

Mobile Technologies in the Ancient Sahara and Beyond

The ancient Sahara has often been treated as a periphery or barrier, but this agenda-setting book – the final volume of the Trans-Saharan Archaeology series – demonstrates that it was teeming with technological innovations, knowledge transfer and trade from long before the Islamic period. In each chapter, expert authors present important syntheses, and new evidence for technologies from oasis farming and irrigation, animal husbandry and textile weaving, to pottery, glass and metal making by groups inhabiting the Sahara and contiguous zones. Scientific analysis is brought together with anthropology and archaeology. The resultant picture of transformations in technologies between the third millennium BC and the second millennium AD is rich and detailed, including analysis of the relationship between the different materials and techniques discussed, and demonstrating the significance of the Sahara both in its own right and in telling the stories of neighbouring regions.

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Contents

List of Figures [page vii]
List of Tables [xii]
List of Contributors [xiii]
Preface [xv]
DAVID J. MATTINGLY

PART I INTRODUCTION [1]

1 Debating Mobile Technologies [3]
CHLOË N. DUCKWORTH, AURÉLIE CUÉNOD AND
DAVID J. MATTINGLY

PART II TECHNOLOGICAL MOBILITY AND
TRANSFERS [51]

2 Technological Innovations Transfer through the
Hyper-Arid Belt [53]
MARIO LIVERANI

3 The Diffusion of Irrigation Technologies in the Sahara in
Antiquity: Settlement, Trade and Migration [68]
ANDREW WILSON, DAVID J. MATTINGLY AND MARTIN STERRY

4 Crafts in Roman North Africa: Technical Transfer and
Permanence through Grain Mills and *Fullonicae* [115]
TOUATIA AMRAOUI

5 Movement and Management of Animals in the North and
West of Africa from 1000 BC to AD 1000 [143]
B. TYR FOTHERGILL, VEERLE LINSEELE AND
SILVIA VALENZUELA LAMAS

6 The Early History of Weaving in West Africa: A Review of
the Evidence [183]
SONJA MAGNAVITA

PART III METALLURGY [209]

- 7 Metalworking in Pre-Islamic North Africa: A View from the
Garamantian Oases [211]
AURÉLIE CUÉNOD

- 8 Is the Archaeometallurgical Record a Valuable Tool when
Considering Meroe within a Trans-Saharan
Landscape? [259]
JANE HUMPHRIS

- 9 What Is the Meaning of the Extreme Variability of Ancient
Ironworking in West Africa? A Comparison between Four
Case Studies [290]
CAROLINE ROBION-BRUNNER

PART IV GLASS TECHNOLOGY [315]

- 10 Shattering Illusions: Using Analytical Evidence to Establish
Clearer Pictures of Glass Production and Trade within
Africa [317]
CHLOË N. DUCKWORTH

- 11 Glass Beads in African Society: Beyond Chemistry and
Provenience [385]
PETER ROBERTSHAW

- 12 Three Millennia of Egyptian Glassmaking [423]
THILO REHREN AND DANIELA ROSENOW

PART V HANDMADE POTTERY [451]

- 13 Garamantian Ceramic Technology: Change and Exchange
in a Trans-Saharan Perspective [453]
MARIA CARMELA GATTO

PART VI CONCLUSION [485]

- 14 Technology in the Sahara and Beyond: Concluding
Discussion [487]
CHLOË N. DUCKWORTH, AURÉLIE CUÉNOD AND
DAVID J. MATTINGLY

Index [504]

Figures

- 1.1. Map of key sites and axes of communication across the Sahara over time [page 10]
- 1.2. Map of the Trans-Saharan zone showing many of the key sites relevant to this volume [12]
- 1.3. Map of the distribution of key irrigation technologies across the Sahara [27]
- 3.1. Section and plan of a foggara [70]
- 3.2. Rock-cut foggara shafts in the Taqallit area, Wadi al-Ajal, Fazzan [71]
- 3.3. A foggara in the north-western Tafilalat, Morocco [72]
- 3.4. Mudbrick lining of foggara shaft (ELH013) at al-Hatiya (Wadi al-Ajal, Fazzan) [73]
- 3.5. Hypothetical distribution of active (blue) and failing/abandoned (grey) foggaras by phase across the Trans-Saharan region [94]
- 3.6. Hypothetical development sequence in the Taqallit landscape [100]
- 3.7. Foggaras at Tuwash in the Wadi al-Ajal: (a) air-photograph and (b) plan [101]
- 3.8. Foggara distribution network at ad-Disa (Wadi al-Ajal, Fazzan) [102]
- 4.1. Map of the main sites discussed [117]
- 4.2. A lapidary deposit in Timgad where different kinds of stone objects, mostly grain mills, were moved and stored after their discovery [119]
- 4.3. The 'Maison orientale', Djemila. The *pistrinum* occupied rooms 7 to 9 in the southern part of the house [120]
- 4.4. (a) Byrsa Punic grain mill type; (b) African Roman grain mill Type 1 [121]
- 4.5. Grain mill Types 1a and 1b, and some variations in local stones [123]

- 4.6. (a) *Mola asinaria* in a *pistrinum* at Pompeii; (b) grain mill Type 1 (Tebessa) [125]
- 4.7. *Fullonica* A1 (Tiddis), fulling compartments with tubs surrounded by *opus testaceum* [131]
- 4.8. *Fullones* at work. Models (a) and (b) illustrate the double side support. Model (c) represents a support of a single side [132]
- 4.9. *Fullonica* of Insula 30 (Timgad), the well surrounded with low walls in the middle, and around it the other compartments containing tubs [132]
- 4.10. Terracotta pipe used to supply water within a compartment with tub in a *fullonica* at Tiddis [134]
- 4.11. Plan of Insula 30 (Timgad), the *fullonica* is located in the north-east corner [134]
- 4.12. (a) Cage represented on a painting of the *fullonica* of L. Veranus Hypsaesus at Pompeii; (b) Mseĥna in wood used at Tlemcen at the beginning of the twentieth century [137]
- 5.1. Map of sites discussed, along with generalised distribution of Caballine rock art [145]
- 5.2. Chickens as a proportion of cattle, caprines and pigs in assemblages [167]
- 5.3. Equids as a proportion of cattle, caprines and pigs in assemblages [167]
- 5.4. Pigs as a proportion of cattle, caprines and pigs in assemblages [167]
- 5.5. Camels as a proportion of cattle, caprines and pigs in assemblages [168]
- 5.6. Caprines as a proportion of cattle, caprines and pigs in assemblages [168]
- 5.7. Cattle as a proportion of cattle, caprines and pigs in assemblages [168]
- 6.1. Map of the main locations discussed [184]
- 6.2. The wool tunic from Iwelen, grave 68, after restoration, on display at the IRSH Niamey, Niger [192]
- 6.3. Cotton fabric in balanced plain weave on a copper alloy bracelet from Bura Asinda-sikka, Niger [194]
- 6.4. Plain weave cotton fabric with visible warps, set in pairs. Copper alloy bracelet from Bura Asinda-sikka, Niger [194]
- 6.5. Fragment of a musical instrument from Kissi, Burkina Faso, cemetery Kissi 3, Grave 11, with fine animal hair or wool fabric in weft-faced plain weave [196]

- 6.6. Wool sheep near Tillabéri, Niger [197]
- 6.7. Textile fragments approximately dated to the second century AD from Garamantian graves at the Watwat cemetery UAT008 [198]
- 6.8. The typical twine-mat used for potting in Dogon land [200]
- 7.1. Locations of the main sites and regions discussed [215]
- 7.2. Lead isotope ratios for copper-base objects from Fazzan [222]
- 7.3. Lead isotope ratios for copper-base objects from Fazzan compared to those of Tunisian lead ores, Kissi objects, Marandet objects and crucibles, and Roman lead and bronze from Carthage [222]
- 7.4. Lead isotope ratios for copper-base objects from Fazzan compared to those of Spanish ores [224]
- 7.5. Lead isotope ratios for copper-base objects from Fazzan compared to those of ores from Britain, France (Cévennes) and Sardinia [225]
- 7.6. Lead isotope ratios for copper-based objects from Fazzan compared to those of ores from Germany [226]
- 7.7. Ingot moulds found in Jarma [227]
- 7.8. (a) Photograph, (b) cross-section and (c) plan of hearth 20 excavated at Saniat Jibril by the Fazzan Project in 2001 [228]
- 7.9. Fragments of slag TSM 601c and TSM 602 from Qasr Bin Dughba [229]
- 7.10. (a) Photograph and (b) unetched micrograph of a thin ring from Saniat Jibril (TSM 160) [230]
- 7.11. (a) Side and top view of TSM 620; (b) micrograph showing dendrites of wüstite, blocky fayalite and glass [232]
- 7.12. Examples of fragments of 'run slag' (TSM 619, 628 and 630) and iron bearing rock (TSM 621) from Zinkekra [233]
- 7.13. Micrographs of slag sample TSM 628 at two different magnifications showing elongated fayalite crystals in a glassy matrix and fine dendrites of wüstite [233]
- 7.14. Iron pick-axe found in Jarma, Fazzan (TSM016) [240]
- 7.15. Fazzan objects from Saniat Jibril, Zinkekra and Jarma subjected to chemical or lead isotope analysis [243]
- 8.1. (a) Map illustrating the regions mentioned in the text; (b) the location of Kushite sites [261]
- 8.2. (a) Meroe's local network, including the location of some Meroitic sites and those where iron production remains are

- known; (b) the site of Meroe with the slag heaps and furnace workshop locations marked [264]
- 8.3. Examples of Meroitic material culture inspired or imported from abroad [269]
- 8.4. Meroe's largest slag heap, known as MIS4 (Meroe Iron Slag 4) within this research, sectioned by the railway [271]
- 8.5. An area within the Meroitic mining landscape under excavation [272]
- 8.6. Bands of ore-processing debris within the deposits of a slag heap at Meroe [273]
- 8.7. Excavations underway at Meroe's so-called Apedemak Temple, constructed on top of a large slag heap [280]
- 9.1. Map of West African case studies discussed [291]
- 9.2. Map of Benin, showing the location of samples of ore and slag analysed in the laboratory [296]
- 9.3. The smelting sites of Dendi Country [298]
- 9.4. Map of Dogon Country, showing the extraction and bloomery sites and the seven metallurgical traditions [301]
- 9.5. Synthesis of chronological data and stages of production at the Korsimoro site [305]
- 9.6. Natural draught iron-smelting furnace at the Tatr  site (Bassar Region, Togo) [307]
- 10.1. Colour illustrations of selected sampled and analysed glass bangles from Fazzan [331]
- 10.2. Women wearing bangles: (a) Tebu woman wearing multiple bangles of different colours, c.1820; (b) Zuwaya woman wearing jewellery, including what appears to be a metal bangle [333]
- 10.3. Selected bead fragments from Fazzan, subjected to sampling and chemical analysis [334]
- 10.4. Finds from Building 32 at Ghirza: (a) complete, slightly convex glass mirror; (b) painted cedarwood mirror box [335]
- 10.5. (a) Splash of blue glass and (b) unknown blue glass splash and white substance on two sherds of local, handmade pottery. Excavated in Jarma, late second to fourth century AD [338]
- 10.6. (a) An example of the semi-fused, heterogeneous vitreous production waste from Ayoub's 'Building 1' in Jarma; (b) the glass chunk from Saniat Jibril; (c) the glass 'drip' from Zinkekra [339]

- 10.7. The 'raw' glass lump in Hotel Zumit, Tripoli [341]
- 10.8. Magnesia (MgO) plotted against potash (K₂O) for all samples. Based on EPMA results [343]
- 10.9. Alumina (Al₂O₃) plotted against the ratio of CaO:MgO. Based on EPMA results [343]
- 10.10. The vessel glass groups plotted by broad date brackets [344]
- 10.11. Manganese oxide (MnO) plotted against antimony oxide (Sb₂O₅) for the Roman vessel glasses, divided by compositional group [345]
- 10.12. Manganese oxide (MnO) plotted against antimony oxide (Sb₂O₅) for the Roman vessel glasses, the various beads, the glass chunk and the vitreous waste [346]
- 10.13. Strontium (Sr) plotted against zirconium (Zr) for the analysed dataset [350]
- 10.14. Soda (Na₂O) plotted against potash (K₂O), using normalised EPMA results (excluding colourants) [351]
- 12.1. Map of key Egyptian sites discussed [424]
- 12.2. Map of key Eastern Mediterranean sites discussed [425]
- 13.1. Location map of key sites and geographical areas discussed [454]
- 13.2. Negative evidence for coiling in a sherd's profile [458]
- 13.3. (a) Collared cup from Fewet; (b) interior surface of a painted vessel from Jarma [459]
- 13.4. Example of a typical Garamantian globular collared pot with roulette and applied decorations from Fewet [460]
- 13.5. Examples of roulette decorations from the Tanzzuft [462]
- 13.6. Jar fragment from Fewet Site 11, showing an applied decoration in the shape of a snake [463]
- 13.7. Examples of painted pottery from the Tanzzuft [464]
- 13.8. Painted pottery from Jarma [465]
- 13.9. Pottery from Site G4-324 near Ghat [468]
- 13.10. Sherd showing a combination of roulette decoration and chequered painted pattern [473]

Tables

- 1.1. Summary of historical and environmental phasing in the Sahara and beyond [*page* 6]
- 1.2. Main cultivated plants exploited by the Garamantes [20]
- 1.3. Main cultivated plants exploited at Althiburos [22]
- 5.1. Faunal data, organised by region and time period [163]
- 6.1. Chronology of archaeological textiles in West Africa. [186]
- 7.1. Objects subjected to chemical and lead isotope analysis [244]
- 7.2. Composition of brass, leaded bronze and bronze standards analysed using EPMA [247]
- 7.3. Composition of the Fazzan objects given in weight percentages [248]
- 7.4. Lead isotope ratios of Fazzan objects [250]
- 9.1. Global major element compositions of selected ore and slag samples from Dendi Country measured by ICP-AES at ALS Minerals, Seville, Spain [297]
- 10.1. Physical characteristics and archaeological context details of glass samples from Libya selected for analysis [360]
- 10.2. Glass compositional analysis: EPMA results [368]
- 10.3. Glass compositional analysis: LA-ICP-MS results [372]
- 11.1. Evidence for the chemical variability in glass beads and for glassworking at some North and West African sites [389]

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Preface

When I was working on my PhD thesis on the Roman province of Tripolitania (north-west Libya) in the early 1980s, I became intrigued by a desert people who inhabited Fazzan, the area of the Central Sahara to the south of Tripolitania. This was my first introduction to the Garamantes. They were regularly mentioned in the ancient Greek and Roman sources, although seldom in complimentary terms – for the most part being depicted as nomadic and uncouth barbarians.¹ However, some pioneering archaeological work in the 1930s and then again in the 1960s–1970s had revealed their physical traces to be considerably more sophisticated than would be assumed on the basis of the literary stereotypes.²

This volume arises out of my subsequent direct engagement across more than 20 years with the archaeology of Fazzan. In 1996, I was given the chance to renew field research in what were effectively the Garamantian heartlands. Following an initial scoping visit that year, I directed the Fazzan Project across six years, carrying out excavations and a survey around the capital of the Garamantes at Garama (Old Jarma), with an emphasis on tracing evidence for their settlements, but also mapping other archaeological features including cemeteries and irrigation systems.³ A notable result of this work was the clear demonstration of the sophisticated and substantial network of oasis farming settlements that lay at the heart of the Garamantian territory. Rather than being ‘nomadic barbarians’, the Garamantes now appear to have been predominantly sedentary oasis farmers, living in substantial permanent and complex settlements of mudbrick buildings. That is not to say that the Garamantes did not also incorporate pastoral elements, but simply to highlight the unexpected density and sophistication of sedentary oasis settlements. There is strong

¹ See in particular, Mattingly 2003, 79–81; 2011, 34–37 on the concept of ‘progressive barbarisation’ imposed by ancient authors as a factor of distance from the Mediterranean.

² Ayoub 1967; Daniels 1968; 1970; 1971; 1989; Pace *et al.* 1951.

³ There were five seasons of fieldwork (1997–2001) and a finds study season (2002). The results are now fully published as Mattingly 2003; 2007; 2010; 2013. Funding for the Fazzan Project came primarily from the Society for Libyan Studies, the Leverhulme Trust, the British Academy and the Arts and Humanities Research Council.

evidence to identify the top level of their settlement hierarchy as ‘urban’ in character and their overall society as an early Saharan state.⁴

My work on the Garamantes has subsequently evolved through a series of further projects. From 2007 to 2011, I directed the Desert Migrations Project, with a particular focus on Garamantian burials and funerary traditions.⁵ The increasing availability of high-resolution satellite imagery opened a new avenue of research in 2011, the Peopling the Desert project, which extended research on the Garamantes to another of the major oasis bands in Fazzan, the Murzuq depression.⁶

The Trans-SAHARA Project: State Formation, Migration and Trade in the Central Sahara (1000 BC–AD 1500) (2011–2017) marked a further evolution of this body of work, seeking to place the Garamantes in their Saharan context and to address the wider implications of the results obtained in the earlier work.⁷ The project sought to investigate the nature and consequences of the interconnectivity of the Trans-Saharan zone in the pre-Islamic period. The work of the Trans-SAHARA Project was organised around a series of four workgroups, each one supported by early career post-doctoral research associates and each dealing with a discrete group of themes: trade; migration, burial practice and identity; mobile technologies; urbanisation and state formation. As a key element of the work programme, a small conference was held at Leicester for each of the workgroups, to which international scholars working on neighbouring areas of the Trans-Saharan zone were invited. From the outset, these conferences were conceived as offering a chance to engage a group of leading experts in the field in a high-level debate about the implications of the new information on the Garamantes for studies of the wider Trans-Saharan world. Papers were commissioned for an intended series of agenda-setting volumes on Trans-Saharan archaeology and pre-circulated so that the conferences focused entirely on discussion of their content.

One of the major obstacles hindering understanding of the Sahara through history is that the study of the desert and the neighbouring zones of North Africa, the Nile Valley, Sudan and West Africa has tended to be compartmentalised into chronologically or regionally specific

⁴ Mattingly 2013, 530–34; Mattingly and Sterry 2013.

⁵ Five planned seasons of fieldwork were completed by 2011, but the scheduled study season could not take place in 2012 because of the Libyan civil war. Interim reports have been published in *Libyan Studies* from 2007 to 2011, Mattingly *et al.* 2007; 2008; 2009; 2010a; 2010b; 2011. Funding for the Desert Migrations Project came primarily from the Society for Libyan Studies.

⁶ Sterry and Mattingly 2011; 2013; Sterry *et al.* 2012. The Peopling the Desert Project was funded by the Leverhulme Trust.

⁷ The Trans-SAHARA Project was funded by the European Research Council (grant no. 269418).

investigations. Broader synthesis across the vast Trans-Saharan zone has been lacking. The term ‘Trans-Saharan’ should be understood in the context of this book as referring to the connected spaces of the Sahara and its eastern, northern and southern peripheries. The Sahara has often been likened to a great sea and no sea can be understood without reference to its adjacent shore-lands. The idea of Trans-Saharan perspectives on historical developments thus shares much in common with recent studies of the Mediterranean, which have stressed the importance of connectivity and supra-regional influences.⁸

This volume, the fourth in a series of four, thus presents some of the key work of the Trans-SAHARA team and an international pool of collaborators on the theme of technology. The recent systematic work on the Garamantes has revealed much new information about their technological capabilities and their engagement with technologies or technological packages developed elsewhere. Several contributions to this volume describe and analyse the main evidence for the technology of the Garamantes, while others present complementary studies on neighbouring regions and later time periods. The volumes in this series are thus unusual edited books in that each one has at its core an extended and detailed presentation of the key results of the Trans-SAHARA research team’s work, combined with the comparative perspectives of invited external experts. As the Cambridge University Press reviewers of the volumes have noted, in the interest of promoting debate we also invited critique and contradiction from these external specialists. We think that adds to the special character of the resulting books, integrating new evidence with a broad overview of the state of the field and combining agenda-setting ideas with different perspectives.

The resulting series of publications meets one of the key aims of the Trans-SAHARA Project: to examine from a broad perspective questions of trade, human movement, identity, production and urbanisation on a supra-regional scale. Interaction is central to both the developing historical-archaeological picture of past life in the Sahara, and the integrated methodological perspective offered by the Trans-SAHARA Project, with experts in various materials and regions learning from and sharing with one another.

In the spirit of this interaction, we also held two additional workshops associated with the technology conference. The first of these, spread over two days, brought together experts in the handmade pottery of different

⁸ Abulafia 2011; Broodbank 2013; Horden and Purcell 2000. See Lichtenberger 2016 for the explicit comparison of Mediterranean and Sahara.

regions of the Sahara and Sahel. Crucially, the attendees brought samples of pottery with them, allowing comparisons between the techniques and styles of different regions, as well as discussions of the broader themes and questions arising from this regional approach. No consensus view emerged on whether we can discuss these materials from a supra-regional perspective, but the possibility was at least put on the table – as were the pots – for the first time.⁹ The second workshop was a one-day affair, examining the latest advances in studying the archaeology of metals and glass recycling, themes of direct relevance to the scientific examination of these materials in the archaeological record. Recycling affects a whole range of methodological approaches, from geographical provenance studies to concepts of object biography and what counts as a ‘raw material’ in different social contexts. In the course of the workshop, attendees presented and discussed various methods of studying recycling from an analytical perspective, and considered some of the current challenges facing archaeometry, including the use of historical datasets, access to data, and the meaning and contexts of recycling practice. The workshop brought together various experts working on recycling from an archaeometric perspective for the first time.¹⁰ The conversations which were initiated are ongoing, and are being revisited and developed in other fora.¹¹

As we are asking our readers to often step outside their core areas of knowledge and expertise to engage with material from other parts of the Trans-Saharan zone, place names and their mapping have exercised us all. Systems of transliteration and spelling of place names across the Trans-Saharan region vary enormously and the same site can be presented in several distinct ways. We have tried to impose a measure of consistency in the transliteration of names, following the practice I adopted for the

⁹ Workshop organised by Maria Carmela Gatto (University of Leicester). Participants: Touatia Amraoui (CNRS-Université Lyon 2), Youssef Bokbot (INSAP), David Edwards (University of Leicester), Olivier Gosselain (Université Libre de Bruxelles), Anne Haour (University of East Anglia), Victoria Leitch (University of Leicester), Kevin MacDonald (University College London), Susan McIntosh (Rice University), Sonja Magnavita (German Archaeological Institute, Bonn), Carlos Magnavita (Frankfurt) and Anne Mayor (University of Geneva).

¹⁰ Workshop organised by Chloë N. Duckworth and Aurélie Cuénod (University of Leicester). Participants: Peter Bray (University of Oxford), Simon Chenery (British Geological Survey), Thomas Fenn (Yale University), Ian Freestone (University College London), Julian Henderson (University of Nottingham), Caroline Jackson (University of Sheffield), Marianne Mödler (Université Bordeaux Montaigne), Sarah Paynter (English Heritage), Mark Pollard (University of Oxford), Peter Robertshaw (California State University), Daniela Rosenow (University College London) and Victoria Sainsbury (University of Oxford).

¹¹ For example, a workshop led by Peter Bray, entitled ‘Recycling Things and Ideas’, held at the 21st Annual Meeting of the European Association of Archaeologists, Glasgow, 2–5 September 2015.

Archaeology of Fazzan series. However, for ease of recognition some exceptions have been allowed for sites whose canonical spelling is so well established in the literature. We trust that the maps provided will prove helpful with the identification of places named in the text, but hope that readers will share our sense of being on a journey of discovery as they read the following contributions.

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