

# 10. New Light on the Tichitt Tradition: A preliminary report on survey and excavation at Dhar Nema

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## Abstract

*The Tichitt Tradition probably represents the earliest complex society in Africa west of the Nile Valley. Its vast stone settlements are well documented from the Tichitt and Walata escarpments of Mauritania, and its distinctive material culture is known to have extended to the banks of the Inland Niger Delta by the late second millennium BC. Dhar Nema is the easternmost escarpment in the Tagant-Tichitt-Walata chain. Until 2000, it was the only one of these escarpments never to undergo archaeological investigation. In that year a field mission directed by MacDonald and Vernet surveyed the region and test excavated two sites: Djiganyai (a Classic Tichitt Tradition tell site) and Bou Khzama (a late Tichitt Tradition settlement and iron smelting site). New evidence to be presented in this paper includes: the temporal settlement dynamic of this peripheral region, further early dates for Tichitt agriculture, and – most importantly – a connection between the Tichitt Tradition and African metallurgy in the first millennium BC.*

## Introduction

Tichitt is perhaps the earliest sedentary complex society west of the Nile Valley. By the mid second millennium BC there were tens of major settlements with dry stone architecture along the Tichitt and Oualata escarpments of southern Mauritania, one of which was the 80 ha centre of Dakhlet el Atrouss (Holl 1986, 1993; Vernet 1993; MacDonald 1998; Amblard-Pison 1999). In 1980 Pat Munson hypothesised that the Empire of Ghana (c. AD 300–1100) was the ultimate result of a proto-Soninke Diaspora from this Tichitt polity (c. 2000–300 BC). What was lacking were good data for regions lying between the Middle Niger heartland of the Soninke and the main prehistoric settlements of Tichitt-Oualata. These gaps have now at least preliminarily been filled by fieldwork in the Mema (MacDonald 1994, 1996, 1999), the Tagant (Ould Khattar 1995), and the present Dhar Néma project (Figure 10.1).

Projet Dhar Néma was a two year programme of research intended to further our understanding of the southern margin of the Tichitt Tradition. The February 2000 reconnaissance of Dhar Néma, the first ever archaeological survey of the region, was of approximately three weeks duration. Participants in the mission included Kevin MacDonald (University College, London), Robert Vernet (Université de Nouakchott/Centre de Recherche International et Intra-Africaine d'Archéologie), Julie Wilson (University College, London), Moussa Diagne (Institut

Mauritanien de Recherche Scientifique), and Boutar el Arby (Université de Nouakchott). During the survey 25 archaeological sites were located, 16 of these were fully recorded, and 2 were test excavated.

Two survey areas on the Néma Escarpment were selected for foot survey (focusing on 5 km radii of Bou Khzama and Séilé respectively) and two areas on the ancient floodplain to the west were chosen for vehicular survey (around palaeolakes Amzingui and Amourj; Figure 10.2). In addition to widespread Early Stone Age (Acheulian) and other aceramic 'macrolithic' localities, there were Ceramic Later Stone Age (LSA) and Tichitt Tradition sites around Bou Khzama, Bou Bteiah, Seilé, and Palaeolake Amourj.

For the purposes of this initial report we shall concentrate on data from three localities beginning with:

### Bou Bteiah

Straddling the road to the west of Bou Bteiah village, are two weathered sandstone inselbergs. Around each of these were dense concentrations of LSA cultural materials, each being about 1 ha in area. Chipped stone tools were extremely abundant here, including segments and trapezoids, thumbnail scrapers, perçoirs, burins and backed bladelets, mostly in chert. Ceramics were mostly (83%) sand-tempered, though chaff temper was also present.

## Djiguenai

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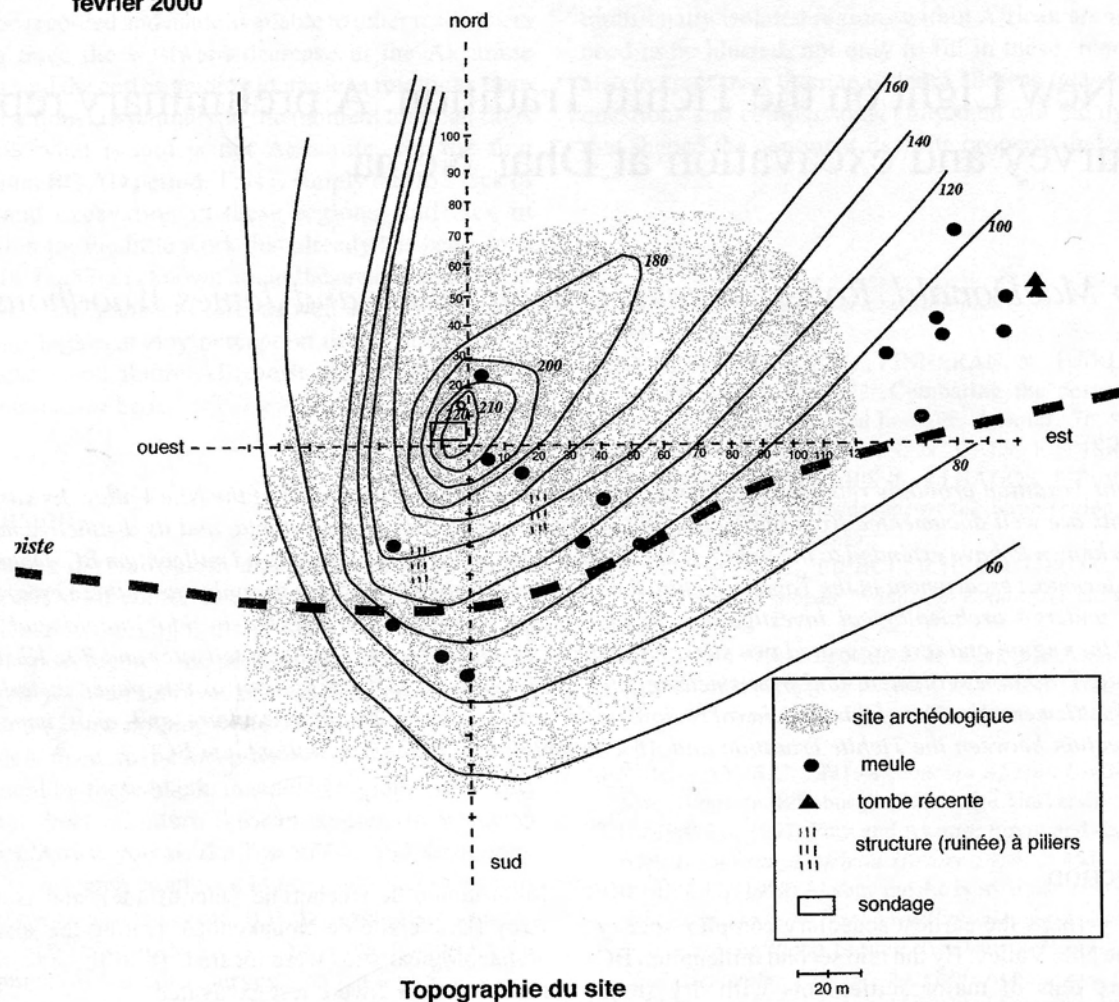


Figure 10.1 Map showing the key regions of the Tichitt Tradition: Tichitt, Oualata, Néma, Tagant, Méma and Macina.

Decoration was mainly executed with stabbed or dragged comb (20% of sherds) and rouletted or impressed *peigne fileté souple* (i.e. cord-wrapped stick) (31% of sherds). Many sherds were left undecorated (31%)

Both the ceramic and lithic assemblages were at variance with those of the Tichitt Tradition and appeared to be comparable to Munson's Pre-Tichitt Akrejit Phase assemblages (Munson 1971, 1976). This was later confirmed when sherds of the Bou Bteiah tradition were found in stratigraphic context at the next site we discuss, Djiganyai.

### Djiganyai

Located beside a wadi leading into Palaeolake Amourj, and near a modern path between Djiganyai village and El Mseggmé, Djiganyai is a 3 ha tell site with one metre of intact cultural deposits displaying a three horizon succession of material culture. As such, Djiganyai (Figure 10.3) is the first stratified sequence, other than localised sediment traps, yet known for the Tichitt Tradition. Our two by one

metre test trench at the highest point of Djiganyai indicates a Pre-Tichitt Ceramic LSA occupation of the site, followed by Classic Tichitt and Late Tichitt phases.

The earliest horizon consists of lithic material analogous to that found at Bou Bteiah, a microlithic assemblage with segments, trapezoids and backed bladelets. Ceramics are sand-tempered, with simple rims only, and are decorated with comb and cord-wrapped stick impressions. The second or 'Classic Tichitt' horizon features typical Tichitt leaf-shaped projectile point forms, larger blade rather than bladelet debitage, greater quantities of scrapers, as well as polished stone rings and axes, and grooved stones. The ceramics feature thickened (37%) and everted (3%) rims, which are broadly comparable to those from Munson's (1971) Nkahl and Naghez phases (c. 1600–1250 BC). Chaff temper (69%) is common. Comb-based decoration disappears, being replaced with more varied motifs including those produced by twisted cord roulettes (6%), applied nubbins (4%), red slip (10%) and simple incised waves or channels (14%). Cord-wrapped stick

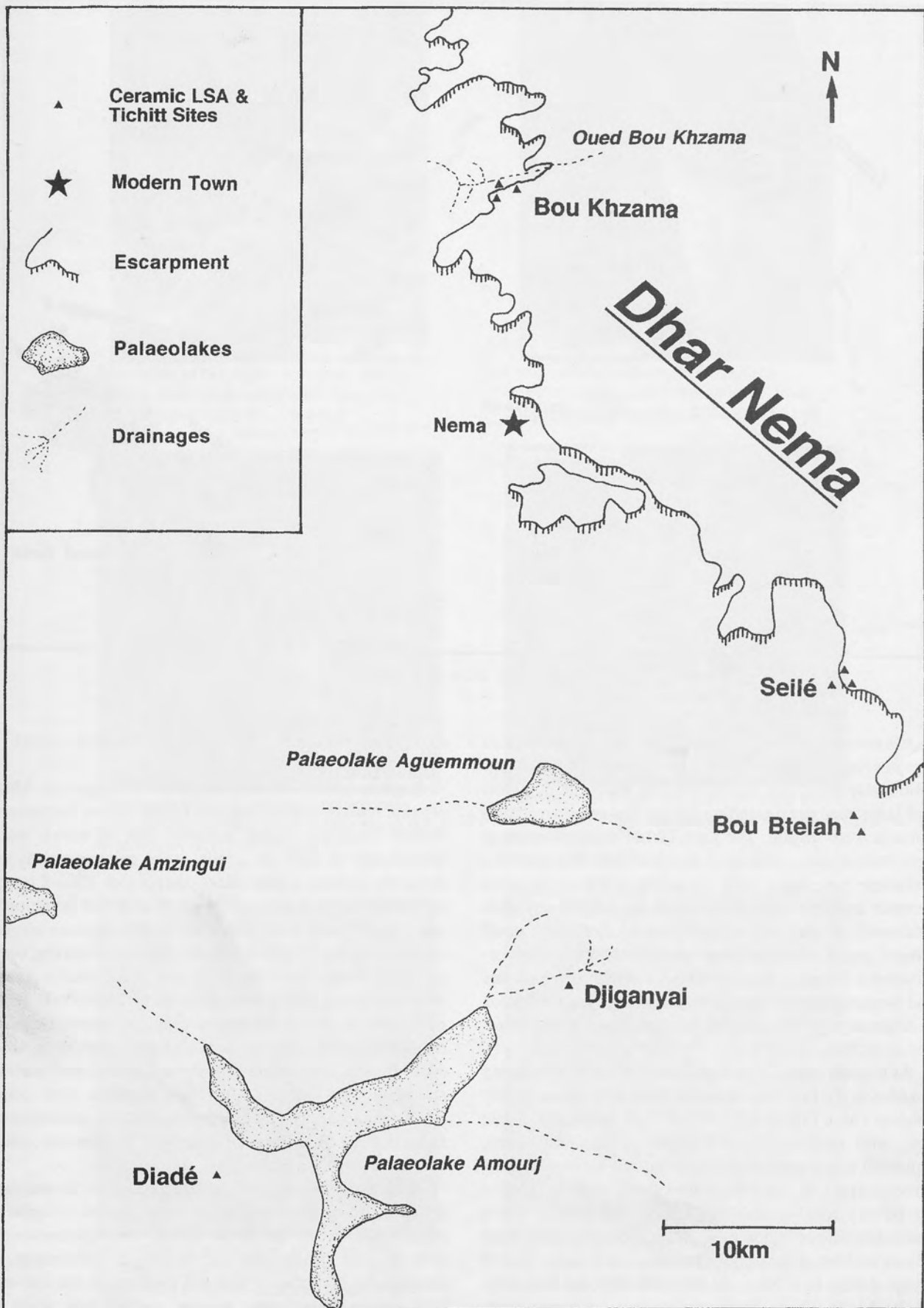


Figure 10.2 Map of the Dhar Néma study area, Mauritania.

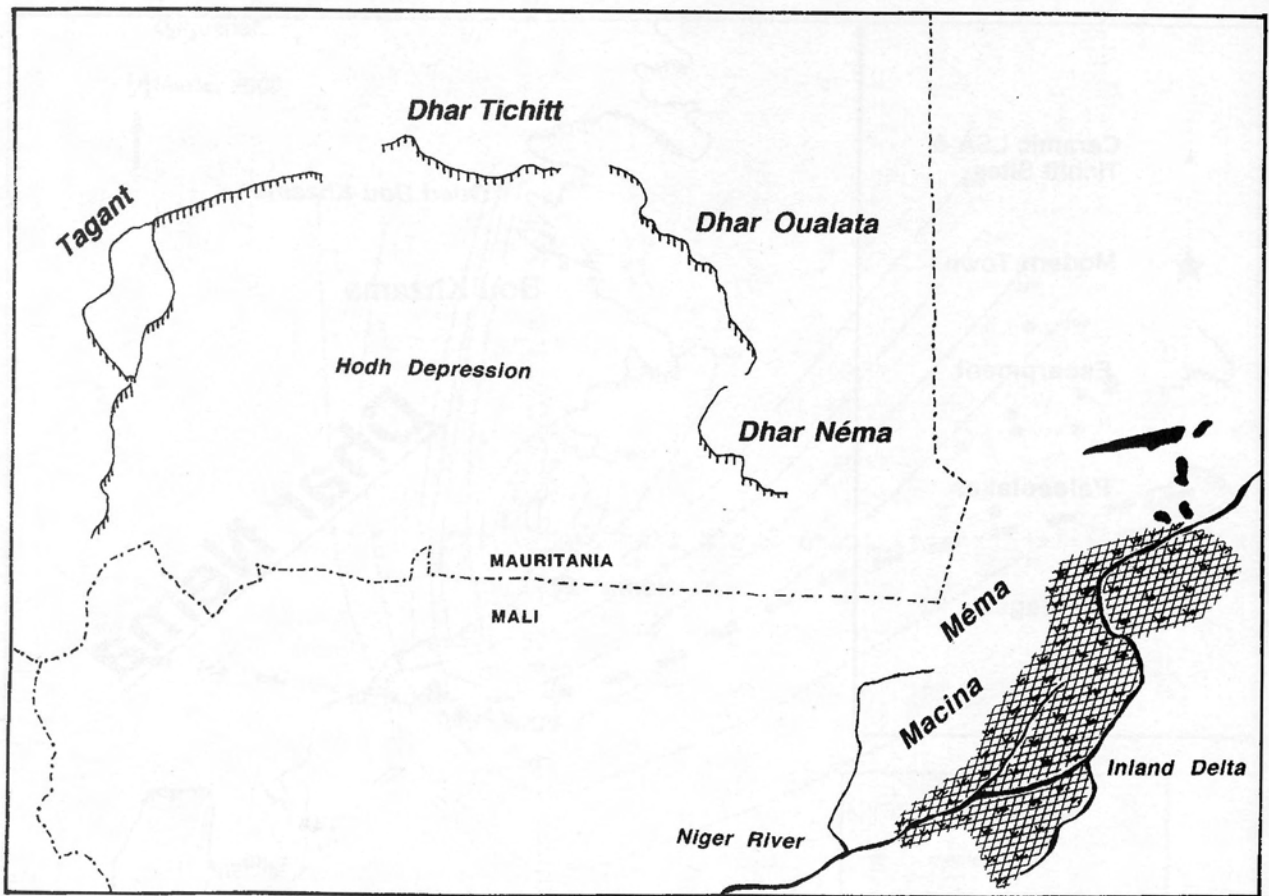


Figure 10.3 Plan of Djiganyai.

motifs are reduced, but continue (8%). Other typical Tichitt features present at the site were two schist pillar structures (notionally grain bin stands) eroding from the deposits, and large sandstone grinding basins. No other structural remains were visible. The Late Tichitt deposits seem to have been eroded, with most material from this period – including iron slag – only occurring a few centimetres beneath the surface. Ceramics from this superficial layer commonly feature red-slipped everted rims with chaff temper, and a restricted range of sparsely applied decorative tools including dragged stylus, twisted cord roulettes and fingertip impressions. These ceramics are analogous to Munson's (1971) terminal Akjijeir Phase ceramics (c. 850–300 BC).

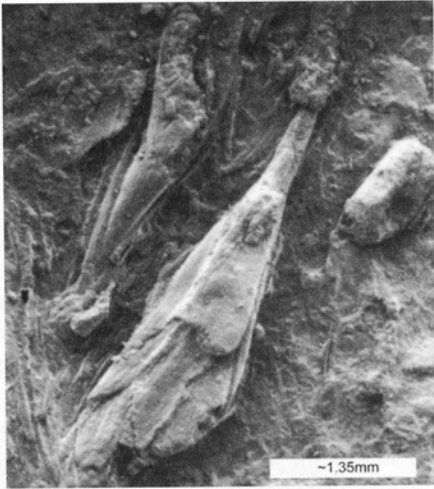
At present we have two radiocarbon dates bracketing the Classic Tichitt occupation of the site: a typologically Naghez Phase (1600–1250 BC) Tichitt potsherd (simple rim, with rouletted cord-wrapped stick decoration), tempered with domestic millet (*Pennisetum americanum*) directly dated on organic content using AMS to  $3260 \pm 40$  BP (1620–1510 cal BC; GX-28140-AMS), and a bioapatite date on a domestic cattle (*Bos*) premolar from a bone midden at the upper margin of the Classic Tichitt layers dating to  $2780 \pm 30$  BP (990–905 cal BC; GX-28139-AMS). These dates both conform to known dates for the Classic Tichitt period, and supply one of the earliest

direct determinations yet known for domestic millet in West Africa.

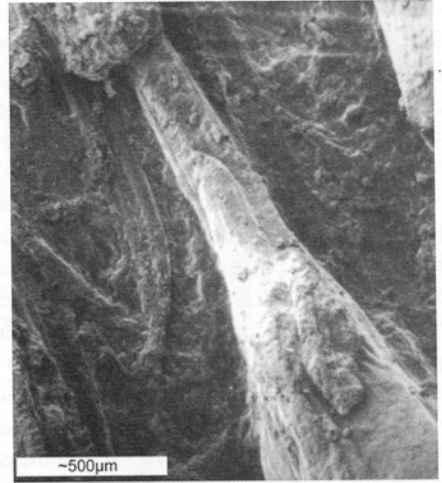
Organic preservation is excellent at Djiganyai. Most organic remains came from the Tichitt layers. Recovered Tichitt Tradition faunal remains, 266 of which were identifiable at least to genus, were predominantly of domestic species: cattle (*Bos*), sheep/goat (*Ovis/Capra*) and domestic dog (*Canis*). Next in order of magnitude were small freshwater fishes (all less than 30 cm in length, and most in the 10–20 cm length range), comprising only catfish (*Clarias*) and carp (*Tilapia*). Additionally freshwater bivalves and gastropods were identified. Wild mammals recovered include savanna antelopes (*Hippotragus equinus*, *Kobus kob*, *Gazella rufifrons*, and Alcelaphinae), warhog (*Phacochoerus*), and giraffe (*Giraffa*). Pre-Tichitt LSA faunal remains were comparatively scarce (68 fragments) and mainly consisted of fish remains, although one fragment of domestic cattle was identified.

Archaeobotanical evidence from Djiganyai consists primarily of impressions of plant tissue, almost exclusively pearl millet, preserved in the Tichitt Tradition ceramics. Due to time limitations and logistical difficulties, a programme of flotation was not undertaken for our test excavation. Nevertheless, sieving yielded nine seeds of hackberry (*Celtis* cf. *integrifolia* Lam.) from 'Classic

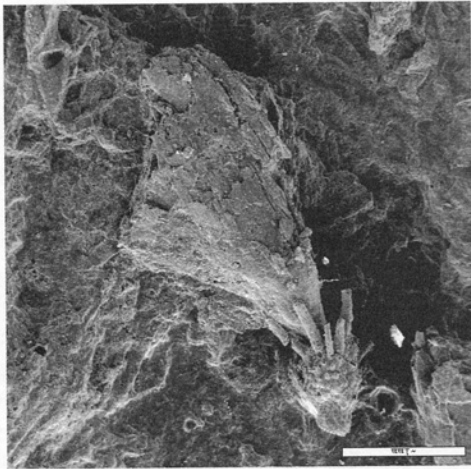




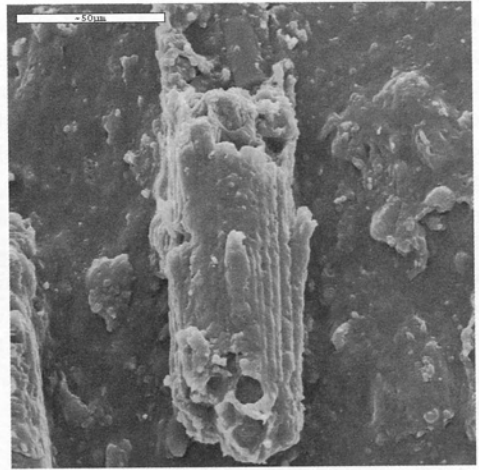
Impression of two partial spikelets, with bristles, from Djiganyai (Dj-00 context 2, directly dated specimen, 3260 bp)



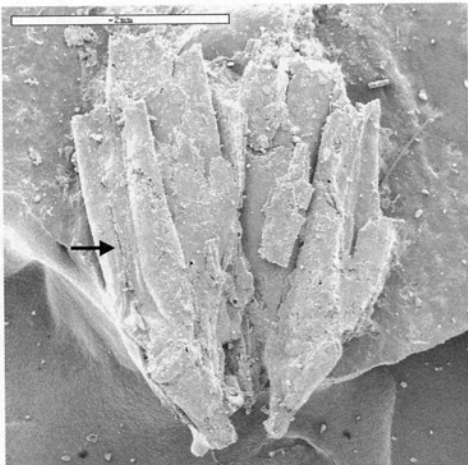
Close-up of spikelet base, attached to involucre, with some bristles visible, from Djiganyai (Dj-00 context 2, dated 3260 bp)



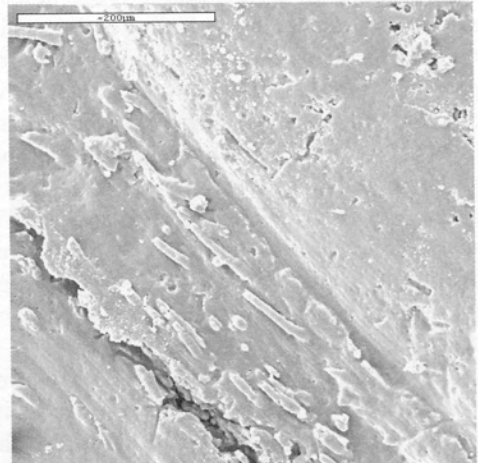
Impression of a spikelet and involucre base, showing rows of radiating bristle bases; sherd from Djiganyai (Dj-00 context 6)



Impression of bristle fragment, showing serrate hairs, from OBK(1) (directly dated specimen, 2430 bp).



Impression of paired pearl millet spikelets (mainly lemmas), separated from involucre, from OBK(1). Arrow indicates location of hairs shown in close-up. (Dated 2430 bp)



Close-up of lemma margin on spikelet impression (left) from OBK(1) showing hairs near margin. (Dated 2430 bp).

*Figure 10.4 Identified and dated plant impressions from the Dhar Néma site.*

Tichitt' contexts. This is the only species of *Celtis* which grows in the Sahel and most parts of the plant can be used, including its edible fruits (Burkill 2000). Plant impressions in sherds included large numbers of bristle fragments (which match those of *Pennisetum*) as well as some larger fragments of spikelets and involucre, including stalks, comparable to domesticated pearl millet (*Pennisetum glaucum* (L.) R.Br.) (Figure 10.4). All of this material is consistent with the use of by-products of threshing and winnowing as ceramic temper. The absence of other plant species is to be expected as weeds are rarely incorporated in the crop processing by-products of pearl millet on account of its dense spikes, which are readily harvested alone (Reddy 1997). Our new evidence for domesticated pearl millet at Djiganyai at 1620–1510 BC is broadly synchronous with other early finds from Ghana (D'Andrea *et al.* 2001), Nigeria (Klee and Zach 1999), and previously reported finds from Dhars Tichitt and Oualata (Amblard and Pernes 1986; Amblard 1996).

The overall picture that emerges from Djiganyai is of an occupation situated at the edge of a seasonal floodplain, with access to permanent shallow water, having a fauna and flora consistent with savanna mosaic floodplain environments. After sporadic occupation of this slight prominence on the Amourj plain by Pre-Tichitt peoples, a more permanent occupation appears to have commenced at the height of the Tichitt polity some 100 km to the north (c. 1500 BC), and to have been fully agro-pastoral from its onset. Two more AMS determinations on excavated materials from Djiganyai are currently being run to further clarify its chronology. The region's Late Tichitt period is best viewed through the next site.

### *Bou Khzama*

Located on the flanks of the Néma escarpment and on the left bank of Oued Bou Khzama, this approximately 5 ha site features the remains of: agricultural terraces, at least two small enclosures with associated grinding basins, schist 'grain bin stands' and 16 iron furnace mounds. Recovered material culture includes chaff-tempered late Tichitt pottery (following Munson's (1971) typology, Akjinjeir Phase c. 850–300 BC), lithics made in chert (most tools being small scrapers and points), and iron objects (points/rods and one knife). Animal remains, recovered from a test-pit in a domestic area, are exclusively of cattle. Sherds are predominantly tempered with domestic pearl millet, representing the same range of threshing and winnowing by-products as described for Djiganyai.

Excavation of one slag mound revealed the remains of an oval low shaft furnace, approximately 65 cm across its longest axis with two tuyères on each elongated side. The two tuyères, angled outwards, suggest that this was an induced draft furnace using bellows. The lack of flow structures and the slag mass remaining in the furnace indicate that this was a non-tapping furnace, as is almost invariably the case in Sub-Saharan Africa. Direct dating

of the furnace was initially frustrated by a lack of preserved organics in the tuyères and little charcoal content in recovered slag. However, further work with recovered materials has produced sufficient material to attempt an AMS date, which is currently being undertaken.

We do, however, have some initial idea about the date of Bou Khzama. Pottery from the site is unvaried, and suggests a single component occupation: everted rims (82%), chaff temper (86%), twisted cord roulette decoration (38%), fingertip punctate and linear decoration (24%). One of these rims, an everted jar with impressed fingertip decoration, was directly dated by its organic content via AMS. The resulting determination was 2430 ± 40 BP (760–400 cal BC; GX-28137-AMS). This is instructive as it conforms to the typological date of the jar (following Munson's (1971) typology), and suggests a mid-first millennium BC date for the site, potentially placing its associated iron metallurgy amongst the earliest in Sub-Saharan Africa. Further AMS dates on a tuyère fragment from the excavated furnace, and cattle bone, are being run.

## The Tichitt Diaspora: A Tentative Synthesis

So what does all this mean? Early Tichitt Tradition ceramics seem to be entirely absent in the Dhar Néma region as a whole, indicating that the tradition did not develop in Dhar Néma, but only drifted into it in small numbers during the height of the Tichitt polity (c. 1600 BC). Initial Classic Tichitt settlement in the region appears to have been scattered and small scale, the largest recorded site being 3 ha Djiganyai, a dramatic contrast to the 15–80 ha 'centres' of the Tichitt and Oualata escarpments. However, with the collapse of more northerly settlement systems in the first millennium BC, Tichitt tradition occupations along Dhar Néma became much more widespread, if no larger in size. An especially striking element of the Late Tichitt tradition in the Dhar Néma region, as yet unknown from Tichitt and Oualata, is its definite association with early iron production.

If we look at the bigger picture, we can see that across the African Sahel the Tichitt tradition steadily displaced or incorporated pre-existing pastoral and fisher/hunter-gatherer populations (Table 10.1). However, the geographical origins of the core Tichitt population remains unclear. Some, like Amblard (1996), postulate that the tradition arrived already fully agro-pastoral at Tichitt from elsewhere, probably deeper in the Sahara. But as yet there is little evidence for ceramic traditions analogous to early Tichitt farther to the north or east. Alternatively, we could envision Tichitt developing out of Pre-Tichitt pastoral groups such as those of the Bou Bteiah Tradition (e.g. the Akreijit Phase) effectively *in situ*. At this point this would seem the most parsimonious model, though it does not satisfy the hunger of some researchers to find sub-Saharan African cereal agriculture somewhere before 2000 BC.

Regarding social complexity and territoriality, it is

*Tichitt Diaspora*

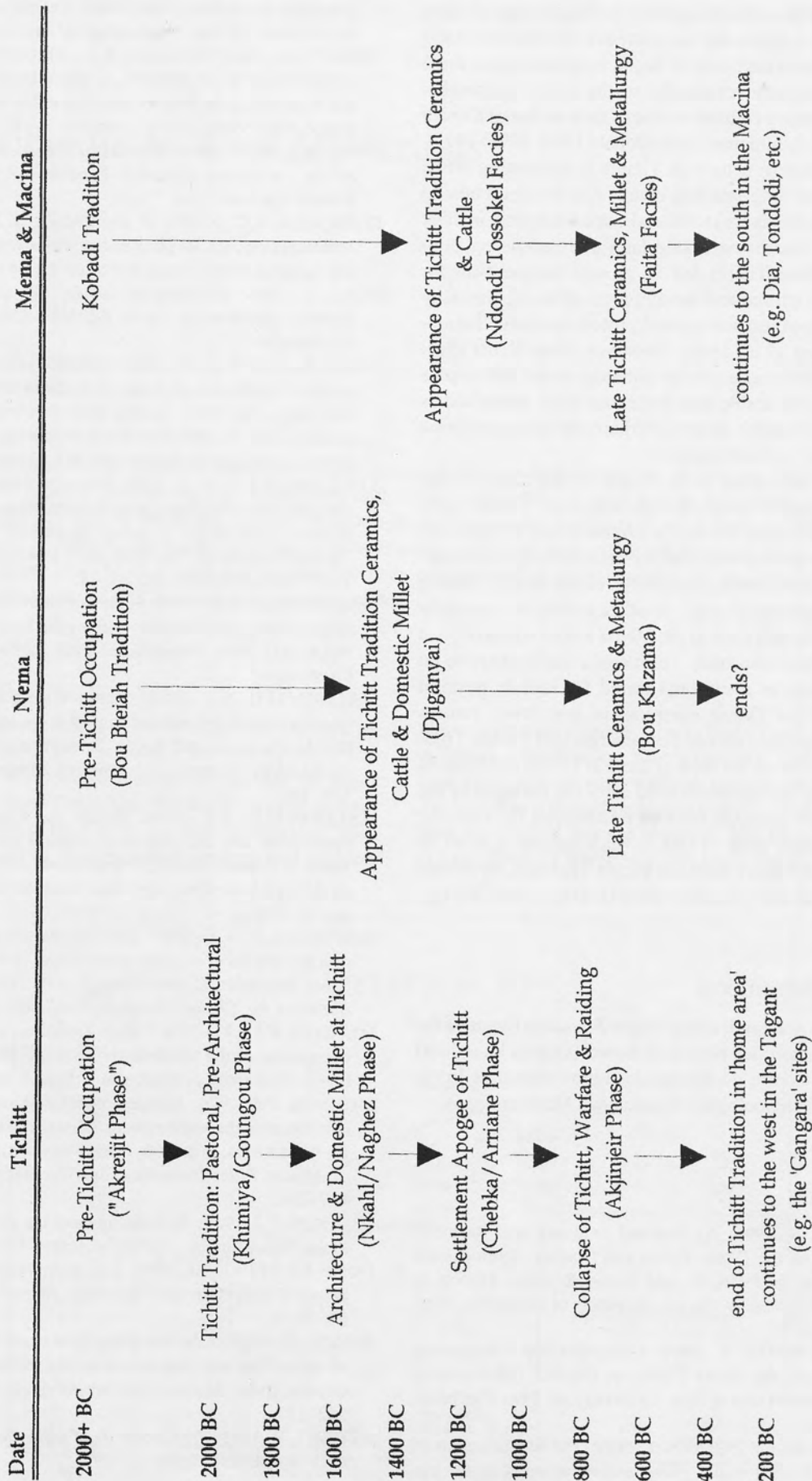


Table 10.1 *The Tichitt Diaspora regional sequence.*

interesting to note that soon after the beginnings of large settlements and settlement hierarchy at Tichitt (around 1600 BC), elements of the tradition began to spread out, in some cases perhaps only seasonally, to the south. Interaction with neighbouring cultural traditions such as that of Kobadi are now well documented (MacDonald 1994, 1996, 1999). The wide-ranging nature of Tichitt is interesting when viewed against long-standing claims that the motor behind Tichitt's complexity was territorial circumscription, in other words, that decreasing arable land and increasing population at Dhar Tichitt led to greater competition for territory with consequent development of social hierarchy to organise land use and expand/protect territorial boundaries (Munson 1976, 1980). However, Dhar Néma illustrates that there was a nearby potential outlet for surplus population, with arable land and extant fresh water bodies at the time of Tichitt's apogee. Perhaps the circumscription model needs reconsideration.

Another interesting phenomenon is that Dhar Néma seems to have had small, though sedentary, Tichitt agropastoral settlements, whilst the Mema farther to the south initially only had the seasonal presence of Tichitt pastoralists (MacDonald 1999). Part of this could merely have to do with suitability of soils, in other words, the annually inundated clay rich soils of the Mema would not have been ideal for millet cultivation – or it could merely have to do with the limits of a seasonal round for mobile pastoral elements of the Tichitt complex. In any event, remote sensing and surface survey demonstrate that Tichitt Tradition settlements on the scale of those at Tichitt and Oualata did not occur farther south until after the collapse of the central Tichitt polity in the first millennium BC (see, for example, recent work at Dia in Mali indicating a 40 ha settlement, derivative from the Tichitt Tradition, by around 800 BC – but that's another story (Bedaux *et al.* 2001)).

## Acknowledgements

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