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Jérémie Schiettecatte, Abdulaziz Al-Ghazzi, Guillaume Charloux, Rémy Crassard, Yamandu Hilbert, et al.. The oasis of al-Kharj through time: first results of archaeological fieldwork in the province of Riyadh (Saudi Arabia). Proceedings of the Seminar for Arabian Studies, 2013, 43, pp.285-308. hal-01828879

HAL Id: hal-01828879

https://hal.science/hal-01828879v1

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Proceedings
of the
Seminar for Arabian Studies

Volume 43
2013

Papers from the forty-sixth meeting of the
Seminar for Arabian Studies
held at the British Museum, London,
13 to 15 July 2012

Seminar for Arabian Studies

Archaeopress
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ISSN 0308-8421
ISBN 978-1-905739-65-3

Proceedings of the Seminar for Arabian Studies 43 (2013): 285–308

The oasis of al-Kharj through time: first results of archaeological fieldwork in the province of Riyadh (Saudi Arabia)

Jérémie Schiettecatte, Abdulaziz al-Ghazzi, Guillaume Charloux, Rémy Crassard, Yamandú Hilbert, Hervé Monchot, Michel Mouton & Pierre Siméon

Summary
Archaeologically, only little is known of the prehistoric, ancient, and medieval periods of central Arabia, the Riyadh Province in particular. And yet, as one of the few watered areas in the Najd, it has played a significant role in the political, economic, and religious history of the Peninsula. In order to throw new light on this region, in 2011 a French-Saudi archaeological mission started work in the Kharj oasis, surveying the area. Several types of site have been located: middle Palaeolithic workshops, Bronze Age necropoleis, and late antique/early Islamic settlements and irrigation systems. The main results of this survey are presented here, focusing on two sites: al-Kharj 22, a middle Palaeolithic site, and the late antique/early Islamic site of al-Yamāma, which was one of the major settlements in central Arabia for almost half a millennium (fifth–twelfth centuries) and was occupied until the eighteenth century.

Keywords: Najd, al-Yamāma, Palaeolithic, late pre-Islamic and early Islamic period, mosque

Introduction

Writing of his ventures into central Arabia in 1917–1918, H.StJ. Philby concluded his account with these words: 'I trust that I have said enough to show that there is much in Southern Najd to encourage further investigation, and to show that in Kharj and the Aflaj, in distant Jafura, in Wubar, and possibly other buried cities of the southern sands, there lies open a fruitful field for the archaeologist of the future.' (Philby 1920: 185).[1]

These promising words should have been all the more inviting since this area is abundantly mentioned in the pre-Islamic poetry and Islamic tradition.[2] Moreover, it has always been a crossroads between the Arabian Gulf, the Ḥijāz, and Yemen, and the region is therefore crucial for the understanding of human movements and contacts within the Arabian Peninsula.[3]

In spite of this, archaeological remains in central Arabia have rarely been particularly noticed. In 1945, Col. G. de Gaury reported the presence of tumulus fields (1945). A few years later, Philby completed the description of the oases of al-Aflāj and Wādī Dawāsir (1949). In 1978, a comprehensive archaeological survey of the Kingdom of Saudi Arabia was carried out in central

[1] For an account of these travels, see also Philby 1919.

[2] Sources are far too numerous to be extensively quoted here, but include: *Taʾrīḫ al-rusul wa-l-mulūk* (al-Ṭabarī), *Kitāb futūḥ al-buldān* (al-Balādhurī), *Ṣifa Jazīrat al-ᶜArab* (al-Hamdānī), *Murūj al-ḏahab wa-maᶜādin al-jawahir* (al-Masᶜūdī), *Safarnāma* (Nāṣir-i Khusraw), *Kitāb Muᶜjam al-Buldān* (Yāqūt). Several syntheses have been produced so far: Wüstenfeld 1874, Thilo 1958, Bin Khamīs 1978, al-Askar 2002, al-Juhany 2002. Most of these sources are related either to the origin of the ancient name of the region, al-Yamāma, or to the story of Musaylima. Indeed the region is said to have been the domain of the legendary tribes Ṭasm and Jadīs. These tribes would have been replaced, in the early fifth century, by that of Kinda (Olinder 1931), when the Himyarite king Hasan Tubba (Hassān Yuhaʾmin, son of Abīkarib Asᶜad) took control of the area and entrusted it to the tribe of Kinda. This event could be echoed by the South Arabian inscription Ry 509 found in Wādī Maʾsal (Najd). It was probably at that time that the Banū Ḥanīfa settled in this region. This tribe went down in history with the emergence within it of the so-called False Prophet Musaylima. Contemporary with the Prophet Muḥammad, Musaylima federated the tribes from the Najd. Standing in the way of the first Muslim community, they were finally defeated in the battle of ᶜAqraba (633). The area fell into the hands of the Medina administration. From the reign of the first Umayyad caliph, Muᶜawiya (661–680), al-Yamāma is often mentioned as a rich mining and farming area.

[3] The role of the Kharj area as a crossroads in pre-Islamic times has been underlined by Potts (1988); regarding the Islamic period, it is prominent in the description of the pilgrimage road by Khordâdhbeh (1889: 112–114), and in the historical overviews of the Yamāma region by al-Askar (2002) and al-Juhany (2002).

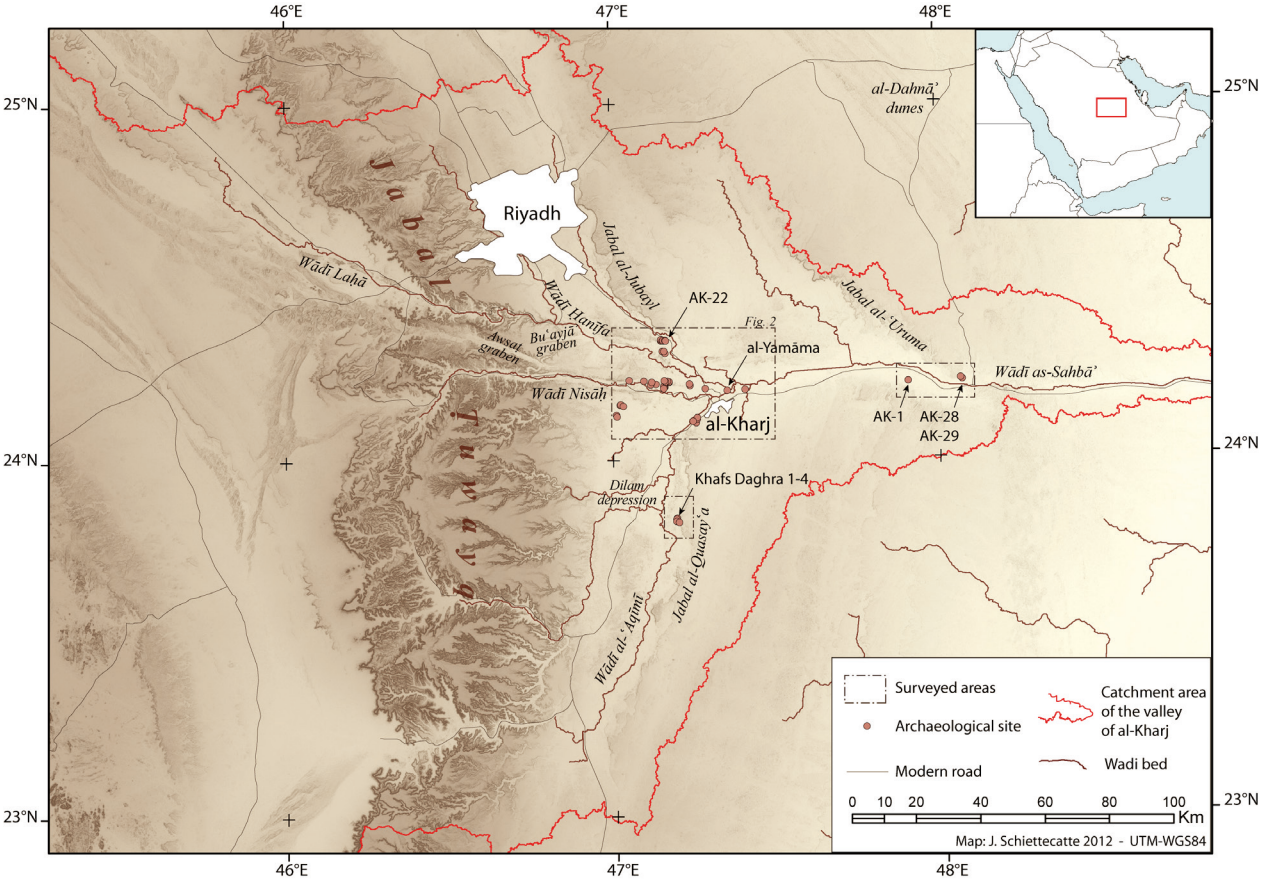

Figure 1. *The location of the oasis of al-Kharj and its environmental context (©French-Saudi Archaeological Mission in Yamāma).*

Arabia and identified sixteen sites in the oasis of al-Kharj alone (Zarins et al. 1979), confirming the potential of the area. Consequently, in the late 1980s and in the 2000s, A. al-Ghazzi initiated excavations at several sites in the oasis (1996; 2009; 2010; 2011*a*; 2011*b*).

In order to add to the current archaeological record, a Saudi-French expedition started work in the Kharj area in September 2011 at the invitation of the Saudi Commission for Tourism and Antiquities. This expedition aims to characterize the diverse prehistoric, protohistoric, and Islamic archaeological remains as well as to illustrate the environmental context that made it possible for people to settle in such an arid region. The first field season was mainly devoted to establishing an archaeological map of the oasis and to the study of two significant sites: AK-22 (Palaeolithic) and al-Yamāma (late pre-Islamic/early Islamic).

Environmental setting

The area of al-Kharj, in the eastern part of the Najd in east-central Saudi Arabia, lies between latitude 23.8° and 24.4° N. and longitude 46.9° and 48° E. Although modern annual rainfall rarely exceeds 100 mm,[4] the area is characterized by a variety of geological features that have attracted human populations since prehistoric times (Fig. 1) (Vaslet et al. 1991). Today it shelters one of the main cities in the Riyadh area, 70 km to the south-west of the capital.

[4] For the period 1980–2007, the annual mean is 94.6 mm (according to the *Surface annual climatological report* of the Saudi Presidency of Meteorology & Environment Protection — www.pme.gov.sa/). The amount of rainfall is irregular throughout the year, with rain occurring mainly in November–April.

A succession of north-west-trending cuestas of late Jurassic to Cretaceous formations, with south-west-facing scarps, marks the northern part of the Riyadh area. Further south, the scarps are oriented towards the south-west. These are:

— Jabal Ṭuwayq, bordering the Kharj area to the west; it crosses central Arabia from north to south in a crescent-shaped arc;
— Jabal al-Jubayl, which bounds the city of Riyadh to the east;
— Jabal al-ᶜUruma, further east, which runs parallel to Jabal al-Jubayl.

At al-Kharj, the north–south scarps are cut by the convergence of the central Arabian graben system composed of the Nisāḥ, Awsaṭ, Buᶜayjāᵓ, Rufāᵓ, and Mughara grabens.

Fluvial structures in the region run from the Ṭuwayq escarpment across the Ṭuwayq plateau in a generally west–east course. Towards the centre of the Kharj area the wadi courses, such as Wādī Nisāḥ and Wādī as-Sahbāᵓ, follow the graben structures. South-east of Riyadh, a series of parallel wadis drain southwards into Wādī as-Sahbāᵓ and have brought considerable amounts of fluvial deposits into the Kharj transverse valley.

Over the past millennia, the west–east axis of the dip from the Ḥijāz to the central Arabian shield has caused the emergence of subsurface waters in the form of springs and marshes in the Riyadh/Kharj area. The rupture of the Arabian Shield by the tectonics that created the central Arabian graben system has activated a series of natural artesian springs in the area. In addition, chemical dissolution of limestone by groundwater led to the formation of up to 150 m-deep karst sinkholes south of al-Kharj.[5]

This specific geomorphological configuration led to the convergence of subterranean and surface waters, to

[5] The formation of one of these is dated to 8900 ± 300 BP (data published without calibration; Vaslet et al. 1991: 36).

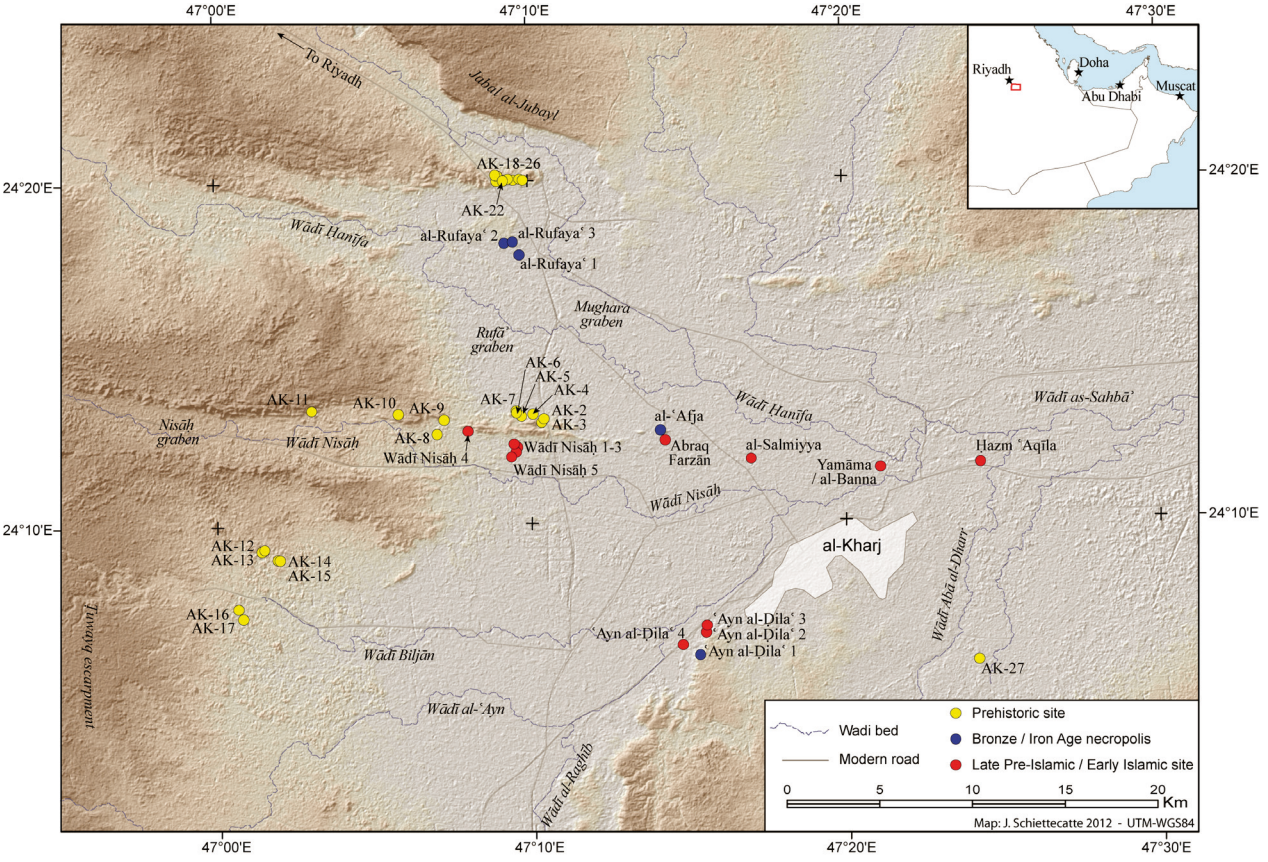

Figure 2. *An archaeological map of the oasis of al-Kharj (©French-Saudi Archaeological Mission in Yamāma).*

the activation of artesian springs, and to the formation of karst sinkholes in the Kharj area, which provided important perennial water sources. These features have been decisive in the sedentary occupation of this area.

The archaeological map

The unique geomorphological arrangement of the central Arabian graben system most likely functioned as a conduit for human populations moving along the Red Sea hills and the desert inland. The availability of fresh water and other resources, however, makes the Kharj oasis more than a channel for expanding and contracting human populations. Survey activities undertaken across the Kharj area have revealed a plethora of archaeological sites spanning the middle Palaeolithic to Islamic periods, attesting to the importance of this region across the ages. It was all the more urgent to draw an archaeological map because the unprotected remains are suffering from ongoing urbanization and intensive agriculture.

An exhaustive survey of the whole oasis was not possible because of its size (*c.*2800 km^2). Thus, the strategy was to survey targeted areas taking into account the environmental context, the stage of urban development, and the results of previous surveys. Forty-three sites have been registered so far (Fig. 2): twenty-nine Palaeolithic sites; four Bronze/Iron Age necropoleis; and ten late pre-Islamic/early Islamic settlements and hydraulic structures.

Prehistoric landscape and Palaeolithic industries

The recognition and investigation of Palaeolithic sites across the Kharj landscape constituted the principal aims of the prehistoric unit of the Saudi-French mission. Survey methodology included desk-based investigation of geological maps and careful study of the available literature. Although the literature review was relatively fruitless, given that no Palaeolithic sites had been previously recorded in the Kharj area, dated and analysed stone-tool industries known from other areas within the Arabian Peninsula were nonetheless used to place the new discoveries from the Kharj area into a relative chronological and cultural framework (Petraglia & Alsharekh 2003; Amirkhanov 2008; Crassard 2008; 2009; Marks 2008; Petraglia & Rose 2009; Armitage et al. 2011; Crassard & Thiébaut 2011; Petraglia et al. 2011; Rose et al. 2011; Hilbert, Rose & Roberts 2012; Delagnes et al. 2012; in press). The careful study of the geological maps revealed several outcrops of silicified sandstone and quartzite, raw materials needed by prehistoric populations for the production of stone tools. These outcrops have been surveyed and documented in order to determine their archaeological potential. Following the identification of an archaeological site, artefact collections were made in order to assess its possible chronological affiliation and its significance for the prehistoric record of the Kharj area.

Sites and surveyed areas

The prehistoric unit concentrated its efforts on the following areas: the Nisāḥ graben, the southern area of the Rufāʾ graben, and the northern part of the Dilam depression. Visits in order to assess the potential of the following areas in and around al-Kharj were also undertaken: the eastern part of the Ṭuwayq plateau, the Mughara graben, and the area south-east of al-Kharj (Figs 1 & 2).

The twenty-nine sites discovered during the 2011 survey are surface sites composed of by-products from stone tool production left behind by prehistoric flint-knappers. Artefacts were mostly made of ferruginous sandstone and various types of quartzite and a few made of chert have also been identified. No primary chert outcrops were found during the survey activities; the chert found at localities AK-14 and 15 was incorporated into deflated and heavily eroded ancient alluvial fans. Most of the sites were found directly on raw material outcrops and were categorized as workshop sites. As a result of post-depositional phenomena, the artefacts collected from these sites were heavily patinated and, as a consequence, lithic artefacts present a dark colour and rounded edges. In general, the surface sites were marked by a low density of artefacts (0–3 objects per square metre), although some presented up to fifteen artefacts per square metre (for instance at site AK-22: Fig. 3).

No early/mid-Holocene sites were recorded by the survey, but this absence does not mean a complete lack of Neolithic sites in the region of al-Kharj. The topography of the oasis could explain this absence, as the sediments transported by alluvial activity, modern-day construction, and agricultural usage have not been favourable to the preservation of archaeological sites. The survey of the first terraces and higher ground surrounding the oasis has also failed to yield any Holocene sites; in these areas most of the sites observed have been middle Palaeolithic.

The lithic samples collected across the Kharj landscape show consistent technological patterns analogous to the middle Palaeolithic of the Arabian Peninsula. Specifically, the main technology observed in the Kharj region for the

Figure 3. *Site AK-22: a general view of the site (©French-Saudi Archaeological Mission in Yamāma).*

production of blanks fits that of the Levallois concept of volume exploitation. Flakes were of small to medium size (max. diameter 15 cm) and usually with well-faceted platforms. Blades and débordant blades were found in smaller numbers and were not the result of intentional blade production; rather, these were by-products of core maintenance. Cores mostly had centripetal to bidirectional scar patterns and a distinction was made between cores with a hierarchical use of the surfaces and cores where both surfaces were used alternately. Tools were found in small numbers and were of informal character, retouched blanks being the most common type of non-standardized tools. Bifacial artefacts have been observed at the following sites: AK-03, AK-10, and AK-12. These were generally accompanied by discoid cores. The bifaces are sub-triangular to amygdaloid in shape and present traces of hard-hammer *façonnage*; the three specimens have cortical butts and asymmetric cross sections. The preference for Levallois technology was documented based on the presence of Levallois cores and Levallois flakes, mainly displaying centripetal preparation.

Levallois technology

The middle Palaeolithic sites have been identified on the basis of artefacts produced using the Levallois technique. The Levallois concept (*sensu* Boëda 1994) consists of producing a blank of predetermined shape, which is achieved by the use of different flaking (*débitage*) methods. Differences within the Levallois technology are detected through the study of reduction patterns and this helps discern stone-tool industries (e.g. Bordes 1961; Delagnes 1992; Van Peer 1992; Dibble & Bar-Yosef 1995). In the Arabian Peninsula, the presence of Levallois technology was first identified in Yemen by Caton-Thompson (1938). Since then, archaeological investigations have revealed the presence of Levallois technology in Saudi Arabia (Zarins et al. 1979; Petraglia

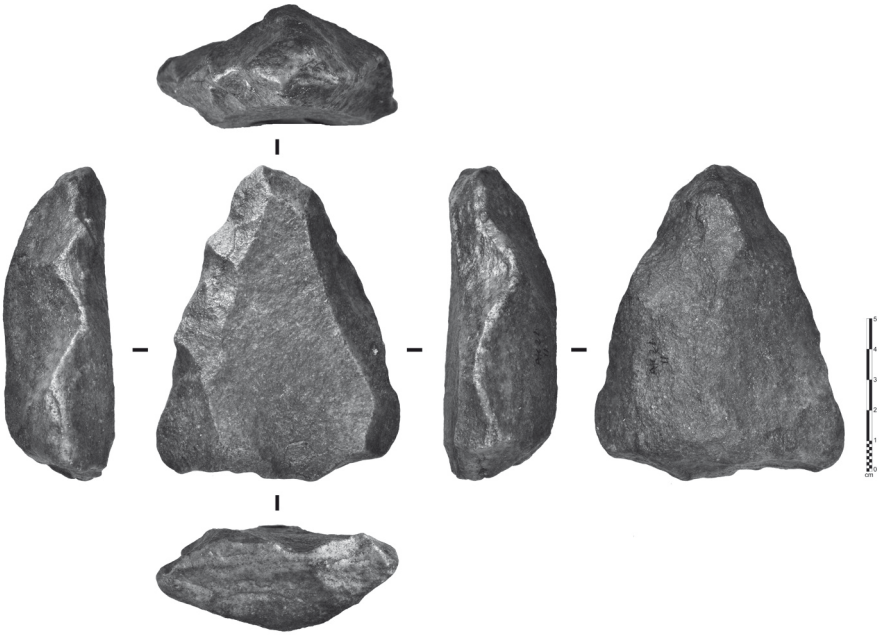

Figure 4. *Site AK-22: Levallois core illustrating a type of Nubian reduction method (©French-Saudi Archaeological Mission in Yamāma).*

et al. 2011; 2012; Crassard et al., in press), in the United Arab Emirates (e.g. Armitage et al. 2011), in Oman (Rose et al. 2011; Usik et al. 2012) and in Yemen (Inizan & Ortlieb 1987; Amirkhanov 1994; Crassard 2008; 2009; Crassard & Thiébaut 2011; Delagnes et al. 2012; in press). Thanks to these discoveries across the Arabian Peninsula and to the dating of four sites by Optically Stimulated Luminescence (OSL), the use of Levallois technology across Arabia may be chronologically placed between at least 110,000 and 42,000 BP.

The case of al-Kharj 22 and implications in regional Palaeolithic studies

One specific type of Levallois preparation has been identified at al-Kharj 22 (AK-22), namely the Nubian Levallois method, characterized by bidirectional and distal preparation of the Levallois surface (Fig. 4). This Levallois method is typical for north-eastern and eastern African assemblages and particularly the 'Nubian Complex' (Kurashina 1978; Van Peer & Vermeersch 2007; Olszewski et al. 2010; Rose et al. 2011). This technology was recently discussed by Crassard (2009) in eastern Yemen, then fully described and dated in western Oman (Rose et al. 2011; Usik et al. 2012). Its presence in central Arabia is now attested at AK-22 (Crassard & Hilbert, in press), where a lithic scatter spreads across an area 20 x 60 m in the vicinity of an outcrop of dark and yellow quartzite ranging from poor to high quality (Fig. 3). A collection of Levallois cores has been made at the site (n=122), with a selective collection of blanks and some technologically diagnostic pieces, such as *débordant* flakes and centripetal recurrent flakes. Except for the bidirectional preparations on Levallois cores, the lithic industry at AK-22 is characterized by Levallois preferential debitage with point and flake production. Few tools have been recorded; they include one side scraper, one piercer, and one retouched blank. The patination is homogeneous, as are the technological patterns. Two small test pits have been dug at the site. The artefacts found were within a thin colluvial horizon blanketing a consolidated cemented package of deteriorated clasts mixed with aeolian material, but there were no *in situ* artefacts.

The identification of the Nubian reduction method at AK-22 draws parallels from the South Arabian sites and the broad and reasonably well-studied regions of the Dhofar and Ḥaḍramawt plateaus. The link between these two regions cannot be explained by simple technological convergence expressed by two different populations. It

is likely that the presence of Nubian reduction in both regions relates to population movements between the Arabian Peninsula and north-east Africa. Which way these movements went has yet to be determined, given the tentative character of the chronological attribution of the AK-22 assemblage. Population movements across the central part of the Peninsula have been restricted by various environmental factors, such as the Rubᶜ al-Khālī desert. It is conceivable that these expansions took place along the Red Sea hills and the ᶜAsīr highlands, given that these habitats are likely to have been relatively stable during the climatic fluctuation which took place during the late Pleistocene (Fleitmann & Matter 2009; Preusser 2009). If that was the case, the bearers of the Nubian Complex reached AK-22 through the riparian systems that connect the Arabian arc with the Ṭuwayq escarpment.

The geomorphological observations of the field research described here indicate that the Kharj area, with its many springs and natural water holes, probably represented an environmental boon during the desiccation that followed the pluvial phases of Marine Isotope Stage 5. Further investigations in the area targeting the discovery of additional Nubian Complex sites, but also of under-represented prehistoric techno-complexes, will be undertaken over the following field seasons.

Bronze and Iron Age necropoleis

Although no settlement dating back to the Bronze or Iron Age has been located so far, several clusters of tumuli bear witness to ancient occupation. They are located on the edge of the cuesta escarpment (ᶜAyn al-Ḍilaᶜ 1; Khafs Daghra 3 and 4), on rocky terraces (al-Rufayaᶜ), or on rocky outcrops (al-ᶜAfja) on the very edge of areas covered with quaternary deposits. Their location appears to be dictated by both a dominant position in the landscape and the availability of building material on the ground. These places are sedimentary rock formations, flaked

Figure 5. *Tumulus field at ᶜAyn al-Ḍilaᶜ, south of the oasis (©French-Saudi Archaeological Mission in Yamāma).*

and cracked by erosion on the surface (sandy gypsum in al-Rufaya^{c}; clay stone and sandy limestone in al-^{c}Afja; clayey limestone in ^{c}Ayn al-Ḍila^{c} 1; Khafs Daghra 3 & 4) and they offer natural roughly hewn stones that can easily be used in the building process. All the tombs are of dry stone masonry.

^{c}Ayn al-Ḍila^{c} 1 (24.1018°N–47.2549°E), by far the largest necropolis of the oasis, at 4 km long and up to 0.5 km wide (Fig. 5), was already mentioned by Philby (1920: 169), de Gaury (1945: 152), and in the Comprehensive Survey (no. 207-20; Zarins et al. 1979: 23–25). Hundreds of tumuli are visible together with a few tapered structures (1979: pl. 12). Sherds sampled on the ground in the past have been attributed to the pre-Islamic period (1979: 27, 34).

The second largest necropolis is located at **al-^{c}Afja** (24.2137°N–47.1896°E), west of ^{c}Ayn Farzān, along an east–west-trending sandy limestone outcrop (no. 207-31; Zarins et al. 1979: 23). Most of the graves are circular; a few have a tail, up to 20 m long. The most monumental ones are stepped: two or three stone cylinders are built one above the other. Some graves were excavated in 2004–2005 (al-Ghazzi 2011*a*). One grave (Area 2, no. 4) yielded a bronze socketed spearhead (2011*a*: 204, pls 10, 109) reminiscent of those found in the Yabrin oasis, Dhahrān, and Bahrain, dated to the early second millennium BC (Bibby 1973: fig. 57; al-Mughannam 1988: pl. 3/A; Cleuziou 1989: 29; Lombard 1999: 58). Grave L10 yielded an iron axe and an iron pin (al-Ghazzi 2011*a*: pl. 110), which attest to reoccupation during the Iron Age at the earliest.

The two last necropoleis, **Khafs Daghra** (23.8268°N–47.1913°E) and **al-Rufaya^{c}** (24.3037°N–47.1585°E), include a few scattered tumuli.

It cannot be specified whether these necropoleis were those of mobile groups or if a contemporary settlement is to be sought beneath the sedimentary deposits in the alluvial plain.

Late pre-Islamic and early Islamic occupation of the oasis

The early Islamic sources describe the valley of al-Kharj as a densely populated area and as part of the wider region of al-Yamāma.[6] Yet only a few settlements have been found, always in remote or protected areas. This scarcity, in contradiction with written sources, can be related to either a permanent occupation of most of the fertile areas of the oasis, thus hiding more ancient occupation, and/or to the modern urbanization process that has led to the rapid disappearance of many sites (see below the examples of ^{c}Ayn al-Ḍila^{c} 4 and Ḥazm ^{c}Aqīla). Sites from late pre-Islamic and early Islamic periods are of two kinds: settlements and hydraulic structures. They are all located in the alluvial plain, on the banks of the main wadi beds.

^{c}Ayn al-Ḍila^{c} 4 (24.1067°N–47.2458°E) is located close to the largest karst sinkholes of the oasis, south of the valley. Zarins mentioned the presence of a nearby 'Hellenistic' settlement (no. 207-24; Zarins et al. 1979: 27–28), but the site has now been entirely destroyed by modern building activity. Nevertheless, the *qanāt* system (pl. *qanawāt*) mentioned in close proximity to the site is still partly preserved over 1.2 km. Still active in the 1910s, according to the description given by Philby (1920: 169), it was fed by a now dried-up karst sinkhole; the vertical shafts of the *qanāt* are all filled with rubble or rubbish.

Ḥazm ^{c}Aqīla (24.1938°N–47.4051°E) is located on the southern bank of Wādī Ḥanīfa (no. 207-26; Zarins et al. 1979). It was a densely settled area before recent farming activity and industrial construction badly damaged it. Almost nothing is left but sherds on churned up ground; it was tested in 1988 and its occupation dated to the late pre-Islamic/early Islamic period (al-Ghazzi 1996; 2009).

In **Wādī Nisāḥ**, five sites are characterized by two or three low mounds encircling a lower area.[7] The mounds are covered with stones, pebbles, and pottery sherds. Their diameter is *c.*30–50 m. They can be seen as isolated farms benefiting from the proximity of groundwater. Alkaline glazed pottery dated to the Abbasid period has been sampled in Wādī Nisāḥ 5.

At the foot of a hill called **Abraq Farzān**, a *qanāt* system watered by an artesian spring is preserved over 4 km (no. 207-28; Zarins et al. 1979: 29; see also Ghazzi 2011*b*). It is fed by an open-air canal leading into an underground channel visible on the surface by 3 m-wide shafts dug every 11 m (Fig. 6). Nowadays this hydraulic system is dried up, filled with rubbish, and partly destroyed. Philby described the structure at a time when it

[6] See in al-Hamdānī and Yaqūt the several settlements in the Kharj valley and a description of the valley as the most fertile in the Yamāma region (al-Hamdānī 1968: 139–140; Yāqūt 1866–1873, ii: 419; iv: 529, 577, 630). On the settlement pattern of al-Yamāma and the high number of inhabitants, see Wüstenfeld 1874: 198-214; al-Juhany 2002: 39-48.

[7] Wādī Nisāḥ 1: 24.204°N–47.1597°E; Wādī Nisāḥ 2: 24.2015°N–47.1587°E; Wādī Nisāḥ 3: 24.2055°N–47.1577°E; Wādī Nisāḥ 4: 24.2119°N–47.1334°E; Wādī Nisāḥ 5: 24.19916°N–47.15635°E.

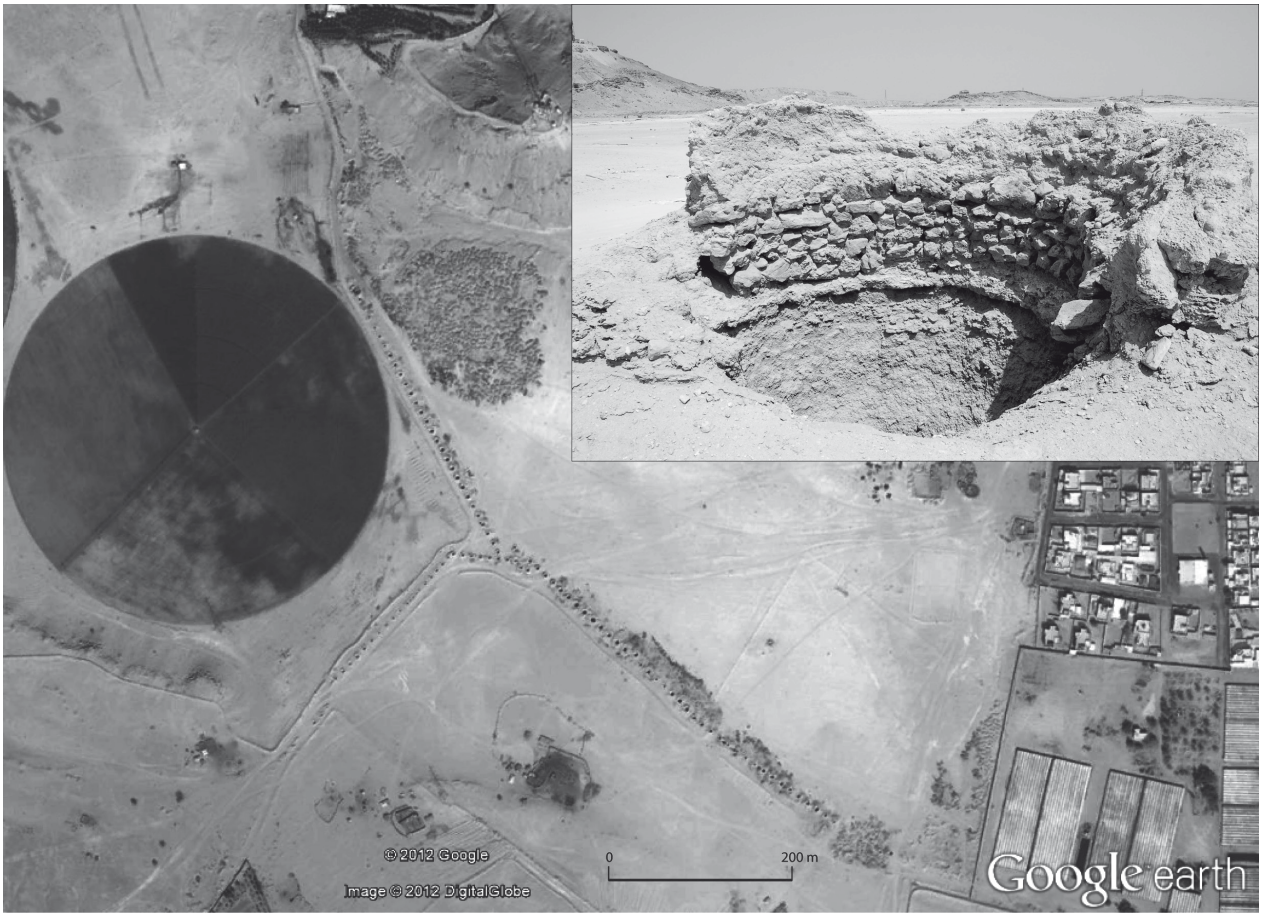

Figure 6. *Qanāt at Abraq Farzān, west of the oasis (©French-Saudi Archaeological Mission in Yamāma).*

was still in use (1920: 167–168) and mentioned the outlet in **Salmiyya** (24.1969°N–47.2833°E), 6 km downstream. Only two vertical shafts filled with rubble can still be seen there. There is no clear evidence with which to date these structures. A *terminus ante quem* is nevertheless provided by the Persian traveller Nāṣir-i Khusraw in the mid-eleventh century, who mentions subterranean channels watering the palm groves of al-Yamāma (Khusraw 1881: 225).

Finally, the largest archaeological site of the Kharj oasis is called either **al-Banna** or al-Mahraqah (24.192°N–47.3519°E) and is located near a village named **al-Yamāma**[8] (no. 207-30; Zarins et al. 1979: 27, 30). It has been tested in the past (al-Ghazzi 2010) and its occupation dated to the late pre-Islamic/early Islamic period. Its excavation was resumed this season.

Al-Yamāma/al-Banna

On the eastern slopes of the Ṭuwayq ridge, the site is located in an alluvial plain watered by one of the largest

[8] In late pre-Islamic/early Islamic periods, al-Yamāma designated the region which extended west of the Jabal Ṭuwayq. Its capital city — in some periods Ḥajr, in the vicinity of modern Riyadh, in other periods Jaw al-Khaḍārim, identified with the site of al-Banna (al-Juhany 2002: 45; al-Ghazzi 2010: 45–47) — was also known as al-Yamāma, after the name of the surrounding area. See for example Ibn Baṭṭūṭa (1982, ii: 129): 'D'Alhaça, nous nous rendîmes à la ville d'Alyemâmah, aussi appelée Hadjr'; and al-Masʿūdī (1861–1877, iii: 276, 288): 'Ils campaient tous dans le Yémamah, qui était connu alors sous le nom de Djaw [Jaw al-Khaḍārim] (…) Le roi fit attacher Yémamah en croix à la porte de Djaw, et il voulut que Djaw fut appelé Yémamah, nom que ce pays porte encore de nos jours'. Today, the name designates no more than a village in the vicinity of al-Kharj, near the site of al-Banna. We are inclined to see it as a legacy of the time al-Banna, the ancient Jaw al-Khaḍārim, was called al-Yamāma.

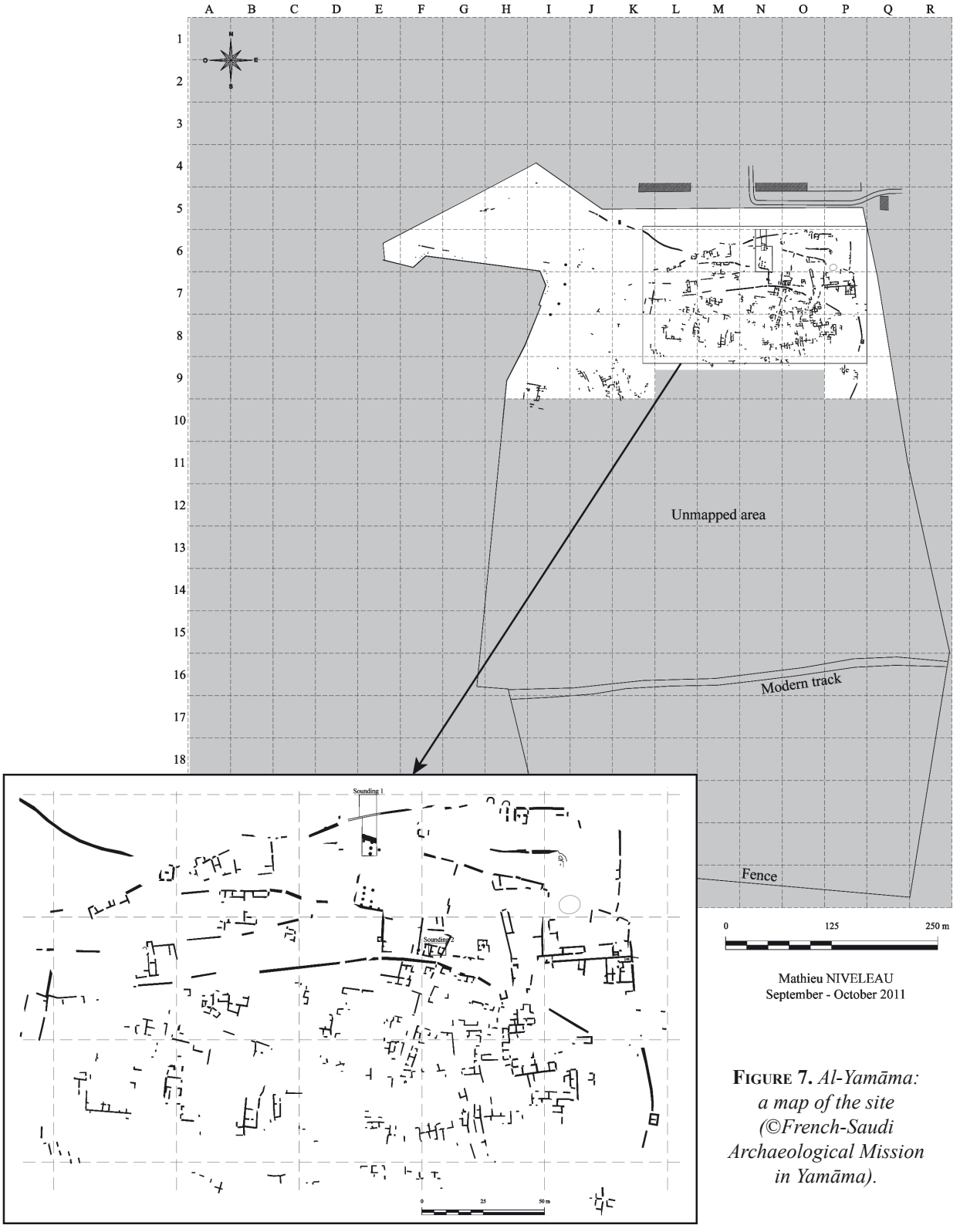

Figure 7. *Al-Yamāma: a map of the site (©French-Saudi Archaeological Mission in Yamāma).*

Figure 8. *Al-Yamāma: a kite photograph of the northern part of the site (©French-Saudi Archaeological Mission in Yamāma).*

drainage basins in the Arabian Peninsula, where the confluence of Wādī Ḥanīfa and Wādī Nisāḥ gives birth to Wādī Sahba.

The archaeological area is characterized by visible mud-brick walls and sherds on the ground, and measures approximately 1.5 km (N–S) by 1 km (E–W). Part of it is now hidden under cultivation or modern constructions. A major part of the site is nevertheless the property of the Saudi Commission for Tourism and Antiquities and has been protected. West of it is a walled area that, according to an oral tradition, is a cemetery, although this needs to be confirmed by excavations. To the east, in a fenced area measuring 0.8 x 0.5 km, the remains of a dense settlement are visible, particularly in the northern half and along the western edge of the site, where walls are visible all over at ground level (Figs 7 & 8). The surface is slightly uneven, with a shallow depression to the south-east and a low mound, 5 to 6 m high, to the north-east. A deep sounding (Sounding 1) initiated along the slope of this mound and pottery sampling on the surface of the site have provided us with the first evidence of the expansion of the settlement through time.

Stratigraphy

Sounding 1, a 7 x 25 m north–south trench, was initiated in square N6, in the north of the site, next to a large columned hall visible on the ground, at the edge of the higher archaeological deposits.

The removal of loose aeolian sand deposits from the surface exposed several structures and made it possible to divide the sounding in three adjoining parts (Figs 9–11):

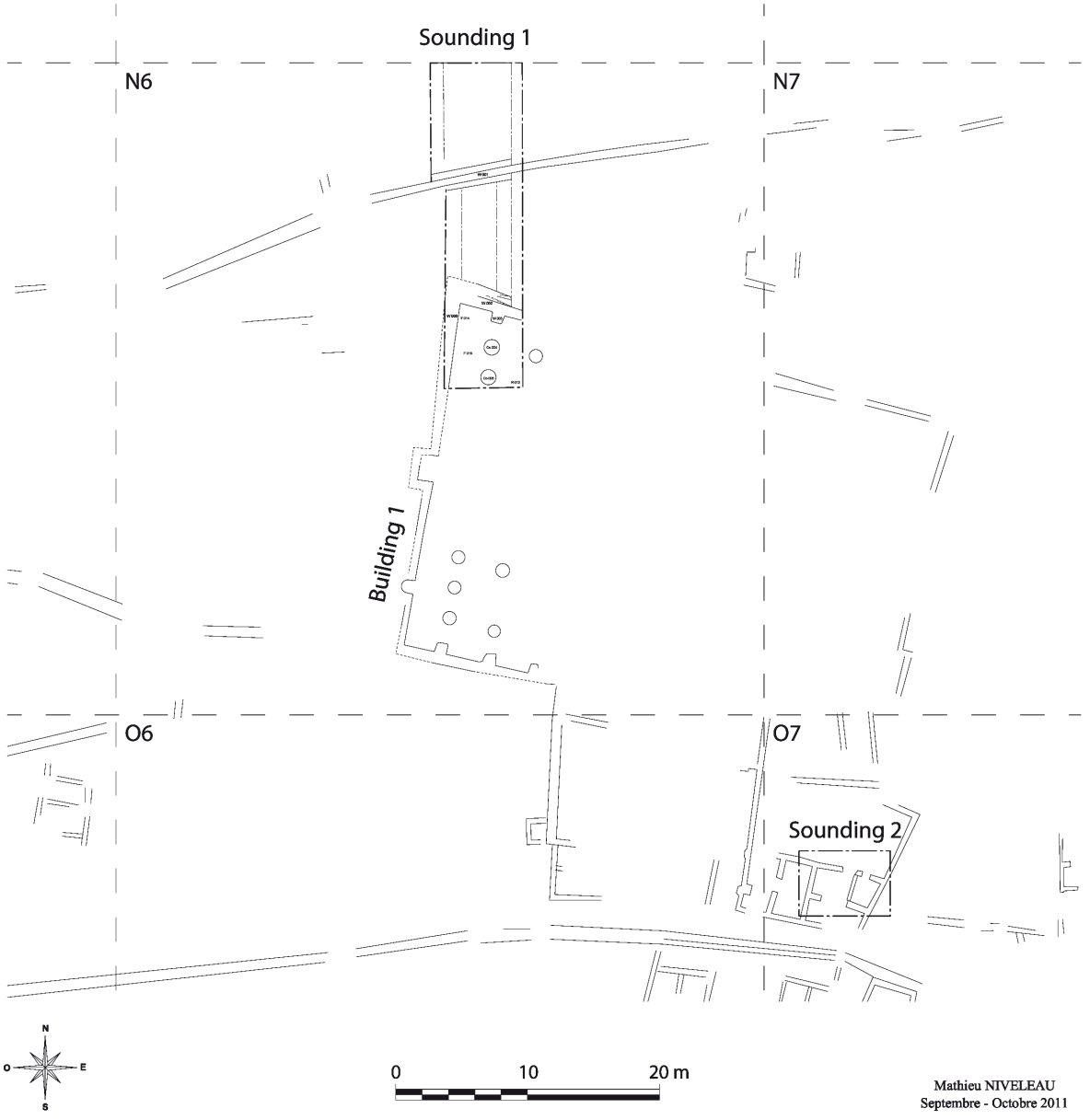

Figure 9. *Al-Yamāma: northern area — a plan of Building 1 (mosque) and the location of Soundings 1 and 2 (©French-Saudi Archaeological Mission in Yamāma).*

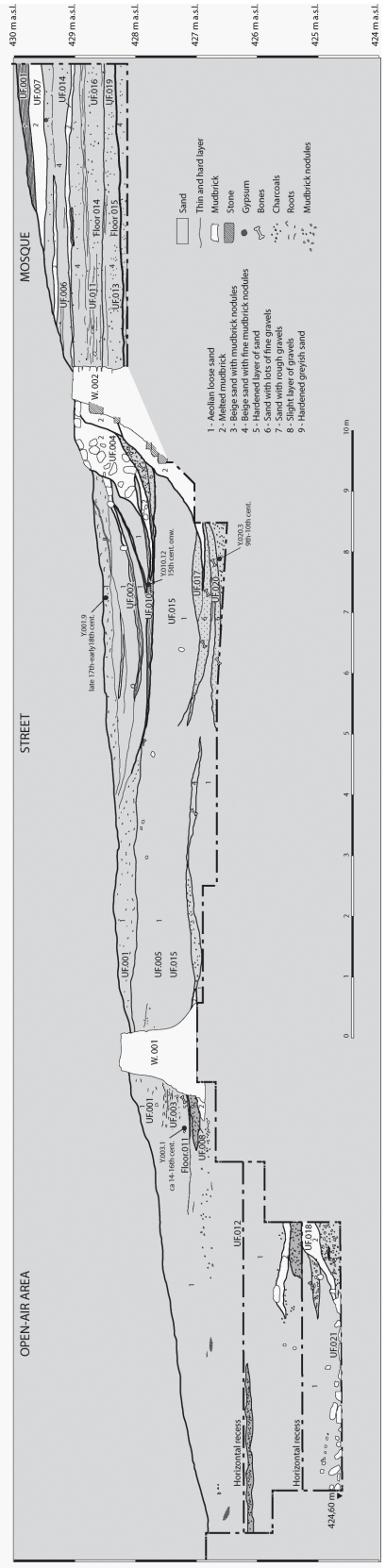

Figure 10. *Al-Yamāma: area N6, eastern section of Sounding 1 (©French-Saudi Archaeological Mission in Yamāma).*

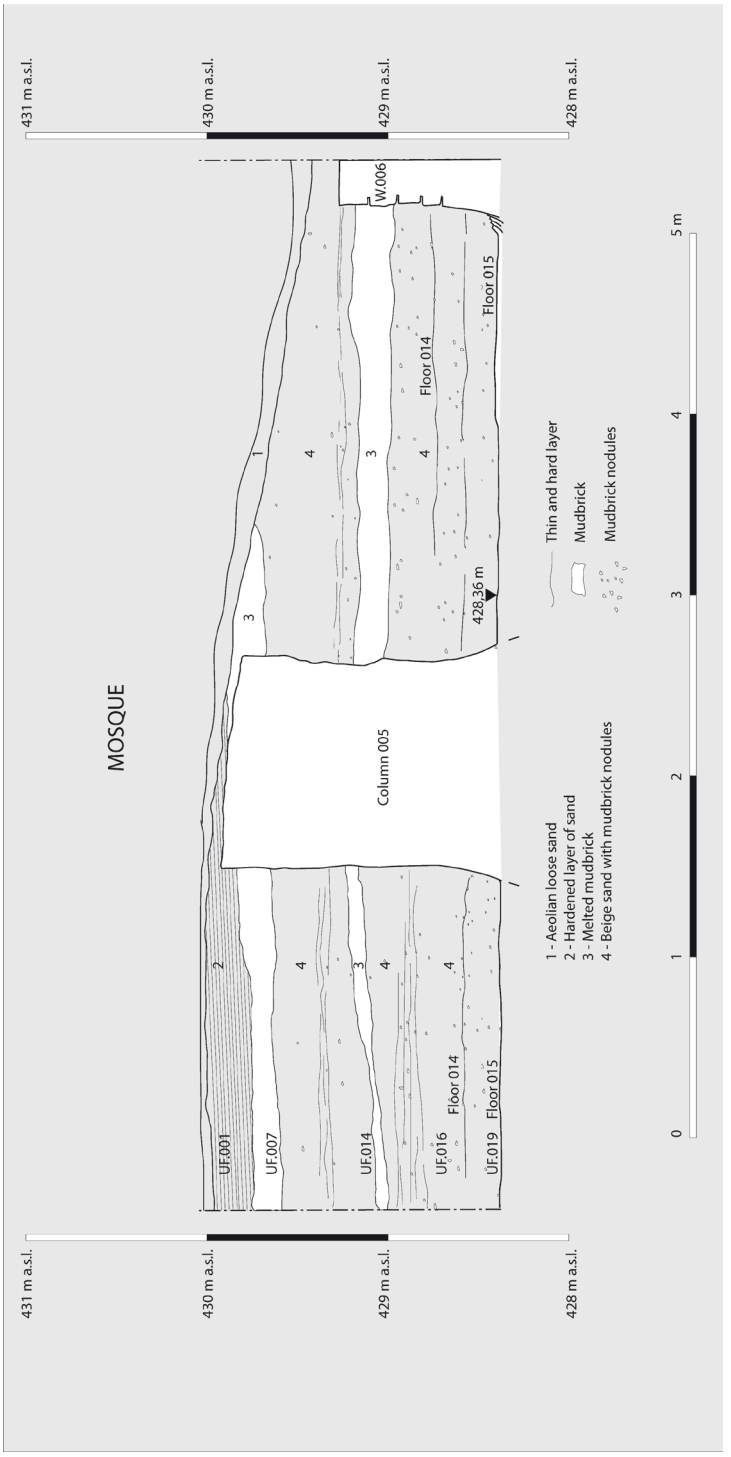

Figure 11. *Al-Yamāma: area N6, southern section of Sounding 1 (©French-Saudi Archaeological Mission in Yamāma).*

UF	Part of S1	Type of deposit/ structure	N	Weight		Number of identified specimens												
					Dro.	Cap.	Gaz.	Bov.	Don.	Dog	Fox	Rat.	Os.	Agam.	LM	MM	SM	Ind.
UF 001	General	Aeolian Sand surface deposit	21	4378	11	6	1				1						2	+++
UF 003	Northern	Aeolian Sand accumulated against W001	213	10384	132	41	3		6	3					3	19	4	2
UF 008	Northern	Thick sandy layer	39	2302	29	6	1								1	2		+++
UF 012	Northern	Thick layer of aeolian sand deposit	159	4784	77	47	1	11			2	1		1	2	8	9	+++
UF 018	Northern	Layer of melted mud brick	67	3776	49	7		1							4	3		3
UF 021	Northern	Layer of melted mud brick	4	54	2													2
UF 002	Central	Aeolian Sand deposit	33	1196	10	9		2						1		2	4	5
UF 004	Central	Layer of collapsed mud brick	91	5002	40	19	3	9		1				4			1	14
UF 005	Central	Sandy accumulation	52	1002	12	22	2							2	1	1	3	9
UF 010	Central	Circulation level	182	5044	54	48	9	15						1	6	1	44	4
UF 015	Central	Sandy layer accumulation	71	980	9	26	5						1	6	2		17	5
UF 017	Central	Construction level (walls of the mosque)	196	4040	27	51	19	1						17	2	6	39	34
UF 020	Central		73	2632	28	27	4							4	1	1	6	2
UF 007	Southern	Layer of collapsed mud brick recovered by post-abandonment deposits	11	54		1												10
		Total	1212	45628	480	310	48	39	6	4	3	1	1	36	22	43	129	90

Figure 12. *Animal remains from the various levels of Sounding 1. (Weight in grams; Dro. = Camel/Dromedary; Ovi. = Ovicaprids (sheep/goat); Gaz. = Gazelle; Bov. = Bovids; Don. = Donkey; Rat. = Ratel [honey badger]; Os. = Ostrich; Agam. = Agamidae; LM = large-sized mammals; MM = medium-sized mammals; SM = small-sized mammals; Ind. = indeterminate; +++ = numerous splinter/bone fragments, not counted). (© Hervé Monchot — French-Saudi Archaeological Mission in Yamāma.)*

— to the north, an open-air area north of a long east–west wall (W.001);
— in the centre, a street bordered by W.001 to the north and the large Building 1 to the south;
— to the south, a columned hall belonging to Building 1.

Sounding 1 — northern part (Fig. 10): wall W.001 crosses the sounding on an east–west axis. It was built of compacted clay. A deep layer of aeolian sand accumulated against the north side of this wall (Uf.003). It covered a circulation level (Fl.011) made of hardened sand mixed with decomposed mud brick and including many bones (for the count and identification of animal bones, see Fig. 12). This area served as a waste dump. It yielded very few sherds and among them, a single piece of fifteenth-century or later frit ware (Y.003.1). The hardened floor covered a sand layer (Uf.008) with bones, down to the base of W.001. This wall was founded 1.5 m below the surface (427.47 m asl). This late occupation level was cut

off from an earlier one by a deposit of aeolian sand 1.7 m thick (Uf.012) mixed with discarded bones. Beneath it, a layer of decomposed mud brick has been cleared (Uf.018–Uf.021), pointing to the presence of a mud-brick building nearby. Uf.018 yielded a small number of Layla ware fragments, which could be indicative of a late pre-Islamic/early Islamic occupation (see below), provided that these sherds are not intrusive. Due to lack of time, we stopped at 424.6 m asl without having reached virgin soil.

Sounding 1 — central part (Fig. 10): between W.001 and the northern wall of Building 1 (W.002), a thick sand deposit (Uf.015 and above it Uf.005) abutting both walls was covered to the south by a layer of small pebbles, hard sand, and decomposed mud brick (Uf.010), and by a thick layer of decomposed mud brick and large mud-brick fragments (Uf.004) corresponding to the collapse of W.002. Thereafter, aeolian deposits sealed this collapse (Uf.001–002).

A *terminus post quem* for the collapse of the wall is given by the discovery of coarse siliceous ware, possibly frit ware (sherd Y.010.12), post-dating the fourteenth century and coming from Uf.010; a *terminus ante quem* is provided in Uf.001 by a fragment of a bowl with celadon coating on the outer wall (Y.001.9), dated to the late seventeeth–early eighteenth century and produced in Jingdezhen workshops, province of Jiangxi, China (B. Zhao, personal communication).

At the bottom of the central part of Sounding 1, a level abutting the base of W.002 has been reached in Uf.017; it is characterized by hardened ground made of decomposed mud brick, nodules of mud brick, and pebbles. It covered a layer of sand with fine gravel (Uf.020) which yielded a fragment of a white glazed bowl. The shape and the white opaque glaze are characteristic of the Abbasid pottery produced in Iraq. In Kush, this type was found in phase E-05, and would have been introduced between AD 835 and 861 (Kennet 2004: 32). In the Iranian port of Sīrāf, this pottery appeared in *c*. AD 850 (Whitehouse 1979: 56) and lasted down to the mid-tenth century (Tampoe 1989: 91). It provides us with a *terminus post quem* for the erection of W.002, and thus for the construction of Building 1.

Sounding 1 — southern part (Figs 10 & 11): this part encroaches the north-western corner of a 25 x 13 m columned hall visible on the ground (Figs 8–9). An area of 5 x 5.5 m has been excavated, bordered to the north by W.002 and to the west by W.006. Two circular mud-brick columns (Co.004–Co.005), with a diameter of 1.07 m, are preserved up to 1.47 m high.

In this part, horizontal layers of collapsed decomposed mud brick alternating with post-abandonment deposits (Uf.001, 006, 007, and 014) covered two occupation levels. The later one (Uf.011 and 016) is characterized by thin layers of sand hardened by water. One of these layers showed imprints of a mat made of woven palm-tree leaves (Fl.014). The earlier one (Uf.013 and 019) is characterized by a hard plastered floor (Fl.015). None of the sherds found in these layers can be dated or their place of manufacture determined.

In summary, the exploration carried out in Sounding 1, though incomplete, has yielded evidence, over a depth of 5.4 m, of an occupation that started at the latest in the very late pre-Islamic period and continued, at least intermittently, until the early eighteenth century. It also provided a glimpse into the nature and occupation of Building 1.

Building 1: the Great Mosque of al-Yamāma?

The evidence indicates that Building 1 was a mosque:

- It comprises a large columned hall (25 x 13 m) with two rows of ten columns preceded by a large courtyard to the east (25 x 24 m) (Figs 8 & 9);
- The square recess built in the middle of the western wall, visible on surface, is clearly a mihrab.
- The excavation yielded very few artefacts in spite of the sieving of earth and rubble,[9] which is in agreement with this interpretation.

Taking into account the dominant position of Building 1, on the highest point of the site, and its size we are possibly dealing with the Great Mosque of the town described by Nāṣir-i Khusraw in the year 1051,[10] providing that the town named Yamāma in this text corresponds to the site of al-Banna, the ancient Jaw al-Khaḍārim or Jaw al-Khiḍrima (al-Juhany 2002: 45; al-Ghazzi 2010: 45–47). Yamāma was the name given to the whole region, and sometimes also to its capital city, be it Jaw al-Khaḍārim (see al-Masᶜūdī 1861–1877, iii: 276, 288) when the Banū Ukhayḍir ruled the Yamāma region (865–*c.*1060), or Ḥajr under the rule of the Banū Ḥanīfa (Yāqūt 1866–1873,

[9] In the 41 m^3 removed, only twenty-three sherds were found, as well as a fragment of a glass bangle and two pieces of steatite vessel.

[10] Khusraw 1881: 223–224: 'Yemamèh est un grand et vieux château, au pied duquel s'étendent la ville et le marché dans lequel sont établis des artisans exerçant tous les métiers. La grande mosquée est belle. Les émirs qui gouvernent depuis longtemps ce pays sont des descendants d'Aly; personne n'a pu les en dépouiller, car ils n'ont dans leur voisinage ni sultan ni roi redoutable, et ces Alydes possèdent eux-mêmes une certaine puissance; en effet, Yemamèh peut fournir trois ou quatre cents cavaliers. Les habitants appartiennent à la secte des Zeïdy.'.

i: 414, 707, 905; ii: 450; iv: 1027; Ibn Baṭṭūṭa 1982, ii: 129). When Nāṣir-i Khusraw went to the site, the Banū Ukhayḍir were still ruling the area as subordinates to the Qarmaytians (al-Juhany 2002: 48); therefore, Jaw al-Khaḍārim was still the main city and probably the one described by Nāṣir-i Khusraw.

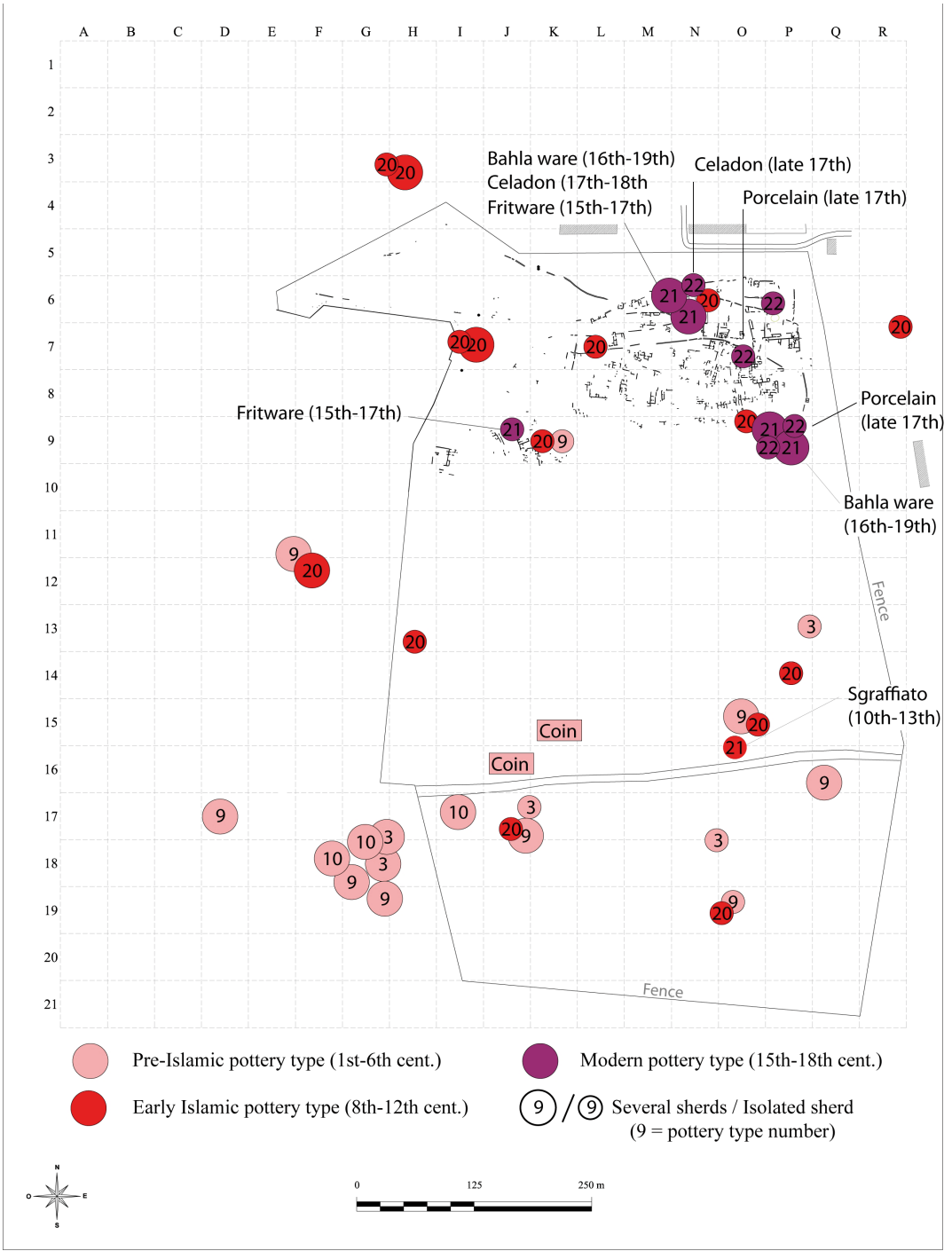

Figure 13. *Al-Yamāma: a distribution map of chronological markers (coins and pottery) (©French-Saudi Archaeological Mission in Yamāma).*

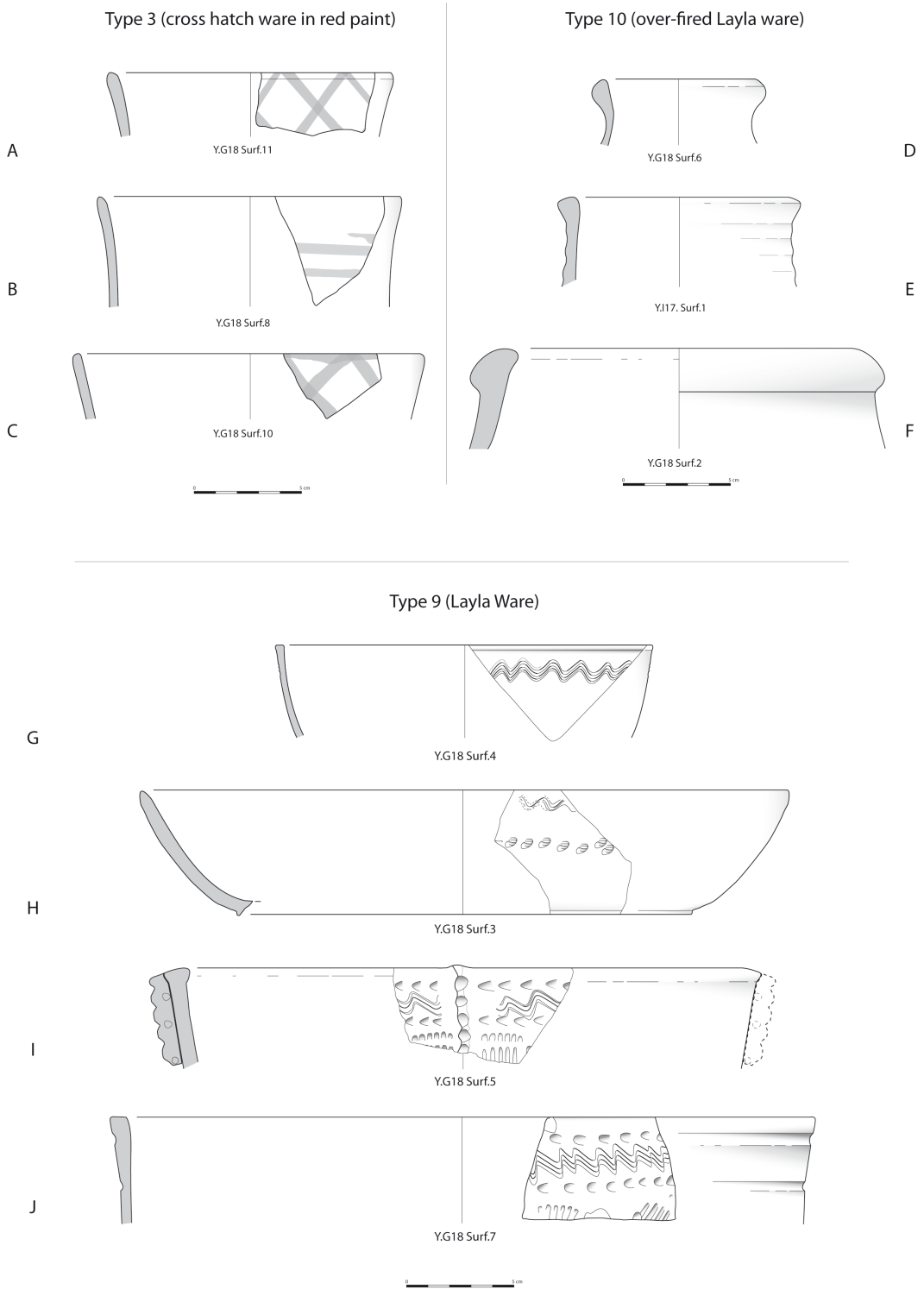

Figure 14. *Al-Yamāma — pottery type 3: cross-hatch ware (a, b, c); pottery type 9: Layla ware (g, h, i, j); pottery type 10: over-fired Layla ware (d, e, f) (©French-Saudi Archaeological Mission in Yamāma).*

Provisional reconstruction of the urban layout

Through the sampling of surface pottery over the site, twenty-four pottery types have been defined, five of them providing chronological markers whose distribution on the site is indicative of a shift of the settlement (Fig. 13). These five categories are:

— *Cross-hatch ware in red paint* (type 3) (Fig. 13: type 3, Fig. 14/a–c; see also al-Ghazzi 2010: 102–103, pls 57–63): characterized by a well-fired, buff to red fabric, a few medium black and red grits, whitish to greenish surfaces and a criss-cross pattern painted in red to brown. Vessels are open bowls, with a medium to thin wall and a rounded rim. Similar sherds have been sampled on the surface in the Layla/Aflaj area, *c*.230 km south of al-Kharj, on sites nos. 212-59 and 212-66 (Zarins et al. 1979: 33, pl. 25/181–183). Site no. 212-59 has a wide chronological range and is of no help for the dating. Site no. 212-66 has been dated to the late pre-Islamic period by the presence of blue glazed pottery, Faw ware, and so-called 'Hellenistic bowls' (Zarins et al. 1979: 33). At Thaj, bowls of a different fabric with a criss-cross pattern painted below the rim were found in phases IV–V of the deep sounding (Gazdar, Potts & Livingstone 1984: 72, pl. 79/B), and their design appears to be very similar to the painted bowls of the Iron Age II sites in the Oman peninsula (Boucharlat & Lombard 1985: pl. 49/15–24): at Thaj these bowls are associated with rouletted ware dated to the first centuries AD (Gazdar, Potts & Livingstone 1984: 80); in the Oman peninsula they are dated to the first half of the first millennium BC. These parallels point to a long-term tradition in eastern Arabia which seems not to be attested in early Islamic industries.

— *Layla ware* (types 9–10) (Fig. 13: types 9 & 10; Fig. 14/d–j): characterized by a very well fired grey or black ware, scratchy surfaces (type 9) or roughly vitrified, over-fired surfaces (type 10). They often have a comb-incised decoration, with a wide range of patterns. They are either large open bowls with a medium wall (Fig. 14/g–j), or thick jars with a square or triangular rim (Fig. 14/d–f). This category has been dated to the first to sixth centuries AD (Zarins et al. 1979: 32), or perhaps earlier (al-Ghazzi 2010: 156–157).

— *Abbasid blue glazed pottery* (type 20): a well-levigated, yellow to light buff ware with a deep blue glaze, sometimes striped, and sometimes with a punctate pattern. They are typical examples of Baṣra exports from the late eighth to late tenth centuries.

— *Other Islamic glazed potteries and frit wares* (type 21): sgraffiato ware (late tenth–thirteenth centuries); Bahla ware imported from Oman or Iran and dated to the sixteenth century onwards; and frit wares from the fifteenth century onwards.

— *Chinese porcelain and celadon* (type 22): small blue and white porcelain cups produced in Fujian or Guangdong in the seventeenth–eighteenth centuries; small porcelain cups with a chocolate coating on the outer wall produced in Jingdezhen (province of Jiangxi) in the late seventeenth–early eighteenth centuries; and small bowls with celadon coating produced in the same region at the same time (B. Zhao, personal communication).

The spatial distribution of these five categories gives an insight into the extension of the site at different stages of its occupation (Fig. 13). The two pre-Islamic types are concentrated in the southern half of the fenced area, and more particularly to the south-west, where two pre-Islamic coins were found in the late 1980s (al-Ghazzi 2010: 89–90, pl. 23/1–2).

The pottery types from the eighth–twelfth centuries are widely scattered but not as far to the south as the pre-Islamic ones. It shows either a shift of the settlement to the north in the early Islamic period, or a contraction of the settlement during that time, provided that a pre-Islamic occupation took place below the early Islamic in the north of the site. Until now, the deep sounding has given no clear evidence of that, except for a few sherds of Layla ware in the lowest levels reached so far.

No pottery type can clearly be assigned to the time range thirteenth to mid-fifteenth century. This silence speaks in favour of a hiatus in the occupation of the site, which is in accordance with written sources. No author after Yāqūt (1179–1229) mentions the city of Jaw al-Khaḍārim (al-Yamāma/al-Banna); in the fourteenth century, Ibn Baṭṭūṭa says that the main town in the region of al-Yamāma is Ḥajr (near Riyadh).

Finally, all the late fifteenth–early eighteenth-century pottery sherds have been found in a rather small area, restricted to the north-east part of the site, indicating a late reoccupation. In spite of the contraction of the settlement, the site nevertheless existed within international trade/circulation networks, as reflected by the presence of Chinese, Omani/Iranian, and Syrian imports.

Conclusion

As foreseen by Philby, in archaeological terms southern Najd is definitely a fruitful field that we have barely begun to harvest. It is a key region for the comprehension of most of the current research issues related to the Arabian Peninsula, be it the issue of modern human dispersal or the definition of the cultural and environmental frame within which Islam arose. Viewed from these angles, major sites such as AK-22 (late Pleistocene) and al-Yamāma (late pre-Islamic/Islamic) have opened up new horizons that we will continue to explore in the near future.

Acknowledgements

The Saudi-French Mission benefited from the support of the Saudi Commission for Tourism and Antiquities (Riyadh), the King Saud University (Riyadh), the French Ministry of Foreign Affairs, the French Embassy in Riyadh, the Centre National de la Recherche Scientifique (CNRS), UMR 8167 'Orient et Méditerranée', the French National Research Agency (ANR), Labex 'ResMed', the University of Paris-Sorbonne, and the University of Strasbourg. We would like to thank these institutions most warmly for their financial and technical support. We are also most grateful to those who put their trust in our work and did their best to make it easier: HRH Prince Sultan bin Salman bin Abdul Aziz (President of the Supreme Commission for Tourism and Antiquities and Chairman of the Board of Directors of SCTA), Prof. Ali al-Ghabban (Vice-President of SCTA for Antiquities and Museums, Riyadh), Jamal Omar (Head of the Research and Excavation Centre, SCTA, Riyadh), and Pierre Vincent (attaché de coopération, French Embassy in Riyadh). We would also like to thank all the people who enthusiastically contributed to the fieldwork: Mounir Arbach, Guillaume Charloux, Guillaume Fortin, Abdulaziz al-Hamad, Fahad al-Hamdan, Jiza al-Harbi, Rozan al-Khatib, Laetitia Munduteguy, Marc Munschy, Mathieu Niveleau, Christian Robin, and Salem Tayrān. Finally, we would like to thank Axelle Rougeulle (CNRS, UMR 8167, Paris), Hélène Renel (CNRS, UMR 8167, Paris), and Bing Zhao (CNRS, UMR 8155, Paris) for their assistance and comments on the pottery identifications.

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