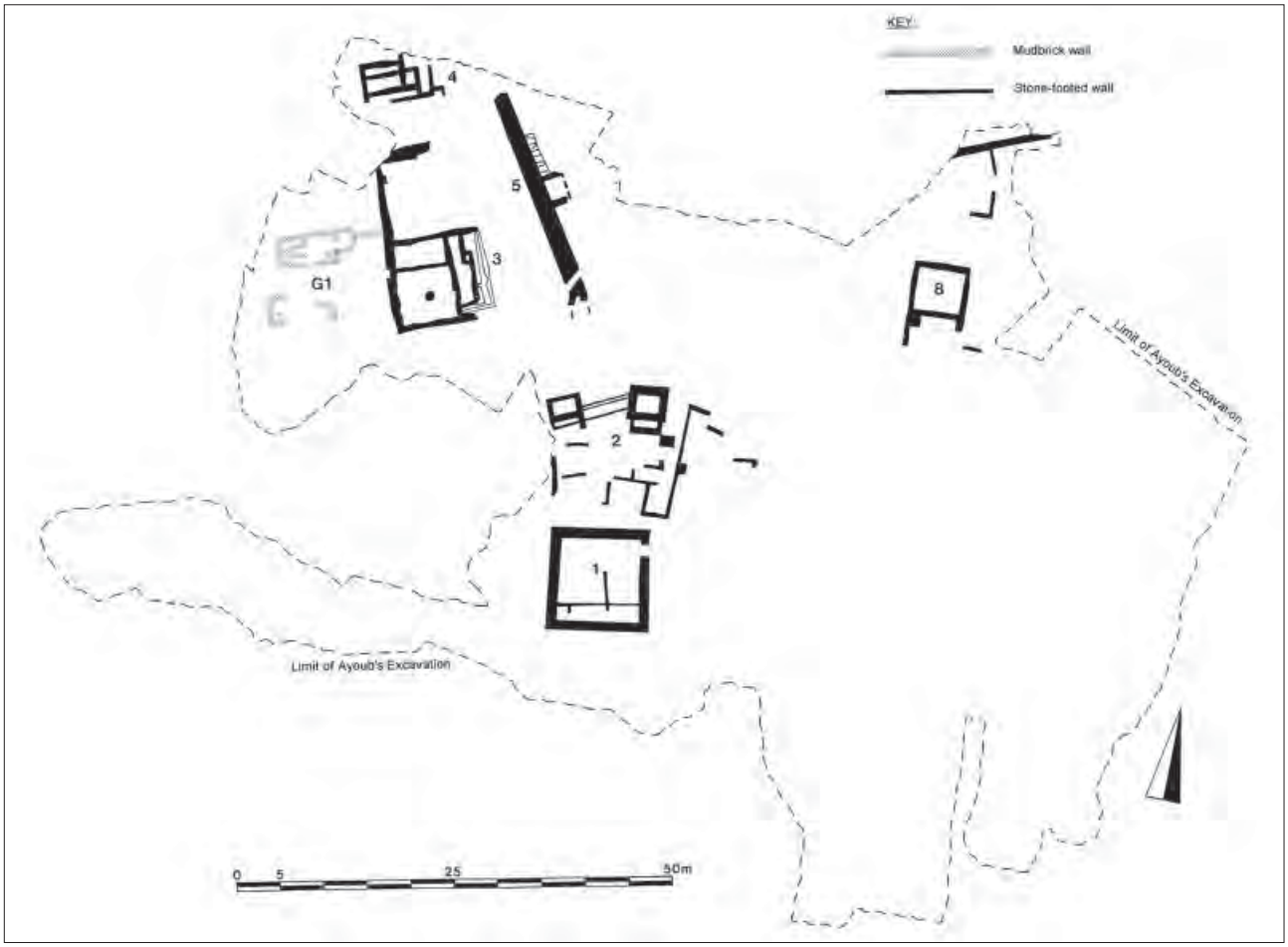

Plate 2 The centre of ancient Garama (Old Jarma), showing buildings excavated by Ayoub, Daniels and the FP

commodities from the Mediterranean were passed down the line by the Garamantes.

The archaeology of the Garamantes

Archaeological research has produced significant evidence, necessitating a review of the crude stereotypes of the Garamantes as barbaric nomads. At the height of their influence, the Garamantes appear to have controlled a vast desert territory of *c.* 250,000km^2, and that at times they threatened both the cities of the Mediterranean coast and Sub-Saharan populations of Chad and Niger (Tacitus, *Hist.*, 4.50; Ptolemy, *Geog.*, 1.8). Survey and excavation by my team have amplified important results obtained in the 1960s and 1970s by Charles Daniels. At the time of his premature death in 1996, much of his work was unpublished (Daniels, 1989; Edwards, *et al.* 1999), but a series of major publications, on both the Daniels' archive and the renewed British fieldwork, have now made available a substantial dossier of information.[19]

The archaeological evidence allows us to re-evaluate their historical reputation, with the reality being almost the exact opposite of the popular image. For much of the Roman period the Garamantes thrived on a combination of intensive oasis agriculture (using sophisticated irrigation systems) and trade. Their tribal capital Garama took on a strong urban character and their use of material culture and writing marks them out as a Saharan civilization of considerable magnitude - a polity rather than a tribe.[20]

The heartlands of the Garamantes lay in the Wadi al-Ajal (*c.* 1,000km south of Tripoli), a sinuous depression (*c.* 150km long by 3–5km broad) running broadly west to east (**Pl. 1**). It is sandwiched between a towering sand sea to the north and a cliff-like rock escarpment backed by a barren rock plateau (*hamada*) to the south. Annual rainfall in this region is negligible – less than 10mm on average – but frequently with none whatever for several years at a stretch. It is a very unpromising environment at first sight. However, water could be found in antiquity at shallow depth below the bottom of the valley, permitting intensive cultivation of a narrow oasis belt in the valley floor. It has long been recognized that the territory of the Garamantes extended considerable distances north and south of the al-Ajal – incorporating oases in the Wadi ash-Shatti (100km north), Ghat (300km south-west), Murzuq (100km south-east) and Zuwila (200km east).[21]

The primary archaeological component of my project was the excavation of a site within the major ancient urban centre of the region at Jarma (ancient Garama). This is a still standing medieval caravan town, dominated by an imposing mud brick *kasbah* or castle. Below these later structures (some only abandoned in the 1930s) lies a complex stratigraphic sequence of earlier cities superimposed one on another to a depth of 4–5m. Some clearance excavation by Ayoub in the 1960s revealed a group of Garamantian buildings at the core of the site (**Pl. 2**).[22] Unlike most of the later structures these have stone walls, some of ashlar quality, and reflect the power and wealth of the site in its heyday in the period between the 1st and 4th centuries AD. One of these buildings was fronted by a broad set of steps and incorporated columns in its facade – it is arguably a temple of the desert god Ammon. However, further

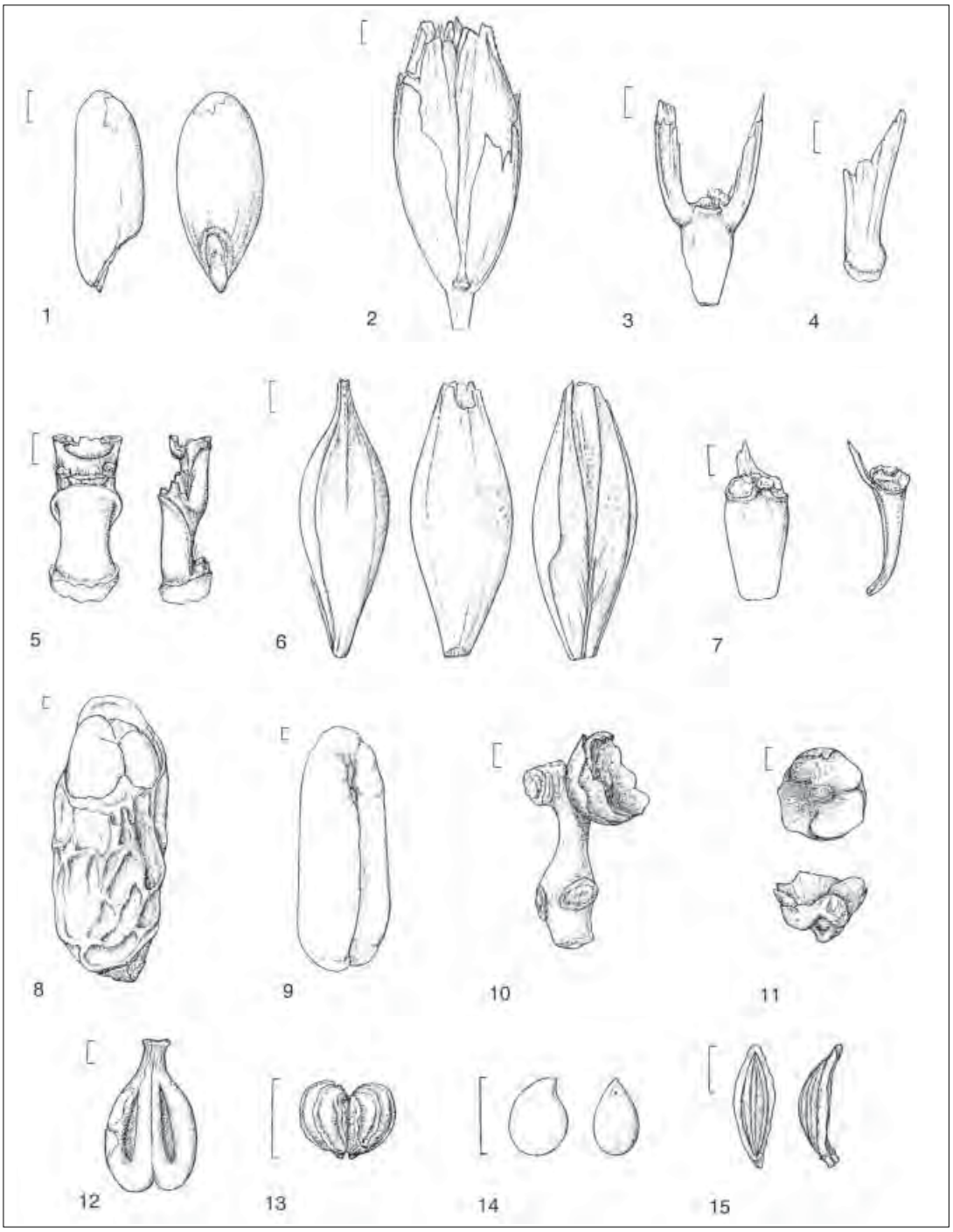

Plate 3 Botanical remains of cultivated crops from the early Garamantian settlement at Zinkekra: 1–4, 7 wheats; 5–6 barley; 8–11 date palm; 12 vine; 13 celery; 14 fig; 15 dill (after van der Veen 1992)

mud-brick structures below the stone buildings push the origins of the settlement back towards the mid-1st millennium BC. The site at Jarma thus provides us with an 'urban' sequence going back 2,500 years and this can be extended still further when the nearby proto-urban hillfort called Zinkekra is added to the picture.

The primary phase of occupation at Zinkekra (the early Garamantian period) was from *c.* 900–500 BC. Daniels' excavations here produced evidence not only of the huts and shelters terraced into the hill, but of animal bones and plant remains. The faunal record, perhaps unsurprisingly was dominated by sheep and goat bones. The botanical record reveals an equally astonishing picture. From a series of contexts dated by C_{14} samples to the first half of the 1st millennium BC, came a range of agricultural produce (wheat, barley, grapes, the date palm), while all the weed species present were types indicative of a hyper-arid climate much as today (**Pl. 3**).[23] The clear conclusion is that the early Garamantes were already advanced agriculturalists long before they had contact with the Greco-Roman world, practising irrigation in a region of negligible rainfall, where subterranean aquifers are the only significant source of water.[24] Accompanying this technological and agricultural revolution, Zinkekra marks the earliest stages of settlement nucleation in the Proto-Urban phase (500–1 BC) and new forms of social differentiation which were continued and accelerated when a true urban centre developed after 300 BC at Jarma, a few kilometres away in the centre of the plain. In the Jarma region,

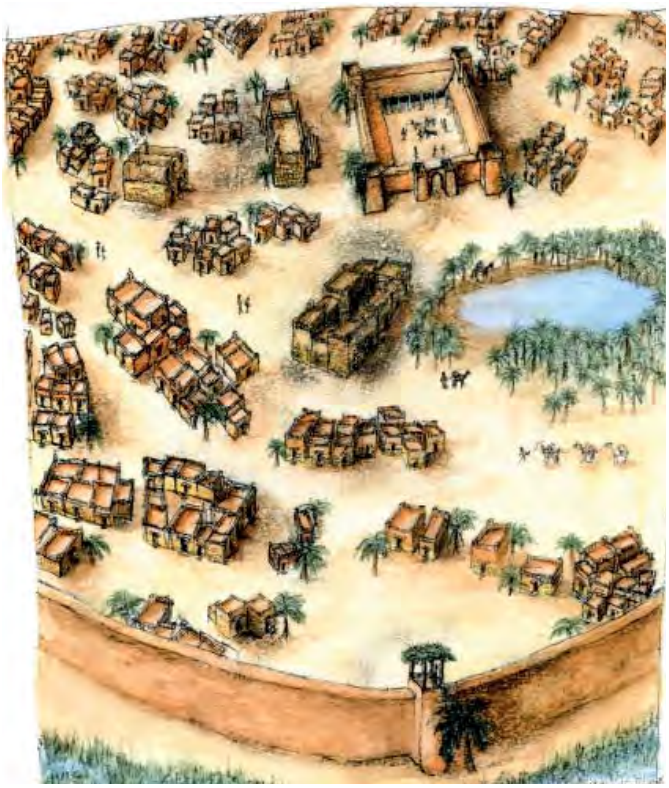

Plate 4 Reconstruction painting of the possible appearance of ancient Garama (Old Jarma) in Late Garamantian times (D. Miles-Williams)

then, we have an effective urban sequence of nearly 3,000 years length, with the Garamantes being identified as the people responsible for bringing about a series of momentous socio-economic changes.

The most recent excavations at Jarma were designed to refine knowledge of this long urban sequence, producing a series of time-slices illustrating the entire history of this remarkable site (**Pl. 4**). The lack of stratigraphic recording in Ayoub's clearance excavations left unresolved many questions about their dating and function – though Daniels did make a few soundings below their foundations to establish a partial chronological framework (Daniels, 1971). We have conducted a systematic and stratigraphic excavation, backed up by a programme of radiocarbon dating, adjacent to the Garamantian temple previously uncovered.[25]

The Classic Garamantian period (AD 1–400) in particular stands out for the diversity and richness of its faunal and botanical assemblages. As well as sheep and goats, there were also cattle and pigs. There is also clear evidence of the introduction into the Central Sahara between the late 2nd millennium BC and 1st millennium AD of the horse, the camel and the domestic fowl.[26] The archaeobotanical record also documents substantial additions to the initial agricultural package, in particular with the introduction of Sub-Saharan crops such as sorghum and cotton.[27]

The material culture revealed demonstrates clear change over time – some phases are unmistakably richer, some more impoverished than others. In the Garamantian period an abundance of wine and olive oil amphorae, ceramic finewares and glass ware was imported from the Roman world (**Pl. 5**). Imports of Roman date appear to have been far more widely distributed in society than those of later date. While there was some decline in the overall volume of imports accompanying signs of growing insecurity in the Late Garamantian period (AD 400–700), there were still some imports of very high prestige value (see Hoffmann below). By comparison, for much of the medieval and early modern periods, the Jarma region was characterized by relatively low numbers of imported goods, despite the continuing existence of trans-Saharan trade at this time.[28]

In order to provide a wider context for the picture of life in the town, the excavation was complemented by fieldwalking and by more extensive survey in the Jarma region. Our systematic fieldwalking has revealed that the Garamantian settlement pattern was far denser than previously suspected, with numerous satellite villages all around Old Jarma.[29] Excavation by Daniels at one of the villages close to Jarma, known by the modern name of Saniat Jibril, revealed a densely built-up site, comprising many small units of one or two rooms, constructed back to back and side-by-side to form larger complexes (Daniels 1971; 1973). There was abundant evidence for craft activity at this site, including weaving, metal-working and ostrich eggshell bead production (Mattingly, 2003: 117–22; 2010). We have also located at least two large Garamantian settlements in addition to Jarma itself that appear to be urban in scale and internal organization.[30]

The FP gazetteer combines both the Daniels' material and the new work, with the total number of known Garamantian sites now approaching 1,000 (Mattingly, 2007). The evolved settlement pattern reflects the localization of farming activity in the oases along the base of the depression. In addition to the large urban centre at Garama, there were clearly regularly spaced village settlements all along the valley, to match the extensive evidence of cemeteries along the foot of the escarpment – where 10,000s of graves have been recorded.

Garamantian culture was extremely heterogeneous. Although distinctive Garamantian tomb types, offering tables and stele have been recognized at various sites throughout Fazzan, there is undoubtedly a concentration of the most prestigious tomb types in the vicinity of Jarma itself. This adds weight to the argument that Jarma was the location of centralized authority within Garamantian society and the area where hierarchical divisions in that society were most pronounced (Mattingly, 2003).[31] As well as several mausolea of recognizable Romano-African tradition, there are also stepped tombs similar to the Egyptian *mastaba* form and even some mud-brick pyramid tombs. Although the biggest of these stand only 3–4m tall, the largest pyramid cemetery contains well over 150 separate examples.[32] The pioneering work of Caputo, Ayoub and Daniels on Garamantian cemetery sites[33] can now be understood better – both in relation to the preceding Late Pastoral phase (cf. Di Lernia and Manzi, 2002), but also as a distinctive cultural phase in its own right (Mattingly, 2003: 187–234).[34]

The story of the Garamantes is in some ways best read against a background of changing availability of water. After the major incident of climate change around 3,000 BC, the Sahara has been a hyper-arid environment, with minimal rainfall and progressively limited surface water sources. There may have been a few lakes and springs still sustained by the groundwater table in the early Garamantian period (early 1st millennium BC), but these seem to have dried up around this time (Drake *et al.,* 2004). The success of Garamantian


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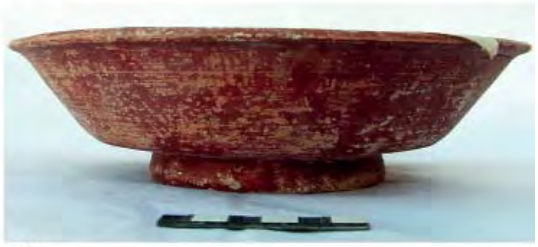
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H83 (graffiti)


H85 (stamp)


H83 (stamp)


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A3 (detail of handles)


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Plate 5 Imported Mediterranean pottery from a 1st-century burial excavated by Ayoub in the Garamantian cemetery at Saniat bin Huwaydi

agriculture was due to the adoption of more sophisticated methods of tapping into the groundwater. One of the most important and enigmatic classes of monument is the *foggara* irrigation system. The *foggara* is an underground irrigation canal, similar to the Persian *qanat* or the Arabian *falaj*, which tapped into an aquifer below the foot of the escarpment and led flowing water out into the oasis proper.[35] They are readily identifiable at the surface, where traces survive, from the regularly spaced vertical shafts which were dug to facilitate construction and maintenance of the channels, though they must have added hugely to the labour involved. The shafts can be up to 50m deep, gradually diminishing in depth until the channel emerges at the surface, from which point surface channels will have distributed the water into the irrigated plots.

The available dating evidence shows that the *foggara* system was introduced to Fazzan during the Garamantian period and their use probably extended into the early Islamic period. It is clear that these structures were a key to ancient irrigation in the region, though evidently they have been dry

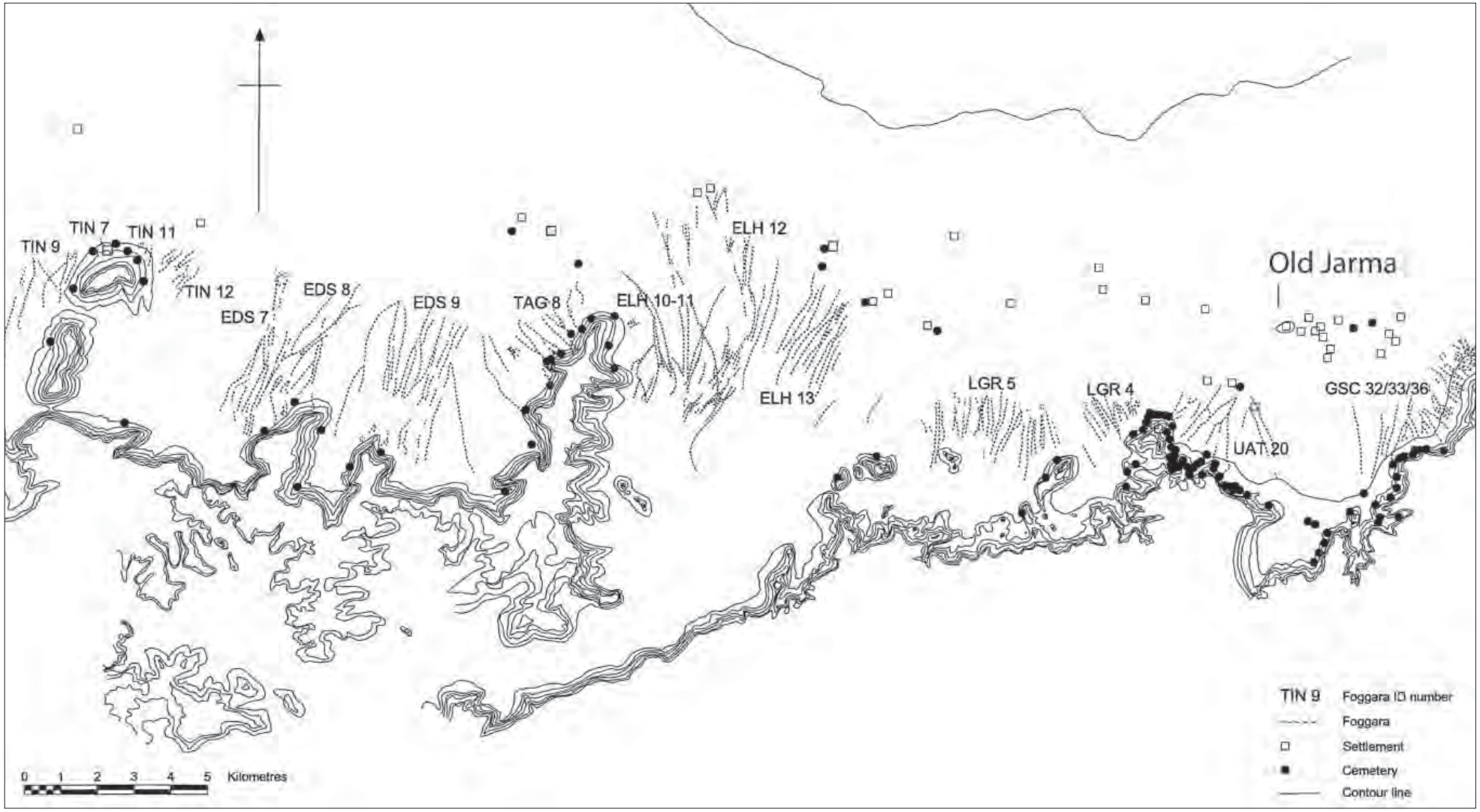

Plate 6 Map of settlements, cemeteries and irrigation systems (*foggaras*) in the Jarma area of the Wadi al-Ajal

for many centuries now. There are many hundreds of these structures visible on the air-photographs, and most were several kilometres in length (**Pl. 6**). The labour involved in their construction and maintenance was on a huge scale – it has been calculated that the construction of the *c.* 550 *foggaras* currently known in the Wadi al-Ajal would have required 72,000 man-years of labour (maintenance of the systems once established would have been a significant addition to this figure). One of the strongest supporting arguments for the existence of a highly organized Garamantian polity is that only a state could mobilize or supply labour on this scale (Mattingly, 2003: 273).

The *foggara* irrigation systems were a major landscape feature, and they clearly facilitated large-scale and extensive cultivation of the valley floor oasis area. A crucial question we are still seeking an answer to is when these systems were abandoned – perhaps because of falling water levels in the aquifer. Our best guess at present is that this occurred in the early Islamic period, though whether cause or effect of the collapse of Garamantian civilization is still unclear. At any event, the settlement density, the number and scale of the cemeteries and the *foggara* systems all combine to highlight the Garamantian period as one of peak population and oasis cultivation.

The Garamantes represent in part a continuation of the local Neolithic (Late Pastoral) tradition, as is clear from lithic and ceramic finds at their early settlements.[36] But they probably comprised a great confederation of peoples and there are indications that some elements may have migrated from oases further east, nearer Egypt, bringing with them (or importing subsequently) knowledge of improved technology for oasis cultivation (notably the *foggara*). There are clear parallels, for instance, between the Libyan tribesmen on Egyptian reliefs and in rock art of southern Libya and Algeria (Ruprechtsberger, 1997: 66–8). Skeletal studies, albeit of a small sample of burials, confirm that the Garamantes comprised a mix of ethnic types, including Berbers (Mediterranean African), negroid people and others of combined Berber/negroid traits.[37]

Garamantian civilization was thus the result of raised population levels in the northern Sahara following the development of advanced irrigation systems. The concentration of tens of thousands of people in the largest of these oases allowed them to dominate a large expanse of the Sahara – launching military expeditions and trading in equal measure to all points of the compass. The classical sources speak of the Garamantes hunting the *troglodytae* and 'Ethiopians', a strong hint of slave raiding against neighbouring peoples (Herodotus, *Hist.*, 4.183; Ptolemy, *Geog.*, 1.8). The chapter by Fentress in this volume focuses on the possibility that there was a significant Saharan slave trade in classical antiquity, with the Garamantes as the key middle-men. Quite apart from the possibility of selling-on such captives north across the Sahara, the intensive irrigated cultivation and the dangerous task of constructing underground irrigation canals (*foggaras*) could have absorbed large numbers of slaves.

The Garamantes and trans-Saharan trade

The evidence for the existence of trans-Saharan trade at this date has grown significantly as a result of the most recent research. Aspects of the trade relations of the Garamantes are addressed by other contributors to this book. I shall limit myself to a few brief comments.

The question is no longer whether there was significant interconnection between Nile/Mediterranean states and the Sub-Saharan regions in pre-Islamic times, but on how fully we can document and understand these contacts. The large quantities of Roman trade goods found at Garamantian sites and in their burials indicate that something of value must have been passing towards the Mediterranean.[38] Despite the denials of Islamic specialists such as Brett, the connections between the Garamantes and the Sub-Saharan zone are becoming increasingly clear. We can identify the incorporation of Sub-Saharan crops in Garamantian agriculture as a marker for more extensive contacts – crops include pearl millet, sorghum and cotton (cf. Pelling, 2005; 2008). Finds of hippo ivory, ebony beads and cowrie shells offer glimpses of trade goods. There are also people of undeniable Sub-Saharan character present in the Wadi al-Ajal in this time period (**Pl. 7**). While it is clear that few Mediterranean goods reached the Sub-Saharan zone, this appears to have been due in large part to Garamantian predilection for such goods and the fact that the Garamantes had plenty of other things to trade with their southern neighbours. This included foodstuffs and salt, but also textiles and a mass of beadwork – in ostrich eggshell, carnelian, amazonite and glass (**Pl. 8**). The early trans-Saharan trade was in effect a series of interconnected trade networks, with the Garamantes at its centre, rather that an open route accessible

Plate 7 Skull of a young woman of negroid physiognomy buried in a cemetery at Taqallit wearing a lip plug of Sub-Saharan type, a unique find in the Wadi al-Ajal

Plate 8 Making 'money' in the central Sahara? Evidence of Garamantian beadmaking from the village settlement of Saniat Jibril

in its totality from north to south or south to north by traders based in the Mediterranean or Sub-Saharan zone.

As Fentress argues below, slaves were a potentially very lucrative commodity, especially if targeted at a niche market in exotic (dark-skinned) youths of both sexes. Apart from slaves, it is likely that the Garamantes traded with Rome in foodstuffs (dates and barley), salt, gold, semi-precious stones (especially red carnelians and turquoise amazonite), ivory, wild animals, and natron (used in ancient glass making). There is increasing evidence for sophisticated Garamantian textile production and some of this material may have been traded. All these commodities leave little tangible trace in the archaeological record, so the challenge of the next phase of research is to improve our methods for identifying or retrieving this evidence, for provenancing a range of materials, and for tracking people who moved within the trans-Saharan network.[39]

Conclusions

The Garamantian achievement was considerable and the simple terms 'tribe' or 'chiefdom' seem inadequate to describe the level of social, economic and cultural organization. In comparison with the Late Pastoral phase, when herders had to start to adapt to the consequences of climatic change, the period of the Garamantes (between 900 BC and AD 500) brought in a series of dramatic socio-economic changes:

- the development of urbanism;
- the evolution of a hierarchical and probably slave-using society;
- the adoption of a written script for the Libyan language;
- the further development of agriculture to encompass a range of Mediterranean and desert crops that require intensive irrigation (cereals, grapes, olives, dates);
- the introduction of the horse, the camel and wheeled transport to the Sahara;
- the creation of trade and political relations that extended north to the Mediterranean, east to Egypt and south to Sub-Saharan Africa;
- a massive demographic expansion to a level that was probably not equalled again until the last 40 years.[40]

The true significance of the Garamantes in Saharan, Maghrebian and Sub-Saharan history is only just starting to be appreciated. Human migration (whether voluntary or enforced) appears to have been a significant dynamic in the changes that took place along routes that inter-connected the Nile, Mediterranean, Sudan, Lake Chad and West Africa. The trans-Saharan connections that passed through Garamantian territory also had transformative effects not only on the central Saharan societies, but also potentially important repercussions for Sub-Saharan and Maghrebian cultures. As many of the papers in this volume attest, the Garamantes offer us a new way in to investigate the realities of pre-Islamic trade and contact, with major implications for our understanding of African history.

Notes

1 The *Penguin Atlas of African History* (McEvedy, 1995: 20–43) for example features a sequence of maps showing socio-political developments either side of a largely empty Sahara, with just two maps indicating the presence of oases in Fazzan (in AD 1 and 200), but no mention of the Garamantes. Brower Stahl, 2005, and Connah, 2004, ignore them completely, while Ehret, 2002: 222 accords them a mere two sentences. Mitchell, 2005, is an exception in showing full awareness of the importance of Saharan communications and connectivity.

2 For some previous succinct expressions of my views, see Mattingly 2000a; 2004; 2005; 2006.

3 On the ancient Libyan people, see Bates, 1914; Gsell, 1918/29; Camps, 1980; Desanges, 1962; 1980; Mattingly, 1995: 17–49; Brett and Fentress, 1996.

4 Mattingly, 1996; Mattingly and Hitchner, 1995: 165–74; cf. Barker *et al.,* 1996a/b.

5 Leschi, 1943; Rachet, 1970; cf. Trousset, 1982.

6 Ayoub, 1962; 1967a/b; 1968; Daniels, 1968; 1969; 1970; 1971; 1989; Pace *et al.,* 1951; RSGI 1937.

7 Ruprechtsberger, 1989; 1997; *Encyclopédie Berbère, s.v.* Fezzan, Garamantes.

8 Liverani, 2000a/b/c; 2004; 2006a/b; 2007a/b; cf. also Castelli *et al.*, 2005.

9 Mattingly *et al.,* 1997; 1998a/b; 1999; 2000a/b, 2001.

10 Mattingly, 2003; 2007; 2010; forthcoming.

11 Mattingly *et al.,* 2007, for an introduction to the aims of the project.

12 Cf. Mattingly, 2003: 79–90.

13 For the history of Roman military action against the Garamantes, Daniels, 1969: 37–8; 1970; 13–21; Mattingly, 1995: 70–3; 2003: 76–86.

14 Tacitus, *Ann.*, 4.26: *raro in urbe visi … culpae conscia.*

15 Tacitus *Hist.,* 4.50: *gentem indomitam et inter accolas latrociniis fecundam … recepta omnis praeda nisi quam vagi per inaccessa mapalium ulterioribus vendiderant.*

16 On the Tuareg, see Duveyrier, 1864; also now Nicolaisen and Nicolaisen, 1997.

17 Cf. also Liverani, 2000a/b; 2006b: 1018–20.

18 Thiry, 1995, does cite some longer journeys between major oases, but these were often supplemented by numerous wells and minor oases where additional water and fodder could be taken on. Stages of 12–15 days with inadequate water sources were generally very perilous if caravans prioritized cargo above safe limits of water and food.

19 Mattingly, 2003; 2007; 2010; forthcoming.

20 Mattingly, 2000a; 2003; 2004; 2006.

21 Daniels, 1989: 58–59; Edwards, 2001 (for the Barjuj/Murzuq area); Liverani, 2000a; 2006a/b; 2007a/b (Ghat). The location of Garamantian sites known before the present phase of fieldwork is presented in cartographic form in Mattingly 2000b, with the full gazetteer of the new work Mattingly, 2007.

22 Ayoub, 1967a; Daniels, 1971; Mattingly, 2003: 156–7, 163–8.

23 Cf. Mattingly *et al.,* 2002; van der Veen, 1992; 2007.

24 Cf. Daniels, 1989: 51; Mattingly, 2003: 351–4; Pelling, 2005; 2008; van der Veen, 1995.

25 Recorded in Mattingly *et al.* 1997; 1998a/b; 1999; 2000a/b; 2001; Mattingly forthcoming.

26 Cf. Grant, 2006; Mattingly, 2010.

27 Pelling, 2008, for a substantial summary of the results from Jarma.

28 On the *post*-Garamantian history of Fazzan, see Mattingly, 2003: 90–106; Thiry, 1995.

29 Cf. Daniels, 1989, 49; Edwards *et al.,* 1999: 113–14; Mattingly *et al.,* 1997: 13, 19–20; 1998b: 131, 133; 1999: 135–8.

30 Mattingly, 2007: 229–31 Qasr bin Dughba; 263–65 Qasr ash-Sharraba.

31 Mattingly, 2003: 351; cf Liverani 2006a for a view from the Garamantian periphery, which draws out some important contrasts.

32 Ayoub, 1967b; 1968; Daniels, 1971; Edwards *et al.,* 1999: 113–19; el-Rashedy, 1988; Mattingly, 2007: 75–83.

33 Ayoub, 1967a/b; 1968; Daniels, 1973; 1977; 1989; Mattingly, 2010; Pace *et al.,* 1951.

34 See further the work of the DMP Burials and Identity sub-project, Mattingly *et al.*, 2007; 2008; 2009.

35 Goblot 1979; Klitzsch and Baird, 1969; Mattingly, 2003: 235–65; Wilson, 2006.

36 Daniels, 1968; Mattingly, 2010; cf. Cremaschi and di Lernia, 1998.
37 Daniels, 1970: 27–35; Pace *et al.,* 1951: 443–542; di Lernia and Manzi, 2002; Mattingly, 2010.
38 Bovill, 1968; Law, 1968; Liverani, 2000b/c; Mattingly, 1995: 155–7. See Lyon, 1821 for a detailed account of the early modern caravan trade.
39 This is very much the focus of my current project, the Desert Migrations Project, see Mattingly *et al.*, 2007; 2008; 2009.
40 Urbanism: Daniels, 1971: 262–5; Mattingly, 2003: 142–5, 155–9. Hierarchical society: Daniels, 1970: 27–35; Mattingly, 2003: 217–20. Written language: Daniels, 1975; Mattingly, 2003: 317–24. Agriculturalists: Daniels, 1989: 56–8; Mattingly, 2003: 351–4. Horses and chariots: Camps, 1989; Mattingly, 2003: 342–6. Traders: Bovill, 1968: 1–44; Fontana, 1995; Liverani, 2000b; 2006a; Mattingly, 2003: 355–62. Demographic peak: Daniels, 1989: 49, estimated that there were at least 120,000 Garamantian burials in the al-Ajal alone, but the recent work is revising these estimates upwards, Mattingly, 2003: 351; Mattingly *et al.,* 2008: 227.

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