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ON THE NATURE OF SOUTH ARABIAN INFLUENCES IN ETHIOPIA DURING THE LATE FIRST MILLENNIUM BC: A PRE-AKSUMITE SETTLEMENT ON THE MARGINS OF THE EASTERN TIGRAY PLATEAU

Anne Benoist, Iwona Gajda, Steven Matthews, Jérémie Schiettecatte, Ninon Blond, Saskia Büchner & Pawel Wolf

Summary

This paper presents the results of survey and excavations carried out in the Wakarida region by the French Archaeological Mission in eastern Tigray, Ethiopia. Here we discuss a series of late first-millennium BC occupation sites. The sites, material culture, and landscape evolution are reviewed in relation to current arguments concerning Sabaeen influence on highland cultural development in Ethiopia during the pre-Aksumite period. This contribution underlines the strong cultural continuity of pottery traditions throughout the period until the development of the Aksumite polity at the end of the first millennium BC, highlighting the lack of a 'proto-Aksumite' equivalent in eastern Tigray. The absence of any clear traces of South Arabian influence on local cultures in this region, despite its relative proximity to sites such as Meqaber Ga'ewa and Ziban Adi which demonstrate links to the Da'mat polity, are discussed.

Keywords: Ethiopia, pre-Aksumite period, proto-Aksumite period, pottery traditions, land use

Introduction

The emergence of complex, urban polities during the first millennium BC in Ethiopia is closely related to the networks of interaction that it developed with neighbouring regions (Phillipson 2009: 268–270; Fattovich 2010; 2012). While these networks were not limited to eastward connections across

the Red Sea, emphasis has nonetheless been placed on the interaction between the highlands of northern Ethiopia and Eritrea and South Arabia in the rise of these polities. The Red Sea as a zone of interaction is well attested in earlier millennia (Fattovich 1996) but the emergence of these polities represents a significant development in the history of such interactions and of the highlands in particular. The period of their development was termed 'pre-Aksumite' as it preceded the kingdom of Aksum (e.g. Anfray 1967). The study of pre-Aksumite archaeology has largely concerned central Tigray, especially the Aksum-Yeha area, a historical bias which has unintentionally affected interpretation of these developments, in particular our ability to perceive regional historical trajectories in the western and eastern highlands and their possibly different relationship to such polities, Red Sea connections, and interaction with neighbouring South Arabia.

This paper will discuss recent fieldwork undertaken in the region surrounding the site of Wakarida, on the edge of the eastern highlands, in respect of such issues concerning pre-Aksumite archaeology and the place of eastern Tigray in our understanding of these developments.

The pre-Aksumite period

Early in the first millennium BC, urban settlements and religio-political infrastructure developed in the highlands (Fattovich 2010: 162–165). The appearance of epigraphic evidence on some urban sites, written in a South Arabian script, revealed the emergence of a 'kingdom' or polity named 'Da'mat' or 'Da'mat and Saba' (Robin & de Maigret 1998: 793–794; Nebes 2010: 230–231). These developments were attributed to direct influence from South Arabia by means of a large-scale population movement, as indicated by architectural, iconographic, and religious characteristics common to this region, in particular the kingdom of Saba'. As a consequence, the term 'Ethio-Sabaeen' was employed to

See end for figures.

Figure 1. A map showing the distribution of pre-Aksumite sites in Ethiopia (after Anfray 1990: 16) and the location of the Wakarida region.

describe both this polity and the pre-Aksumite period (Anfray 1968; Gerlach 2013).

Subsequently, the discovery and excavation of the 'D site' at Kidane Mehret (Phillipson 2000a), near Aksum, revealed a large urban settlement with no monumental architecture, iconography, or sacral media pertaining to Da'mat, despite their contemporaneity. The D site demonstrated that pre-Aksumite archaeology was not limited to, nor could be fully described in terms of, either the Da'mat polity or South Arabian influences. As a consequence, divergent views concerning the nature of South Arabian influence emerged.

Recent discussions (n. 1) have questioned the extent of migration across the Red Sea, emphasizing instead autochthonous development and the role local elites played in the development of Da'mat, as well as envisioning a more limited role for the Da'mat polity itself. Attention has also been drawn to the fact that those traits associated with Da'mat which derive from extraregional influences were largely rendered according to local African traditions (Phillipson 2009; Manzo 2009). Ongoing research has established that the chronological extent of pre-Aksumite archaeology is considerable (n. 2), within which the Da'mat polity has only a limited Range (n. 3). These revisions make clear how problematic terms such as 'Ethio-Sabaeen' are in describing such developments, including the term

'pre-Aksumite' (n. 4) itself, and demonstrate the need to establish a more precise systematics for the study of pre-Aksumite archaeology.

Footnotes:

1. At the Society of African Archaeologists, Munich (2008), and published in a special issue of *African Archaeological Review*; see Phillipson & Schmidt 2009, and associated papers, e.g. Curtis 2009; Fattovich 2009; Manzo 2009; Phillipson 2009; see also Wolf & Nowotnick 2010a: 26–28.

2. Based on an analysis of radiocarbon dates, pottery, and sites phases, the pre-Aksumite period can be divided into a number of phases: Initial, c.1600–1200/1100 BC; Early, c.1200/1100–900/800 BC; Middle, c.900/800–600/500 BC; Late, c.600/500–1 BC; cf. Phillipson 2009; Fattovich 2010; D'Andrea et al. 2018; Matthews & Büchner, in press.

3. Relative to the Middle pre-Aksumite phase.

4. Here we use the term to denote a field of archaeology, with a particular time-space distribution, not an archaeological culture.

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The pre-Aksumite to Aksumite transition

Given the limited temporal range of Da'mat, it was also clear that further evolution occurred within the highlands during this period. From the fourth century BC until the development of the kingdom of Aksum, a less well-understood period was delineated, termed 'proto-Aksumite'. This period was defined on the basis of excavations in central Tigray at Bieta Giyorgis, near Aksum (Bard et al. 1997; Fattovich & Bard 2001), represented by new developments in architecture, mortuary treatment, and ceramic forms. When contrasted with earlier developments associated with the polity of Da'mat, it has the appearance of a period of economic and cultural slowdown. There occurs no further construction of monumental buildings and no new inscriptions. If interaction between the highlands and South Arabia were maintained in the Middle pre-Aksumite phase, it appeared to have ended, perhaps prior to the emergence of the proto-Aksumite polity.

Eastern Tigray and the Da'mat polity

The eastern highlands have played relatively little part in discussions of pre-Aksumite archaeology. This region comprises eastern Tigray and the highland sites of Eritrea. Fattovich (2010; 2012) divided the highlands into a number of regional traditions based on settlement clustering and regional pottery assemblages. For eastern Tigray he defined the Akkele Guzay Tradition, named for the region in present day Eritrea, and the Agame region of eastern Tigray. This tradition is closely linked to the Hamasien Tradition in the Asmara region of Eritrea, consisting of the 'Ancient Ona' culture (Curtis 2009).

The Akkele Guzay region is primarily represented by the site of Matara (Anfray 1963; 1966; 1967), which shows activity throughout the pre-Aksumite period, including the emergence of a regional ceramic tradition during the Early and Late pre-Aksumite phases but close incorporation with Da'mat in the intervening phase. To the south, in eastern Tigray, the Agame region is represented by recent research in the Gulo-Makeda area (D'Andrea et al. 2008; 2018), comprising a large number of sites, including urban settlements, with activity throughout the pre-Aksumite period. Despite complex, urban settlements in the region, there is none of the monumental or sacral media that characterizes the Da'mat polity.

When Fattovich defined these traditions, few sites to the south of the Agame region were known (n. 5). In the decade since, new work has revealed a range of pre-Aksumite sites in this area. The

Deutsches Archäologisches Institut (DAI) mission working in the area of Wuqro between 2009 and 2015 helped excavate a sacral complex at Meqaber Ga'ewa (Wolf & Nowotnick 2010a; 2010b; Wolf, Nowotnick & Büchner 2015), discovered during local construction works (Berhe 2009). At its centre was a temple dedicated to the Sabaean god Almaqah. It included a large stone altar in a South Arabian style (Fig. 2/1) with a Sabaic inscription (Gajda, Gebre Selassie & Berhe 2009; Nebes 2010), as well as sacral media common to the Da'mat polity, such as the statue of a seated woman (Fig. 2/2), an incense burner, miniature altars, and associated ritual ceramics. Survey revealed further pre-Aksumite sites in the area, including another urban settlement at the nearby site of Ziban Adi (Matthews & Büchner 2016). This included a two-storey domestic structure (Fig. 2/3–4) with similarities to buildings found in the Da'mat heartland of central Tigray, and a rich pottery assemblage (Matthews & Büchner, in press: fig. 8: a,b,d,e,f; fig. 11).

Investigations in the region of Wakarida

Located some 60 km to the north-east of Wuqro, and somewhat closer to the Agame region, further work in eastern Tigray has been undertaken at the site of Wakarida and its surrounding area by the French Archaeological Mission (n. 6). The area comprises a high plateau (at an altitude of c.2800 m) which is bordered to

Footnotes:

5. With two exceptions. First, the problematic Addi Gelemo deposit, which comprised several miscellaneous objects of different periods and origin, two dating to the pre-Aksumite period and one to the Aksumite period (c. AD 200). Second, three inscribed stone incense burners and the fragment of a stone altar in a South Arabian style, located in the church Abuna Garima in Addi Akaweh, near Wuqro (Gajda & Gebre Selassie 2009).

6. Undertaken as part of a French-Ethiopian project 'Archaeological and epigraphic investigations in the Tigray region (first millennium BC to seventh century AD)' initiated in 2010 by Iwona Gajda and Fabienne Dugast. From 2015 research has been directed by Iwona Gajda and Anne Benoist. The project has been supported by the French Ministry of Foreign Affairs, the UMR 8167 Orient & Méditerranée (CNRS, Paris), the programme LABEX ResMed, and the UMR 5133 Archéorient (CNRS, Lyon). It is part of the scientific programme of the French Centre for Ethiopian Studies (CFEE, Addis Ababa), which provides administrative and logistic assistance. This research is supported in Ethiopia by the Authority for Research and Conservation of Cultural Heritage (ARCCH), and the Tigray Culture and Tourism Bureau (TCTB).

See end for figures.

Figure 2. The temple of Meqaber Ga'ewa and the house of Ziban Adi. 1 & 2. A view of the altar at Meqaber Ga'ewa and a picture of the statue of Almaqah (after Wolf & Nowotnick 2010b); 3 & 4. a view of the excavation at Ziban Adi and a map of the house (after Matthews & Büchner, in press).

the east by a mountainous area sloping down eastwards to the Danakil depression (Fig. 1), forming a natural barrier between the plateau and the Red Sea. The site of Wakarida was excavated between 2012 and 2014, revealing several buildings dating to the Aksumite period (fourth to seventh century AD) (Gajda et al. 2015; Benoist, Charbonnier & Gajda 2016). Systematic field survey was carried out around the main site over an area measuring 10 × 8 km (n. 7). Several surveyed sites revealed pottery similar to that from Wakarida, suggesting a comparable date. Together these helped to delineate the territorial extent of an Aksumite urban settlement across the area.

Other sites, however, revealed a different, seemingly older pottery assemblage. These sites were more scattered across the landscape, being largely concentrated in the southern part of the survey area,

Footnotes:

7. Systematic field survey in the region around Wakarida was conducted by Olivier Barge and Emmanuelle Régagnon (CNRS, UMR 5133 Archéorient).

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See end for figures.

Figure 3. Distribution of pre-Aksumite and late pre-Aksumite sites around Wakarida and the location of the three excavated sites (site no. 32: Armengela; site no. 42: Alakile Daga; site no. 44: Mangagebit) (French-Ethiopian Archaeological Mission in eastern Tigray).

along the Mey Weini valley, which forms the first area accessible from the Tigray Plateau, and to a lesser extent in the Ka'ebile (Fig. 3). Investigation of some sites have established occupation during the pre-Aksumite period.

Pre-Aksumite sites in the Wakarida region

In 2015 and 2017, test excavation was undertaken on three of these pre-Aksumite sites: Armengela, Mangagebit, and Alakile Daga.

Armengela

Armengela (site SAZ 32) is located on a hilltop between the May Ayni valley and the Ka'ebile. Stone heaps on the surface covered small chambers delimited by vertically set stones. Three test pits were opened (Fig. 4).

In test pit 0, located on the hilltop, only surface cleaning was carried out. Several walls belonging to a large structure with rectangular rooms were cleared. The building, orientated east–west, showed several episodes of renovation. In the south-western part of the cleaned area, a small deeper trench was dug, revealing older walls with a different orientation (Fig. 4: test pit 0, deeper trench). A hearth dug in the floor associated to these older walls yielded an almost complete bowl (see Fig. 8/2). To the south, test pit 1 revealed a stone wall in the north-west corner, separating indoor and outdoor areas. Inside was a complete jar lying on the floor, and outside a midden including bones, ashes, and a large quantity of pottery (Fig.

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See end for figures.

Figure 4. Test pits at Armengela (site no. 32). A general map of the site (map P. Raymond); test pit 0 (map A. Benoist); test pit 1 (map A. Benoist); test pit 2 (map A. Benoist) (French-Ethiopian Archaeological Mission in eastern Tigray).

4: test pit 1; some of the pottery illustrated on Fig. 8/3–4, 10–12). In the north, test pit 2 yielded the remains of a small quadrangular house with rounded corners, partly dug into the ground, comprising two occupation levels. The oldest had a fireplace surrounded by three post-holes suggesting the presence of a trivet or suspension for a cooking pot, and grinding tools. The later layer included a small rounded hearth (Fig. 4: test pit 2).

Very similar material, mainly pottery sherds, was recovered from all three trenches (Fig. 7/1; Fig. 8/2, 4, 6–10, 12). This included jars, bowls, large bowls, small bottles, miniature bowls, and lids in a common red ware,

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handmade, unslipped, with a few incised decorations including comb-incisions and incisions made with a spatula (mainly wavy lines and zigzag lines: Fig. 7/1), and notches on top of the rim of some vessels (Fig. 7/1). There were also large, deep bowls in a finer ware covered with a red burnished slip becoming black in the upper part and on the inside (Fig. 8/2) and a few suspension vessels with incisions (Fig. 8/10). Finally, stone tools were found, including grinding stones and crushers indicating the processing of cultivated products.

Mangagebit

Mangagebit (site SAZ 44) is located on a flat hilltop overlooking the Mey Weini valley (Fig. 5/a). Two test pits were opened, revealing the remains of a stone building with several rooms (Fig. 5/b), of which three were partly excavated. They comprised walls preserved up to 80 cm high, 70 to 90 cm thick, and built of rough stones with earthen mortar, the foundations of which were set directly on the bedrock. The walls were not continuous but built in two steps, the walls perpendicular to the slope of the hill being erected first on horizontal ground and the walls erected on sloping ground being added subsequently. There were two successive occupation layers in each room, separated by a collapse (Fig. 5/c,d). Floors inside the rooms were made of rammed earth, except in the northern part of the excavated area where the floor was paved; a possible bank was built against the wall.

Material collected inside the building included a rich assemblage of stone tools, with grinding stones, crushers, and hammers, and obsidian flakes and tools. Two clay seals, which have parallels in the late Aksumite layers of the D site at Kidane Mehret (Phillipson 2000b: fig. 309: c,d) and Matara (Anfray 1968: fig. 6), suggest local or regional exchange. Pottery was present in large quantities, including jars, bottles, basins, and bowls in common red ware often decorated with incisions or comb-incisions and deep bowls in fine red and black ware similar to those from Armengela (Figs 7/3–4,10–12; 8/1,3,5). There were also suspension vessels in a grey-brown fabric with incised decoration covering the body (Fig. 8/11).

Alakile Daga

Alakile Daga (site SAZ42) is located on a hill overlooking the Ka'ebile valley. There, surface pottery similar to that collected at Armengela and Mangagebit was mixed with potsherds comparable to the later material from Wakarida. A test pit revealed two successive construction phases (Fig. 6/d). The older, lower construction phase was represented by a wall of large stones with earthen mortar set directly over the bedrock (Wall W 013: Fig. 6/b,d), similar to Mangagebit. Occupation floors of earth were covered by a layer of collapsed debris (Fig. 6/c). This first layer produced ceramic material similar to Armengela and Mangagebit (Fig. 8). It was covered and partly cut by a later occupation marked by the construction of two parallel walls of a different type (Fig. 6/d: W 001 and W 002). They were built with smaller stones regularly set and cemented with a harder mortar. These two walls were associated with a succession of floors. In one, a fireplace was found inside a brazier (Floor W 008; Fig. 6/d–f). This fireplace yielded a large quantity of charcoal. Over this layer, a succession of floors of rammed earth were covered with a more compact floor of whitish clay. These later floors included a later pottery set, different in style and similar to the one from Wakarida. This later assemblage is dated from the middle–late Aksumite period (fourth century AD–end of seventh century AD: on this later period, see Benoist, Charbonnier & Gajda 2016).

Regional interaction in late pre-Aksumite pottery traditions

The pottery collected at Armengela and Mangagbit, and in the earlier, lower layers at Alakile Daga, include a common red ware, handmade, without slip or covering but often showing some incised decoration patterns (Figs 7–8/4,5,13). Among the most typical shapes are jars with a convex body and concave neck, the transition between both being continuous. The rim is rounded, and more faintly banded (Fig. 7/5–10). These jars have parallels among the ‘Ancient Ona’ culture (Curtis 2009: fig. 6: b,f), which dates at least from the early first millennium BC and shares a number of similarities with pre-Aksumite material, especially pottery, but exhibits no influences from Da‘mat or South Arabia (Curtis 2009: 349). Among the most frequent decoration patterns on these jars are incisions made with a comb or with a slightly irregular spatula, again similar to ‘Ancient Ona’ pottery (Curtis 2009: fig. 7: a,d). This decoration also occurs at the D site at Kidane Mehret (Phillips 2000: fig. 270: a), and at Ziban Adi, near Wuqro (Matthews & Büchner 2016; in

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Figure 5. Test Pits 0 and 1 at Mangagebit (site no. 44). a). a general view of the hill where the site is located (photograph N. Jacob-Rousseau); b). a kite view of the two test pits carried out on the site (test pit 0 and test pit 1) (picture T. Sagory); c). a map of occupation 1, the oldest occupation of the building; d). a map of occupation 2, a later occupation of the same building (maps A. Benoist) (French-Ethiopian Archaeological Mission in eastern Tigray).

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Figure 6. Test pit at Alakile Daga. a). a kite view of the site with the location of the test pit opened in 2017 (picture Th. Sagory); b). wall W 013, the oldest wall found in the test pit, built with large stones, with wall W 001 behind it, visible in the section of the excavation; c). accumulation of debris along the oldest wall W 013. Walls W 001 and W 002 are visible in the left and right sections of the excavation; d). a schematic drawing of the section showing the different occupations identified in the excavation (drawing A. Benoist); e). detail of the fireplace with a complete pottery vessel found in situ on floor F 008, associated with walls W 001 and W 002; f). the same pottery vessel after its removal from the excavation (French-Ethiopian Archaeological Mission in eastern Tigray).

press). Some jars also have a crescent-shaped lug on the shoulder, as at the D site (Phillips 2000: fig. 269: b) and Ziban Adi (Matthews & Büchner, in press: fig. 8.f).

Another typical shape among the common red ware is a large basin, slightly convex, with a simple rounded rim showing wavy comb-incisions on the inside, below the rim, and a series of notches on top of the rim (Fig. 7/1,2). A potsherd decorated with combincisions perhaps from a similar vessel comes from the pre-Aksumite site of Mezber in the Gulo-Makeda

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See end for figures.

Figure 7. Pottery from Armengela and Mangagebit (1). 1, 5–9. Armengela; 2. Alakile Daga; 3–4, 10–12. Mangagebit (drawings M. Gorea, M. Kania — French-Ethiopian Archaeological Mission in eastern Tigray).

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See end for figures.

Figure 8. Pottery from Armengela and Mangagebit (2). 2, 4, 6–10, 12. Armengela; 1, 3, 5, 11. Mangagebit (drawings M. Gorea, M. Kania — French-Ethiopian Archaeological Mission in eastern Tigray).

area (D'Andrea et al. 2008: fig. 7b). In the opinion of the authors, this type of decoration, with wavy lines parallel on the inside and notches on top of the rim are present in both central Tigray, in particular Aksum, from the fourth century BC until the first century AD, as well as in eastern Tigray, in the pre-Aksumite assemblages from Mezber and Chekelte in Gulo-Makeda (D'Andrea et al. 2008: 164). Basins with comb incisions and notched rim also appear among 'Ancient Ona' pottery (Curtis 2009: fig. 7: b,e) and at Ziban Adi (Matthews & Büchner, in press: fig. 8: f). Common red ware also includes medium and small bottles (Fig. 7/11,12), pots (Fig. 7/3,4), small concave lids (Fig. 8/12), and miniature bowls, the latter roughly shaped by hand (Fig. 8/4,5). The pottery also includes deep bowls in a finer fabric, covered with a red burnished slip, often blackened on top and inside (Fig. 8/1–3,6,7). Although the fabric might be different, these red and black vessels are reminiscent of vessels from pre-Aksumite contexts, such as Kidane Mehret, where a fabric is described as deriving from 'firing under controlled conditions, (that) produced black topped red ware (BRTW) with the exterior rim, upper body and interior fired black and most of the exterior fired red' (Phillips 2000: 303), including 'medium to shallow thin-walled bowls with a rounded bottom' (Phillips 2000: 303, fig. 265: d,g,h). The assemblage from Yeha, however, appears quite different (Fattovich 2009), though red, black-topped ware is mentioned from the earliest levels (Yeha Phase I), in association with other pottery reflecting contact with South Arabia, such as amphorae or bowls with a ring base (Fattovich 1978: 122; 2009: 282). Finally, at Armengela and Mangagebit there are suspension vessels in a grey-brown fabric, fine or coarse, with incisions covering the body (Fig. 8/10–11).

The material collected at Armengela, Mangagebit, and in the oldest construction phase at Alakile Daga (Figs 7/2;

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See end for figures.

Figure 9. Pottery from the oldest occupation at Alakile Daga: 1–2. bottles; 3. neck jar; 4. miniature bowl; 5–6. Lids (photographs Th. Sagory, G. Van Es — French-Ethiopian Archaeological Mission in eastern Tigray).

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9/1–6), is also found on the surface at seventeen other sites located in the region (see Fig. 3), suggesting a well-occupied landscape during the first millennium BC. Sites are mostly of small size (from less than 500 m² up to 2.4 ha: five are less or around 500 m² in surface, four are between 1000 and 2000 m², nine are between 3000 and 9000 m² (n. 2), only two reach a surface exceeding 1

ha, the largest being site 32 measuring 2.4 ha). This occupation thus appears to have been organized into small units scattered throughout the landscape, without any clear large centre. Cultural traits related to Da'mat appear to be entirely absent, with no evidence of monumental architecture, inscriptions, or associated sacral media. This is similar to that recorded for sites around Gulo-Makeda (D'Andrea et al. 2008). A comparable pattern is found among the sites of the 'Ancient Ona' culture (Curtis 2009), where there is also no evidence of Da'mat influence.

The eastern highlands, however, display two patterns of inter-regional interaction. The first is in the Agame region, including Gulo-Makeda and the Wakarida area, as well as the 'Ancient Ona' sites, which display no obvious Da'mat or South Arabian influences. The second pattern is found in the Wuqro and the Akkele Guzai region. It demonstrates influence or incorporation within the Da'mat polity. We must be cautious of ranging our comparisons too broadly, however. The patterns of presence and absence relating to these influences may have regionally specific causes. The site of Mezber in Gulo-Makeda (D'Andrea et al. 2008) would appear to represent a significant regional settlement, and a lack of Da'mat influences may have resulted from a lack of political significance for the polity in this region, whereas the lack of influences at the D site at Kidane Mehret (Phillipson 2000c: 372–374; 2009: 262) may instead reflect the non-elite or peasant nature of the site.

Dating pre-Aksumite and later pre-Aksumite sites in eastern Tigray

Charcoal samples (n. 8) collected from Armengela, Mangagebit, and Alakile Daga provide further light on the relationship between central and eastern Tigray at the end of the pre-Aksumite period.

At Armengela, a sample (Ly 41831) collected from a hearth in the deepest layer in the south-western part of Test Pit 0, where the remains of an earlier predecessor building were found, yielded a radiocarbon age of 2230±30 BP (384–204 cal BC) (n. 9). It was associated with an almost complete bowl in red, black topped ware.

At Mangagebit, a sample (Ly 41832) recovered from the deepest floor (Locus 010) of the first occupation of the building, yielded a radiocarbon age of 2245±30 BP (392–206 cal BC). These results date the pottery of these sites to the Late pre-Aksumite phase, c.400/200 BC, contemporaneous with the proto-Aksumite period of central Tigray (Fattovich & Bard 2001: 17–19, figs 9–10).

The site of Ona Adi, in Gulo-Makeda, revealed a similar Late pre-Aksumite phase pottery assemblage (Taddesse 2019), similarly lacking the cultural traits that define the proto-Aksumite period. It is unfortunate that, two decades on, the pottery from Bieta Giyorgis (cf. Perlingieri 1999) has still not been fully published in order to provide a fuller comparison with the Late pre-Aksumite phase ceramics of eastern Tigray. However, as emphasis was placed on a limited number of new ceramic forms (Bard et al. 1997; Fattovich & Bard 2001: 16, fig. 8) as the basis for its definition, the absence of these is significant. Where these and related burial and architectural traditions are missing, we should not apply the concept of a proto-Aksumite period but rather a Late pre-Aksumite phase, especially where continuity in ceramics is present.

Fattovich and Bard (Bard et al. 1997: 19; Fattovich 1997: 67–68, fig. 16) were clear that the proto-Aksumite polity was a local development, specific to Aksum. In light of the above discussion of differences between east and west during the Middle pre-Aksumite phase, and of the possible homogeneity of pre-Aksumite traditions within eastern Tigray, it is not surprising to find such distinctions lasting into the late first millennium BC. Given the general paucity of evidence of influence from Da'mat or South Arabia in eastern Tigray, especially among the sites of the Agame region to which Wakarida is closest, the absence of any of the developments related to the proto-Aksumite polity is to be expected, given that the latter is argued to have developed from whatever

political entity emerged from the remnants of Daʿmat polity during the sixth to fourth century BC in the region of Aksum (Bard et al. 1997: 12; Fattovich 1997: 67–68).

Footnotes:

8. Processed at the Centre de datations par le radiocarbone, Lyon.

9. Radiocarbon age calibrated using curve IntCal13.14c (Reimer et al. 2013); calibrated ages are rounded to the nearest year and displayed with a standard deviation of 2 sigma.

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Similarity between the pottery from Armengela and Mangagebit and other pre-Aksumite sites across the east, including Mezber and Ziban Adi, as well as ‘Ancient Ona’ sites, suggests cultural continuity throughout the pre-Aksumite period. Such continuity is corroborated at Alakile Daga. Here, a charcoal sample (Ly 17834) collected from the fireplace found in level F. 008 (see Fig. 6/e–f), which was the oldest level associated to the second occupation phase, yielded a radiocarbon age of 2480±30 BP (774–482 cal BC). The fireplace contained a brazier with no current pre-Aksumite parallels (Fig. 6/f) but potsherds below, in association with the first wall, are similar to those from Armengela and Mangagebit, suggesting continuity in traditions from the Middle to Late pre-Aksumite phases.

Agricultural activity: pre-Aksumite extra-regional interaction?

The study of South Arabian influences in the highlands has largely concerned stylistic and architectural traits associated with the polity of Daʿmat. These, however, have a limited distribution in time, relative to the Middle pre-Aksumite phase, and an unequal distribution in space, occurring on a limited number of sites. Compared to the focus on monumental architecture, sacral media, and inscriptions, investigation of other (non-material culture) influences in the highlands has been largely neglected. Red Sea interaction may have also influenced changes in subsistence and agricultural regimes (e.g. Woldekiros & D’Andrea 2016).

In order to investigate such influences, as well as local landscape processes across the Wakarida region, research was undertaken to clarify the relationship between the ancient population and their immediate landscape, and their impact on the environment (n. 10). The present-day region of Wakarida is largely cultivated using an extensive terracing system similar to some aspects of cultivated land in the mountains of Yemen (Gibson & Wilkinson 1995; Pietsch & Mabit 2012; Wilkinson 2005), providing a basis for investigating possible South Arabian influences in the past.

Rainfall plays a critical role in the structure of agriculture in the highlands. In the Wakarida region, rainfall is concentrated into two main seasons: heavy rainfall during summer (June to September), and medium rainfall in spring (end of February to May). Cultivators are confronted by two necessities: to slow down the strength of water flow and processes of erosion, and favour penetration of water into cultivated soils. Terrace cultivation is central to this, and as a consequence has totally transformed the valley bottoms. Local terracing is organized transversally, with walls perpendicular to the axis of the valley, so as to break the water flow. These transverse walls are higher than the surface of the fields themselves so that a part of the water is trapped in each field, the rest flowing to the next plot. Terraces also appear on the less abrupt parts of the slopes, organised in a system perpendicular to the slopes and parallel to the valley bottoms, following the same principle. Finally, the strongest slopes are covered with long parallel walls that are not meant to border cultivation fields but serve to slow down the water flow in order to reduce erosion.

Our environmental analysis included the examination of sixteen natural sections located in local valleys, with sampling of sediments for granulometry and 14C dating, providing data on ancient landscapes (Fig. 10). Dates from these sections vary from the seventh millennium BC (May Weini valley) to the seventeenth century AD (Ambare valley). Only three sections produced charcoal dated to the first millennium BC in the area. The base of each of these sections is dark and organic, and older than the first millennium BC (third to sixth millennium BC in Damhalle; third millennium BC in Ka'ebile). These organic deposits are the result of low-energy processes, attesting stable climatic and environmental conditions, where anthropogenic action, if present, was not strong enough to disturb such processes.

The stratigraphic units dating from the first millennium BC show the alternation of fine and coarse sediments. These coarse sediments attest to erosion processes but are not rounded, which suggests short-distance transportation: sediments might have been deposited after being eroded on the slopes, moving from the sides of the valleys to the bottom. This erosion could be the result of forest clearance, probably for agriculture. Such evidence is not compatible with a hypothesis of an already terraced landscape during the first millennium BC. On the contrary, geomorphological data suggest that the valley bottoms were neither cultivated nor terraced during this period. Instead, it is more likely that the

Footnotes:

10. Environmental research was carried out by N. Blond, N. Jacob-Rousseau, and Y. Callot (Université Lyon 2 Lumière, UMR 5133 Archéorient).

See end for figures.

Figure 10. A map of the fourteen geomorphological sites studied in the region and a photograph of a section in Damhalle (map and photograph N. Blond).

areas around settlements were cultivated. Trees located on slopes in the vicinity of such settlements were probably cut in order to create fields near the houses. By doing so, the population probably set the sediments in motion and caused significant erosion. The sediments then accumulated in the valley bottoms.

Evidence of intensive terracing of the valley bottoms and parts of the slopes in the Wakarida region instead suggests recent development, triggered by environmental and also social, economic, and political processes (Blond, Jacob-Rousseau & Callot 2018). Discussion of cultivation practices in early historical documents, including travellers' reports, do not mention terracing (Andree 1869: 391; Cooke 1867: 248; De Felcourt 1911: 16, 106; Harris 1844; Markham 1868: 39, 40; Powell-Cotton 1902: 380). Instead, terraces in northern Ethiopia are only first mentioned in the mid-twentieth century AD (Henze 2001: 64), which is consistent with their appearance in early aerial photographs (n. 11).

Given the possible late development of terracing in the region, local cultivation methods thus appear quite distinct from those used in antiquity in South Arabia.

Conclusion

The sites around Wakarida represent the most easterly pre-Aksumite sites in eastern Tigray, an area little considered in earlier discussions of pre-Aksumite archaeology. New research in the region,

however, is providing significant new insights into the development of complex urban society in the highlands.

At the present state of knowledge, it is not yet possible to offer a complete picture of settlement evolution around Wakarida during the first millennium BC, though some preliminary observations can be made. So far, the Wakarida region appears to have been scarcely occupied during the earlier pre-Aksumite period; it was only attested at Alakile Daga. We cannot yet identify the different steps of the development of the settlement from the early to the late pre-Aksumite period. However, the region was still occupied

Footnotes:

11. Dated 1964–1965 and 1994; obtained from the Ethiopian Mapping Agency.

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during the later Aksumite period as is suggested by the dating obtained at Armengela and Mangagebit; up to now, nothing indicates that the collapse of the Da'mat polity has affected local development. The fact that local population remained present in the region even after the collapse of the Da'mat polity, while demonstrating none of the cultural traits that define the contemporaneous proto-Aksumite polity, raises important questions concerning the development and expansion of urban settlement in this region during the later first millennium BC.

The question remains, however, as to why the region appears to have been so little occupied during the earlier pre-Aksumite period. It is possible that a more nomadic way of life dominated the area. Identifying traces left by mobile groups should perhaps be a priority for future research. However, with only three of the surveyed sites dated, and with local pre-Aksumite ceramic traditions demonstrating considerable continuity, settlement evolution in the region during the pre-Aksumite period needs to be further explored, including an expanded set of 14C dating results.

Continuity, as seen in ceramics, as well as local agricultural practices, is not surprising given the lack of South Arabian or Da'mat influences in this part of eastern Tigray. This may have been because trading routes across eastern Tigray during the period of the Da'mat polity did not readily affect the Wakarida region. Further work is clearly needed to understand the full extent of pre-Aksumite cultural continuity in the region, especially in terms of a possible post-Da'mat settlement expansion during the Late pre-Aksumite phase.

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FIGURES

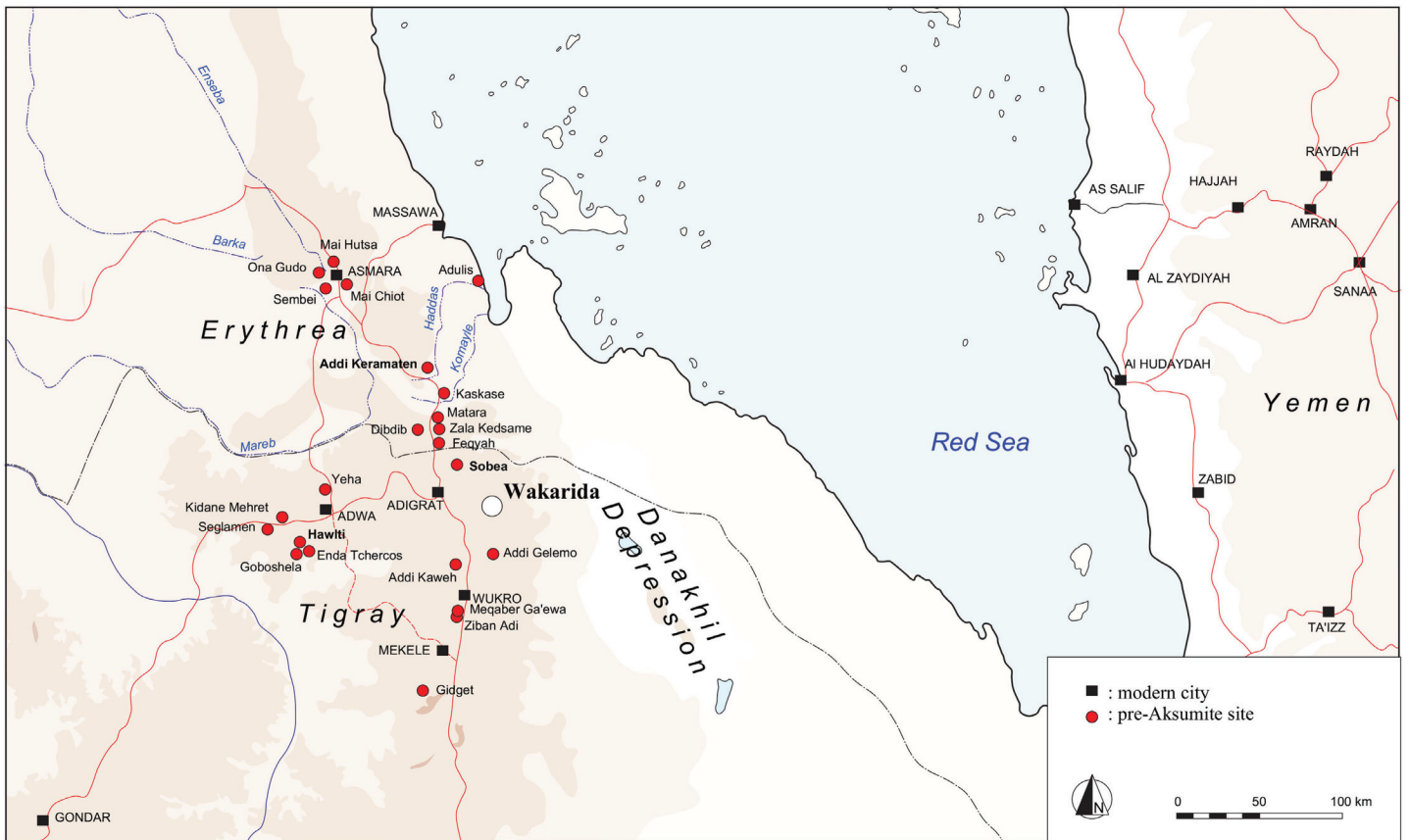


Figure 1. A map showing the distribution of pre-Aksumite sites in Ethiopia (after Anfray 1990: 16) and the location of the Wakarida region.



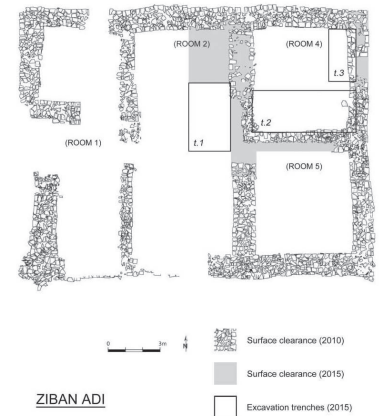
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Figure 2. The temple of Meqaber Ga'ewa and the house of Ziban Adi. 1 & 2. A view of the altar at Meqaber Ga'ewa and a picture of the statue of Almaqah (after Wolf & Nowotnick 2010b); 3 & 4. a view of the excavation at Ziban Adi and a map of the house (after Matthews & Büchner, in press).

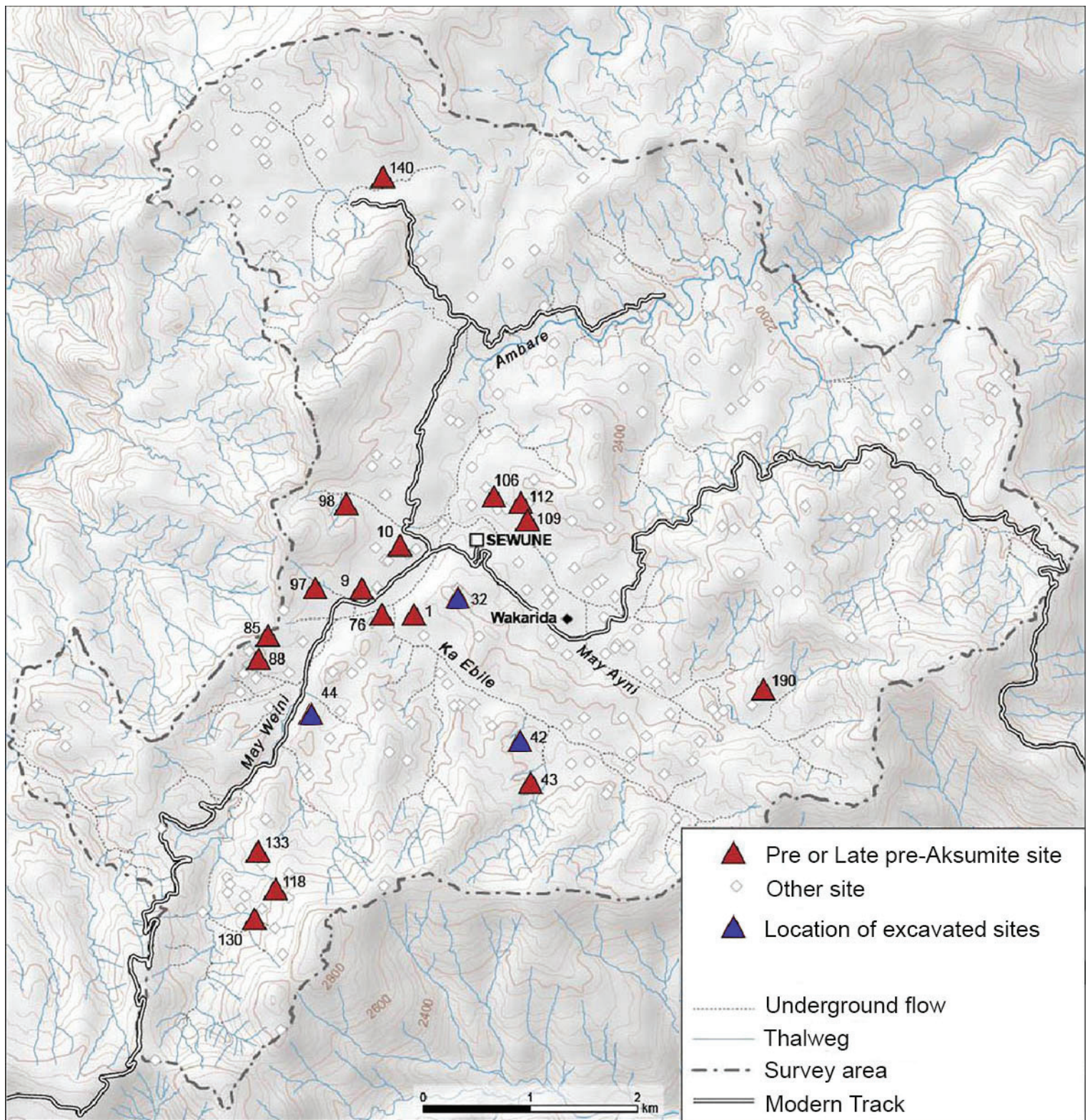
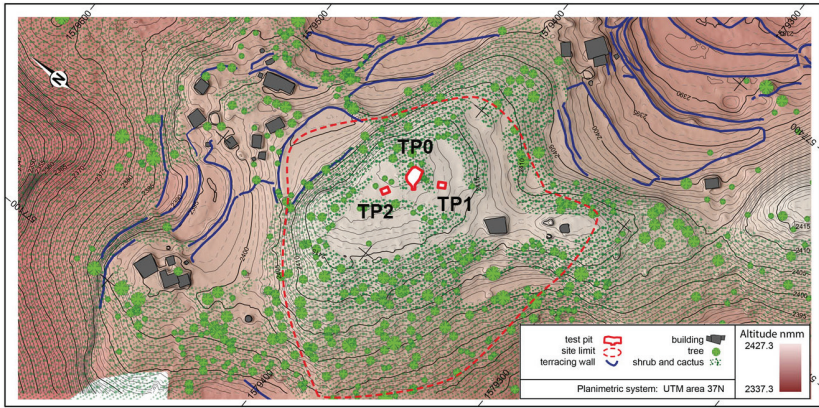
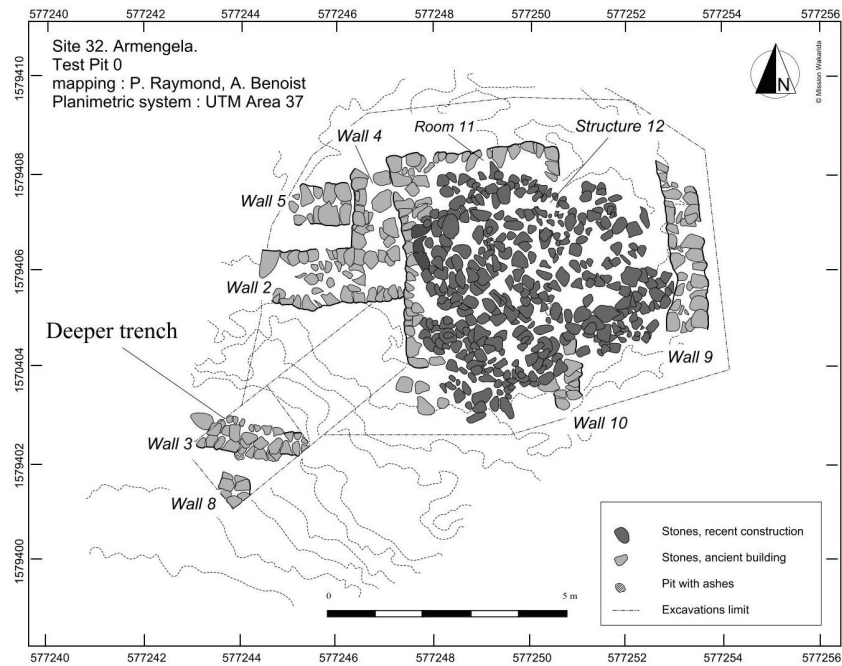


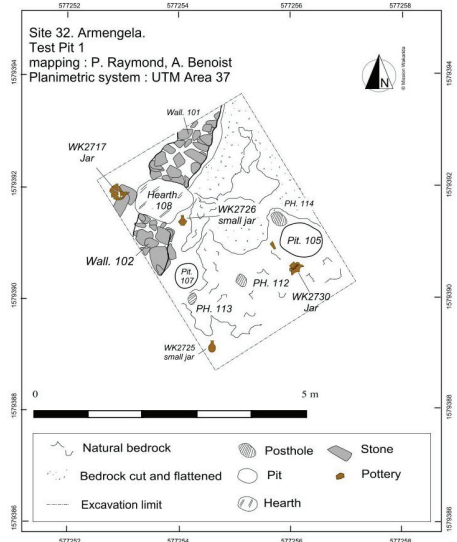
Figure 3. Distribution of pre-Aksumite and late pre-Aksumite sites around Wakarida and the location of the three excavated sites (site no. 32: Armengela; site no. 42: Alakile Daga; site no. 44: Mangagebit) (French-Ethiopian Archaeological Mission in eastern Tigray).



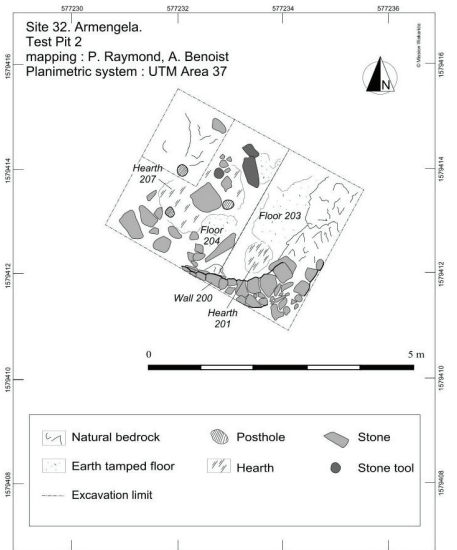
General Map (P. Raymond)



Test Pit 0



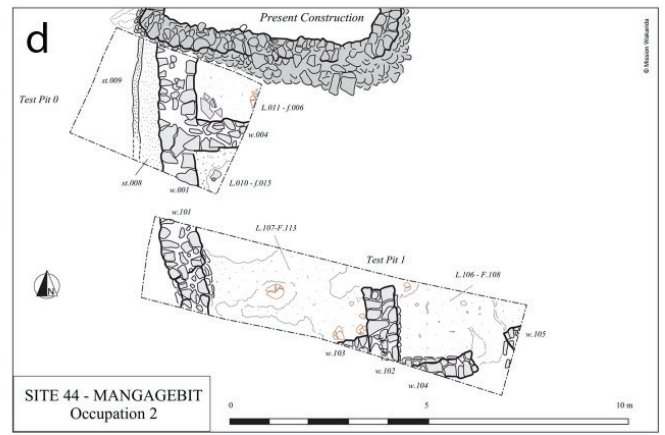
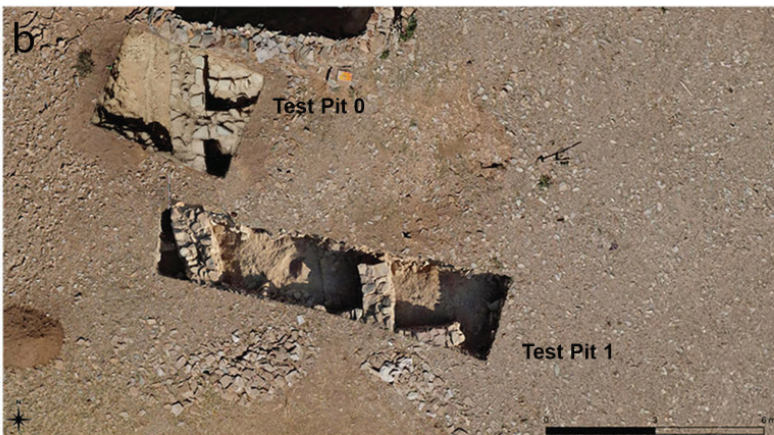
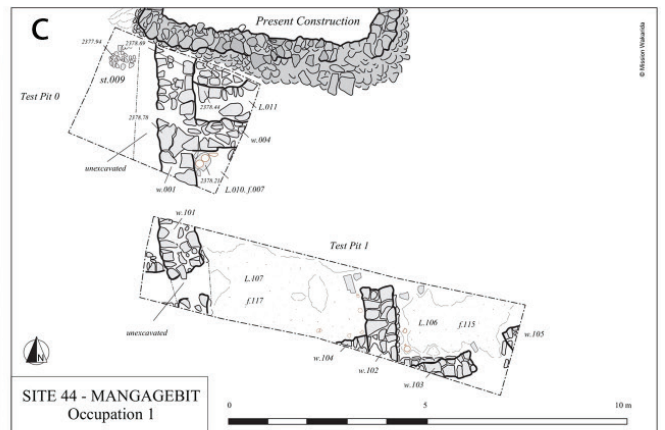
Test Pit 1



Test Pit 2

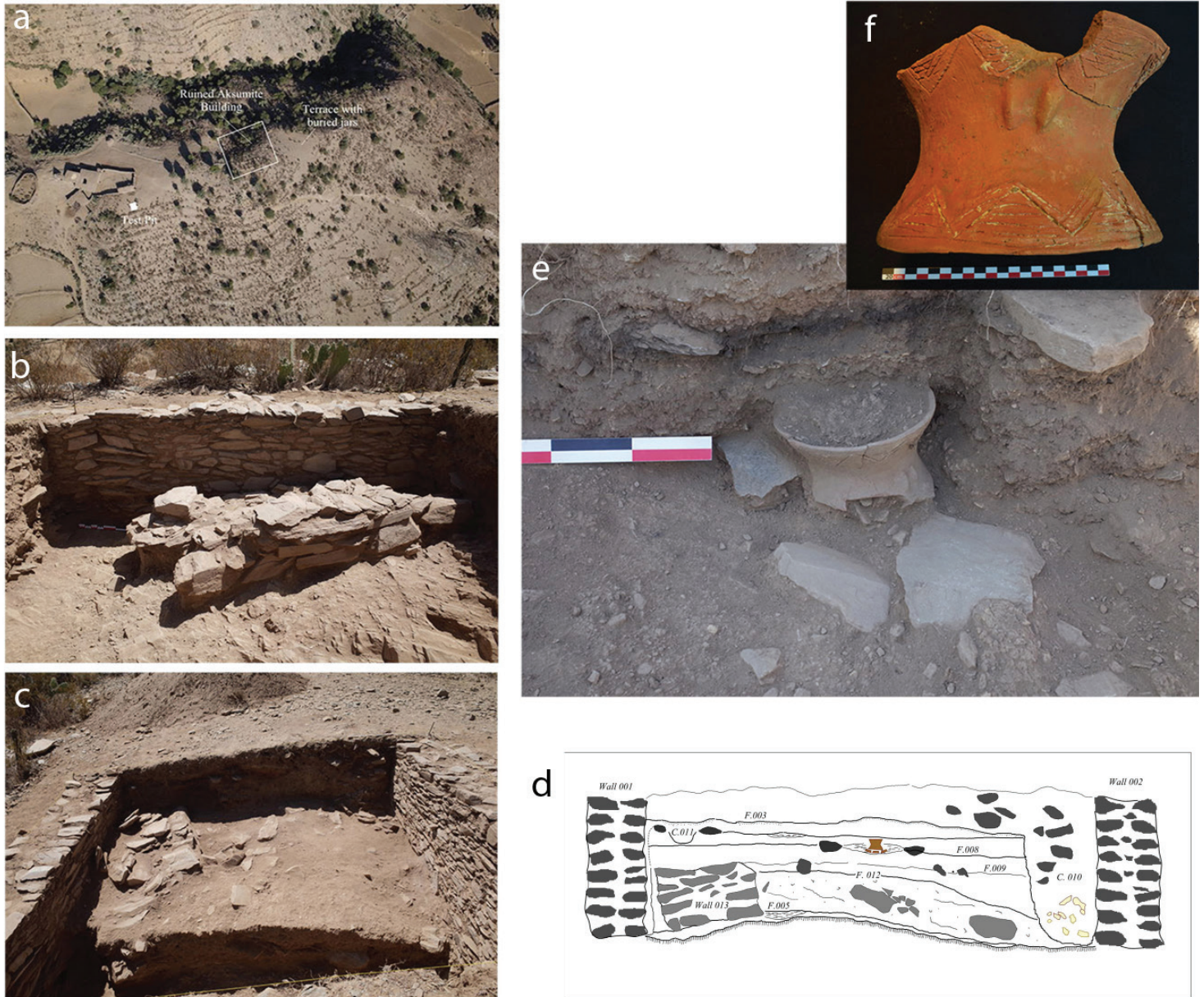
Site n° 32 ARMENGELA

Figure 4. Test pits at Armengela (site no. 32). A general map of the site (map P. Raymond); test pit 0 (map A. Benoist); test pit 1 (map A. Benoist); test pit 2 (map A. Benoist) (French-Ethiopian Archaeological Mission in eastern Tigray).



Site n° 44. MANGAGEBIT

Figure 5. Test Pits 0 and 1 at Mangagebit (site no. 44). a). a general view of the hill where the site is located (photograph N. Jacob-Rousseau); b). a kite view of the two test pits carried out on the site (test pit 0 and test pit 1) (picture T. Sagory); c). a map of occupation 1, the oldest occupation of the building; d). a map of occupation 2, a later occupation of the same building (maps A. Benoist) (French-Ethiopian Archaeological Mission in eastern Tigray).



Site n° 42. ALAKILE DAGA.

Figure 6. Test pit at Alakile Daga. a). a kite view of the site with the location of the test pit opened in 2017 (picture Th. Sagory); b). wall W 013, the oldest wall found in the test pit, built with large stones, with wall W 001 behind it, visible in the section of the excavation; c). accumulation of debris along the oldest wall W 013. Walls W 001 and W 002 are visible in the left and right sections of the excavation; d). a schematic drawing of the section showing the different occupations identified in the excavation (drawing A. Benoist); e). detail of the fireplace with a complete pottery vessel found in situ on floor F 008, associated with walls W 001 and W 002; f). the same pottery vessel after its removal from the excavation (French-Ethiopian Archaeological Mission in eastern Tigray).

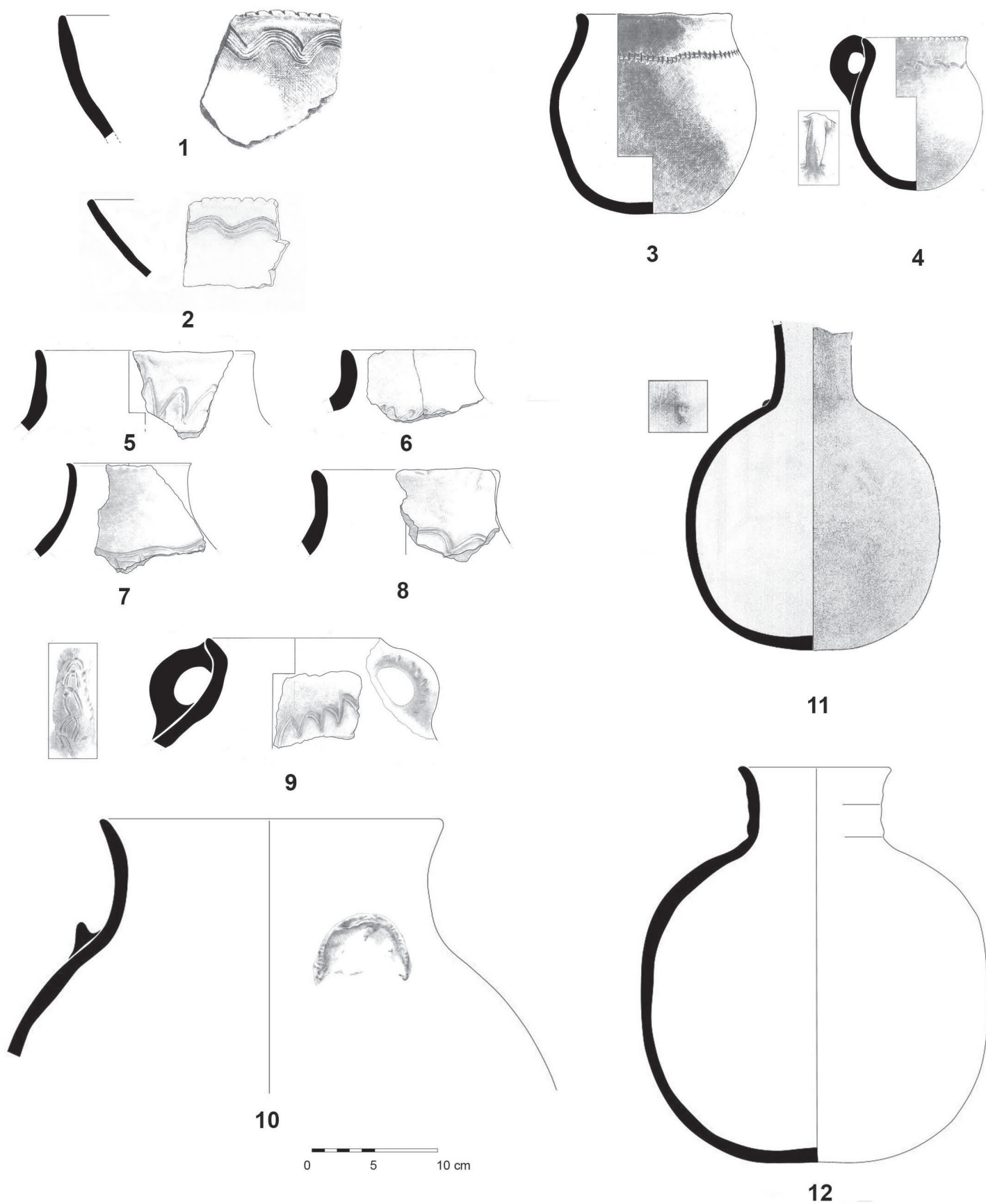


Figure 7. Pottery from Armengela and Mangagebit (1). 1, 5–9. Armengela; 2. Alakile Daga; 3–4, 10–12. Mangagebit (drawings M. Gorea, M. Kania — French-Ethiopian Archaeological Mission in eastern Tigray).

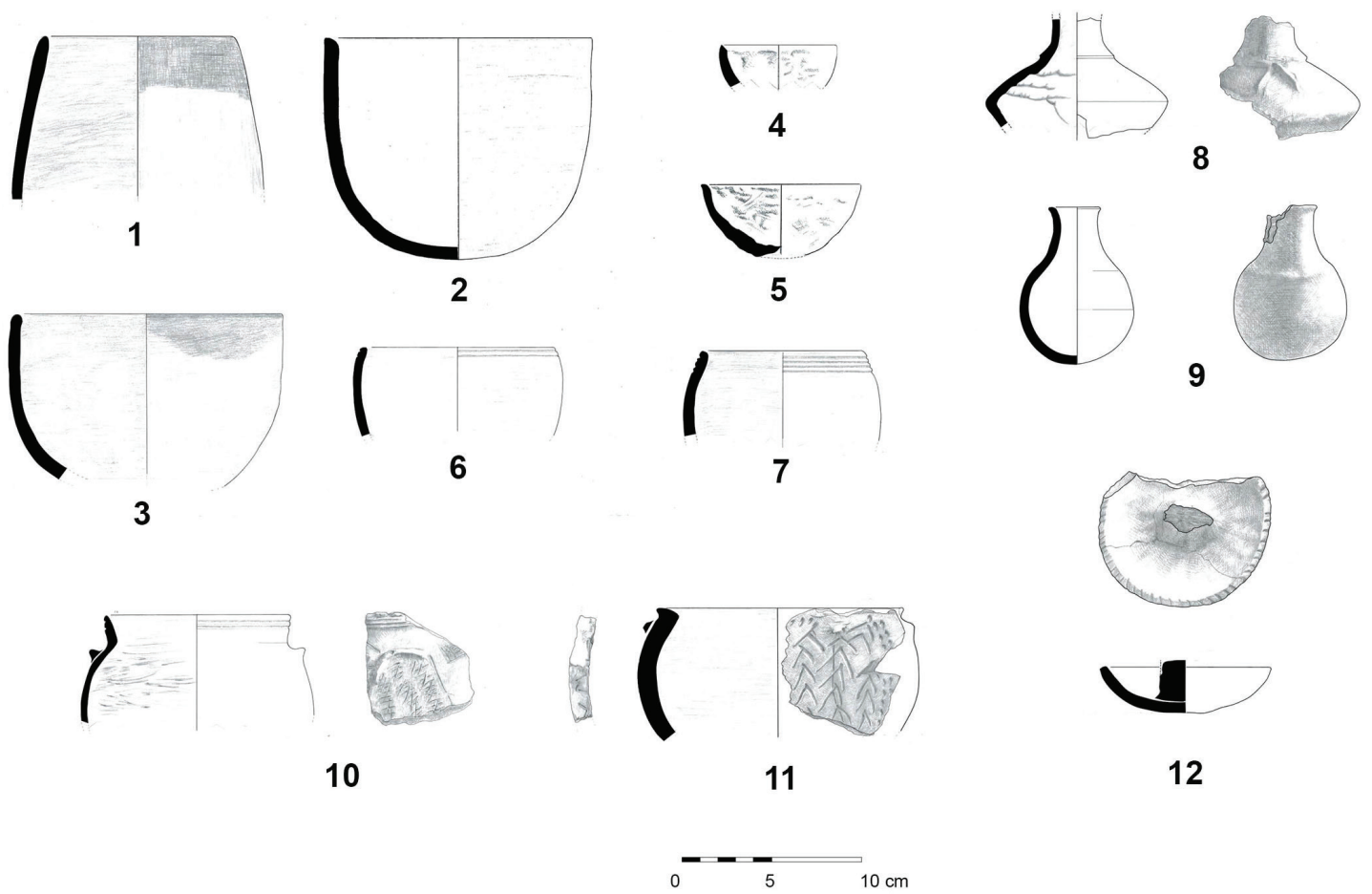


Figure 8. Pottery from Armengela and Mangagebit (2). 2, 4, 6–10, 12. Armengela; 1, 3, 5, 11. Mangagebit (drawings M. Gorea, M. Kania — French-Ethiopian Archaeological Mission in eastern Tigray).



Figure 9. Pottery from the oldest occupation at Alakile Daga: 1–2. bottles; 3. neck jar; 4. miniature bowl; 5–6. Lids (photographs Th. Sagory, G. Van Es — French-Ethiopian Archaeological Mission in eastern Tigray).

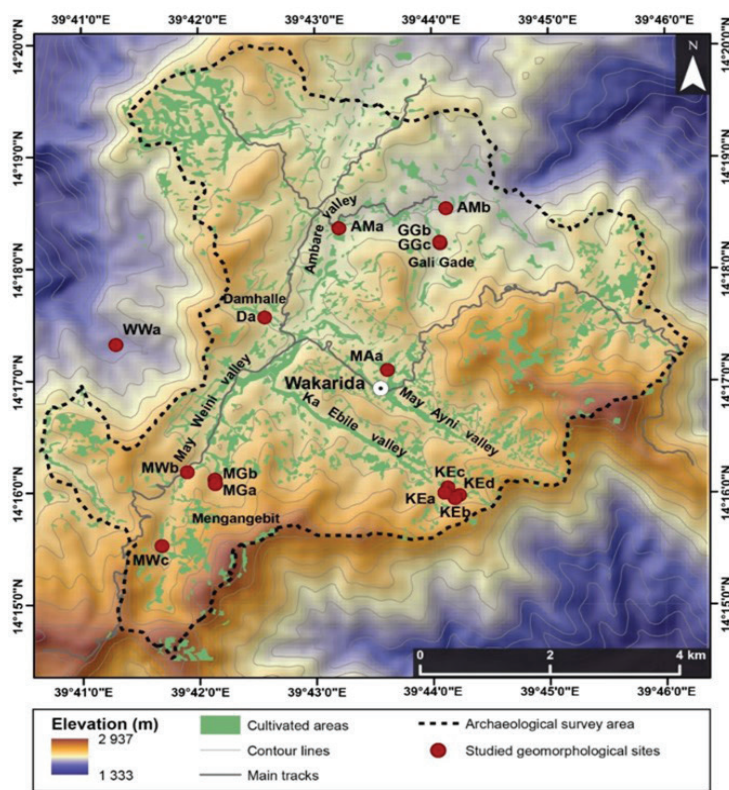


Figure 10. A map of the fourteen geomorphological sites studied in the region and a photograph of a section in Damhalle (map and photograph N. Blond).