The Origins and Development of Zuwīla, Libyan Sahara: an Archaeological and Historical Overview of an Ancient Oasis Town and Caravan Centre.

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Abstract
Zuwīla, south-west Libya (Fazzān), was one of the most important early Islamic centres in the central Sahara, but the archaeological correlates of the written sources have been little explored. This paper brings together for the first time a detailed consideration of the historical and archaeological data, together with new AMS radiocarbon dates from several key monuments. The origins of the settlement at Zuwīla were pre-Islamic, but the town gained greater prominence in the early centuries of Arab rule of the Maghrib, culminating with the establishment of an Ibāḍī state ruled by the dynasty of the Banū Khaṭṭāb, with Zuwīla its capital. The historical sources and the accounts of early European travellers are discussed, and archaeological work at Zuwīla described (including the new radiocarbon dates). A short gazetteer of archaeological monuments is provided as an appendix. Comparisons and contrasts are also drawn between Zuwīla and other oases of the ash-Sharqiyyāt region of Fazzān. The final section of the article presents a series of models based on the available evidence, tracing the evolution and decline of this remarkable site.

Zuwīla, un site du Sud-Ouest Libyen (Fazzān), était l’un des centres Islamiques les plus importants du Sahara central, mais les données archéologiques correspondant aux sources écrites ne sont que peu étudiées. Cet article rassemble pour la première fois une étude détaillée des données historiques et archéologiques ainsi que de nouvelles datations radiocarbones AMS de certains monuments clés. Les origines de Zuwīla remontent à la période pré-islamique, mais la ville gagna en importance dans siècles suivant la conquête arabe du Maghreb, culminant dans l’établissement d’un État ibadite gouverné par la dynastie des Banū Khaṭṭāb, dont Zuwīla était la capitale. Cet article examine les sources historiques et les récits des premiers voyageurs européens de l’époque moderne et décrit le travail archéologique à Zuwīla (en incluant les nouvelles datations radiocarbones). Un court index géographique des monuments archéologiques est donné en annexe. Nombre de parallèles et contrastes qui peuvent être observés entre Zuwīla et d’autres oasis de la région de l’ash-Sharqiyyāt au Fazzān y sont aussi présentés. Dans une dernière partie sont proposés une série de modèles, fondés sur les données disponibles, qui décrivent l’évolution et le déclin de ce site remarquable.

Keywords
Libya, Sahara, Trade, Garamantes, Oases, Urbanism
Introduction

Research on the Sahara in the early Islamic period remains a chronically under-developed field (Fig. 1). Indeed, with a few notable exceptions like Sijilmāsa, Tadmekka, Timbuktu or Tagdaoust/Awdaghust (Devisse 1983; Insoll 2003; Lightfoot and Miller 1996; Nixon 2009; Polet 1985; Robert et al. 1970; Robert-Chaleix 1989; Vanacker 1979), the archaeological exploration of the great centres of Islamic Saharan trade has lagged behind historical analysis (Brett 2006; Devisse 1992; Levitzion and Hopkins 2000; Lewicki 1976; Thiry 1995, but see Insoll 2006 for a recent review of the Islamic archaeology in the Sahara). In the Libya Sahara, the state of research is particularly unsatisfactory. Even UNESCO World Heritage Sites like Ghadamīs remain somewhat superficially explored archaeologically (Cuneo 1996; Cuneo et al. 1997; cf Mattingly and Sterry 2010). Ethnographic and anthropological studies of the main Libyan oases have progressed comparatively little since the great Italian and French colonial surveys (Eldblom 1968; Jamal 2008; cf. Despois 1946; Lethielleux 1948; Scarin 1934; 1937a/b/c/d). Given the unsettled political conditions since the Libyan revolution, which preclude new investigations in a time of increased threat to cultural heritage, the lack of a full evaluation of the heritage resource in Saharan oases is a particular concern.

The early Arabic sources emphasised one key Libyan oasis above all others – Zuwīla (see inter alia, Thiry 1995: 356-373, note the alternative spelling Zawīla). However, the archaeological correlates of the sparse primary source references have been little considered. The present article is part of a body of work reassessing early urbanism in the Trans-Saharan zone, with a particular focus on the central Sahara (see Mattingly and Sterry 2013). Our work developed from a programme of research focused on an early Saharan civilisation known as the Garamantes, located in south-west Libya (Mattingly 2006; 2011). We have previously identified two Garamantian sites as having urban characteristics, Old Jarma and Qaṣr ash-Sharrāba, and speculated on the existence of further Saharan towns (Mattingly and Sterry 2013). In the case of Jarma, we have presented a detailed urban biography of the site (Mattingly et al. 2013: 505-544). The specific aims of this paper are to provide a fuller evaluation of what is known historically about Zuwīla and to present in detail the available archaeological data and some new chronological precisions. In the final section we advance a plausible sequence of development of this important Saharan oasis centre based on all the currently available evidence. A gazetteer of archaeological monuments is provided as Appendix 1 and a summary of the material dating evidence as Appendix 2.

The early medieval period has generally been considered pivotal in the extension and intensification of Trans-Saharan trade and this has also been linked with the spread of Islam from the Maghrib across the Sahara (Austen 2010: 19-22). On the southern fringes of the Sahara there is firm evidence of Trans-Saharan contacts in the earlier first millennium AD at sites such as Kissi and Culabel and Siouré (MacDonald 2011; Magnavita 2013). However, sites dating to the seventh-tenth centuries, such as Tadmekka, Gāo, Marandet, and Koumbi Saleh show a step-change in the volume of importations such as beads and glazed ceramics during the seventh-tenth centuries (Insoll 1996; MacDonald 2011; Magnavita 2013; Magnavita et al. 2007; Nixon 2009). Yet, this has always been at odds with the evidence from the Libyan Sahara where sites linked to the Garamantes (floruit first-sixth centuries AD)
demonstrate plentiful evidence of wide trading contacts (Mattingly 2013a). Some outlying Garamantian centres, like Aghram Nadharif and Fewet near Ghāt (Liverani 2006; Mori 2014), had undergone significant decline (or abandonment) by the sixth century. Archaeological survey elsewhere in the heartlands of the Garamantes, in the Wādī al-Ajāl, Wādī ash-Shāṭī and the Murzuq basin have shown an increasing emphasis on defensive structures at Garamantian settlements, and in the Murzuq area at least this was linked to an expansion of settlement (Edwards 2001; Merlo et al. 2014; Sterry and Mattingly 2011). Further north in the Libyan pre-desert the gradual withdrawal of Roman forts and garrison settlements of al-Quarayyāt al-Gharbīya (Mackensen 2012) and Bū Nijīm (Mattingly 1995: 95-97) was accompanied by a general thinning of increasingly fortified farming settlements in the Libyan valleys (Barker 1996: 166-167). It is hard to avoid the conclusion that there was a reduction in population and cultivated areas, even a wholesale abandonment of some regions, during late antiquity. However, the transformation of the Sahara in late antiquity was not all about decline – indeed the early Arab sources emphasise the opening up of the Sahara through the spread of Islam and opportunities arising from new trade networks (Levtzion and Hopkins 2000; Thiry 1995).

Zuwīla is of particular importance in this regard, as it was clearly a key location in the transition between a Roman/Garamantian Sahara and an Islam-dominated Sahara. This article presents a number of separate strands of investigation, summarising observations made more than 50 years ago by Charles Daniels, along with more recent survey findings of the Fazzān Project (Mattingly 2007: 282-288). As part of a wider remote-sensing and dating programme for the central Sahara, a small number of AMS samples from Zuwīla have now been dated at the Oxford Radiocarbon Accelerator Unit (ORAU) and we have also carried out mapping and analysis of Zuwīla and its environs, utilising Worldview-2 imagery Zuwīla in conjunction with a run of Aerial Photographs from 1958. In combination with a reassessment of the historical and archaeological record this allows us to advance a substantially changed picture of Zuwīla and throws new light on its Trans-Saharan role that linked the Islamic Maghrib with sub-Saharan Africa.

The Historical Record

First to sixth centuries

There are no explicit references to Zuwīla in the Roman sources, though the Garamantes feature as an important people of the central Sahara (for a summary of the sources see Mattingly 2003: 76-90). By supplementing the sources with the results of archaeological researches of recent decades we know that the Garamantian civilisation occupied the main oasis bands of south-western Libyan (Fazzān) and that they were oasis cultivators, living in permanent sedentary villages and towns. Zuwīla lies towards the eastern extremity of Fazzān at the start of a route leading past the Syrtic oases (Awjila) and on towards Sīwa and the oases of the Egyptian Western desert. It is also astride the most direct north to south line of march from the Tripolitanian coastal cities to the Lake Chad area (Figure 1). The Roman sources refer to kings of the Garamantes and to their metropolis at Garama (Old Jarma in the Wādī al-Ajāl, 250 km to the west of Zuwīla), strongly suggesting that Garamantian power
was exercised over an extensive area (Figure 2). We have argued that there was in this period a Garamantian state that controlled the various oasis zones of Fazzān (Mattingly 2003: 76-90, 346-351; 2013: 530-534). As we shall see there is evidence to show that Zuwīla originated as an oasis settlement in this period (contra Lewicki 1988: 287 and Levztion and Hopkins 2000: 460) and that it arguably had grown to be a centre of above average size by the Late Garamantian period.

There have been long-running debates about the realities of Trans-Saharan trade in the pre-Islamic era with strong partisans for (Bovill 1968; Law 1967; Liverani 2006) and against Austen 2010; Brett 2006). The material evidence from this period is growing, both within the Sahara (Mattingly 2013b; Wilson 2012) and to the south (Magnavita 2013; Insoll 2003; MacDonald 2011) such that we can attest examples of contacts and movement of goods, though the scale and nature of trade overall remain difficult to delineate when so many of the probable key commodities are archaeologically invisible or a best severely underrepresented in the surviving material record. Between the Garamantes and Rome there were certainly substantial contacts. Excavated Garamantian tombs and settlements have recovered the remains of thousands of amphorae along with numerous other ceramics, glassware and beads. When extrapolated to the hundreds of settlements and cemeteries found in Fazzān this implies caravan trade numbering in the hundreds of camel loads per year (Mattingly 2013b). However, the transport of amphorae, weighing up to 90kg each along with other ceramics (all heavy and breakable), should perhaps be considered aberrant, rather than the main indicator of Saharan trade. The evidence now available attests much more clearly than hitherto that there were substantial contacts between the Garamantes and Rome, and between the Garamantes and sub-Saharan areas (Fenn et al. 2009; MacDonald 2011; Mattingly 2013b; Wilson 2012). Gold has been an important component of later Saharan trade and is a plausible candidate for the elusive smoking gun to satisfy sceptic concerning pre-Islamic activity (Bovill 1968; Garrard 1982; Wilson 2012). The hunt continues for pre-Islamic goldworking sites that also have materials of Garamantian or Mediterranean provenance (Kissi is plausibly close to gold workings, but still lacks the vital proof of processing, Magnavita 2003; 2008; 2009; 2013; cf. MacDonald 2011). Slaves were another key commodity and were a prime driver of the interest of Mediterranean empires and kingdoms in the Sahara (Fentress 2011; Haour 2007; 2011; Lyndon 2009). Thus, while contacts between the Garamantes and sub-Saharan Africa are attested, they are far more difficult to assess in terms of scale. Nonetheless, the default reading of the evidence is once again shifting in favour of there having been some regular trading contacts across the Sahara in the pre-Islamic era. As we shall see, Zuwīla may contribute some proxy evidence to the debate on pre-Islamic trade. The scale of this trade was such that it was fundamentally tied to the power of the state. During the Late Garamantian period, trade at Jarma declined, as amply attested in its material record (Mattingly 2013a). As the urban centre began an inexorable decline, settlement flourished in the more easterly parts of Fazzān and it is within this context that Zuwīla may have begun to grow. The increased isolation of the central Maghrib in the fifth century following the Vandal conquest may have stimulated a diversion of trade towards Cyrenaica and the Nile which Zuwīla was better placed to take advantage of.
Seventh to ninth centuries

There are more numerous sources on the Sahara in Islamic times (Mattingly 2003: 90-106, for a summary; Levtzion and Hopkins 2000 is the essential compendium; Rossi 1968 is a good commentary on events relating to Libya). The earliest historical event relating to Zuwīla concerned a raid by ‘Uqba bin Nāfi‘ in AD 642 from Barqa in Cyrenaica (Monès 1988: 231; Thiry 1995: 53-56). A second raid in AD 666/667 recorded by both Ibn ‘Abd al-Ḥakam (writing in the mid-ninth century) and al-Bakrī (eleventh century) ended with “‘Uqba’s army resting at the site of the present Zuwīla” (Levtzion and Hopkins 2000: 12-13 and 63; Thiry 1995: 76-109). Although the historicity of this raid has been called into question by Brunschwig (1947), most scholars accept the broad framework of the account. However, the reference to “the site of the present Zuwīla” has sometimes been taken to imply that the oasis, if it existed at this time, was not yet urban in scale. It is not clear in the sources whether ‘Uqba’s raid permanently created an Arab outpost in the Sahara at Zuwīla (Martin 1969: 17 suggests not, though Thiry 1995: 54, n. 6, notes that Barqa and Zuwīla were towns under ‘Uqba’s jurisdiction until he was named governor of Ifrīqiya in AD 670). One possible reading of Ibn ‘Abd al-Ḥakam’s account is that power in this part of the Central Sahara had already become fragmented by the seventh century, rather than being still under the authority of a single Garamantian king (Mattingly 2003: 85-92).

The historical sources make much more sense in fact if the pre-existence of a settlement and oasis at Zuwīla is recognised. As we have noted, the early Arab sources imply that ‘Uqba first became aware of Zuwīla’s existence at the time of the conquest of Barqa in Cyrenaica (Levtzion and Hopkins 2000: 63). That suggests trade links running from eastern Fazzān to Cyrenaica and Egypt and as noted already Zuwīla sat at one of the likely junction points between the south-north route and the route running to the north-east. A striking feature of the early Islamic sources, if we accept their historicity, is that the conquest of the Sahara was undertaken in parallel with the conquest of the Mediterranean littoral and the Maghrib. This does not make much sense for those that want to deny the existence of pre-Islamic trade, but the Sahara will have been a far more attractive territory for the Arab armies if we accept that there was significant pre-Islamic Saharan trade. If some part of the trade was already diverted towards Egypt, it is also easy to understand how and why the Islamic forces will have made the Saharan centres a prime target of their early forays westward. They arguably knew as much or more at this stage about commercial wealth from the Sahara as they did about the prodigious agricultural wealth of the Maghrib. Taken at face value, the raids on Zuwīla and Waddān in the 640s (by ‘Uqba bin Nāfi‘ and Busr Ibn Abi Artah respectively) and the subsequent campaigns in the 660s of ‘Uqba bin Nāfi‘ against Waddān, Jarma, Kawār, and Ghadāmis seem to reflect an awareness of and desire to control or extract resource from a potentially lucrative trade network. The motivation of the 666 campaign was apparently that the people of Waddān had not ceased to honour their agreement made with Busr Ibn Abi Artah.

If Zuwīla had already been visited by an Arab force in the 640s and a treaty agreed, it is understandable why ‘Uqba’s subsequent invasion of Fazzān made Zuwīla a focal point of both the campaigns and the follow-up. While Waddān had reneged on its agreement, the lack
of reference to retribution against Zuwwila perhaps suggests that that settlement had remained true to its treaty with ‘Uqba. When Ibn ‘Abd al-Hakam says that after taking Jarra, “‘Uqba sent his baggage train off towards the east” (Levtzion and Hopkins 2000: 12), it is pertinent to ask where was this going and why? This was the moment that ‘Uqba launched a lightning raid with his cavalry forces through southern Fazzān and towards Kawār. The slow-moving baggage train, no doubt retaining some troops to guard it, was surely not left to camp out in potentially hostile territory. A probable scenario is that Zuwwila was already considered a ‘friendly’ centre and Uqba was sending his baggage train there to await his return. At any rate, it was Zuwwila he made for on his return from Kawār and something of significance evidently happened there as Ibn ‘Abd al-Hakam described how Uqba “marched until he reached the site of the present Zuwwila. Then he travelled again until he came back to his army [near Surt]” (Levtzion and Hopkins 2000: 13). Why not simply say he marched back to his army? The obvious explanation is that he was reunited with his baggage train at Zuwwila and potentially made further dispositions to cement the relationship between the Arabs and the settlement there. From that time on, Zuwwila was the key Libyan site through which the Arab authorities sought to access sub-Saharan goods and slaves, along with, but to a lesser extent, Waddān and Ghadāmis.

The subsequent story of Zuwwila and the Ibāḍī Muslims is very much bound up with the strong nonconformist tendencies manifested by a series of related religious groups within Africa – for instance, the Khārajites and Rustumids – a phenomenon which is in part connected to the specificities of incorporating Berber converts to Islam. A key theme in the early Islamic history of Maghrib and Sahara concerns the oscillating relations between orthodox and nonconformist powers, moving repeatedly from symbiotic trading to warfare and revolt. Because of their remote location and wealth, Saharan oases like Zuwwila were periodically centres of the religious and political resistance of Berber Muslims against overlordship by the main Islamic dynasties in the Maghrib. Ibāḍīsm has thus been depicted as part of a revolutionary doctrine in North Africa (Talbi 1988) and as well as subverting the orthodoxy of Islam in Ifrīqiya, we may consider that it was an important element in the spread of Islam in the Saharan frontier zone of the Islamic empire. However, Moraes Farias (2003) has demonstrated in the Arabic inscriptions from Mali that there were mixed religious groups participating in Trans-Saharan trade.

In the mid-eighth century that Zuwwila started to become regularly mentioned in Arabic sources and Lewicki (1957: 339-343; cf. el-Hesnawi 1990: 29) has argued that it was around this time that a large number of Ibāḍīs settled in Fazzān. By AD 761 Zuwwila was established as an important city on the trans-Saharan route from Tripoli to Lake Chad and it was attacked by Ibn al-Ash‘ath who massacred many of Zuwwila’s Ibāḍī population including their leader (Lewicki 1988: 287). The Ibāḍī population in Zuwwila seems to have recovered and it is mentioned by al-Ya‘qūbī in AD 889-890. Al-Ya‘qūbī also provides the first detailed account of Zuwwila describing its exportation of slaves from the kings of the Sūdān and skins known as al-zawīliyya, its agriculture of dates, sorghum and other grains and the varied makeup of the town with inhabitants from as far away as Khurāsān, al-Baṣra and al-Kūfā (Levtzion and Hopkins 2000: 22). Whilst based in Egypt he noted that at least some Zuwwilan pilgrims
turned up each year and el-Hesnawi (1990: 259) has interpreted this to mean that Zuwîla was used as a staging post for pilgrims coming from all across the Sahara and Western Sūdân. Zuwîla also became a centre for a growing number of Ibâḍî scholars (el-Hesnawi 1990: 30-31) including the poet Diʿîl b. ʿAlî al-Khuzâʿî who died and was entombed in Zuwîla (Levtzion and Hopkins 2000: 63).

With strong ties to the Ibâḍî communities in Tripolitania (notably the Jabal Nafûsa) and elsewhere in the Sahara and located more directly on the Trans-Saharan trade routes, Zuwîla was able to cement its position as the most important trading centre in Fazzân. The importance of Ibâḍî Muslims at Zuwîla was no doubt a consequence of the significant role played in the caravan trade by people based in Tripolitania where Ibâḍîsm became first established. Refugees from periodic conflict between Ibâḍîte Muslims in Tripolitania and the mainstream Arab rulers of the Maghrib in the 750s-760s, 811-812 and 921-922 will no doubt have contributed to the reinforcement of Saharan Ibâḍîte communities. The Banû Khaṭṭāb dynasty at Zuwîla was born out of this Ibâḍî dominance at the oasis.

**Tenth to twelfth centuries – The Banû Khaṭṭāb dynasty**

In 918 a new kingdom emerged at Zuwîla under ʿAbd Allâh ibn al-Khaṭṭâb al-Hawwârî, this state held considerable influence in the Maghrib and was the dominant power in Fazzân until the death of its final ruler in 1172-1173. Al-Idrîsî attributed Zuwîla’s foundation to ʿAbd Allâh ibn al-Khaṭṭâb al-Hawwârî and his paternal cousins, describing it as a “populous town” in the mid-twelfth century (Levtzion and Hopkins 2000: 122).

Al-Bakrî, writing in 1068 described Zuwîla as a town at the centre of a web of trading routes (Levtzion and Hopkins 2000: 63-64):

“Zuwîla ... is a town without walls and situated in the midst of the desert. It is the first point of the land of the Sûdân. It has a congregational mosque, a bath and markets. Caravans meet there from all directions and from there the ways of setting out radiate. There are palm groves and cultivated areas which are irrigated by means of camels ... Between Zuwîla and the town of Ajdâbiya there are fourteen stages ... From there slaves are exported to Ifrîqiya and other neighbouring regions. They are bought for short pieces of red cloth. Between Zuwîla and the region of Kânîm is 40 stages. The Kânîmîs live beyond the desert of Zuwîla and scarcely anyone reaches them. They are pagan Sûdân.”

The account of al-Idrîsî, written about a century after al-Bakrî, identifies the town as the south-west terminus of a route running west from Awjila, via Zâla, also connecting with the coast at Surt via Waddân (Levtzion and Hopkins 2000: 129-130):

“The town of Zuwîlat Ibn Khaṭṭâb is in the desert. It is a small town with markets. From there one may go the regions of Sûdân. The inhabitants drink from wells of sweet water. There are many palms with good fruit. Travellers bring there merchandise for its supply and all things that are needed. Arabs roam the country causing as much trouble for the people [of Zuwîla] as they can. All these areas ... are in the hands of the [nomad] Arabs.”
Another anonymous account of c. AD 1191, the Kitab al-Istibsar, includes a short mention of Zuwila (Levtzion and Hopkins 2000: 138):

“Zuwila is a great and very ancient city in the desert. It is near the land of Kanim, who are of the Sudân. They [the Kanimi] had embraced Islam some time after 500 [AD 1106-1107]. It is the place of assembly for caravans and slaves are brought to it. It is the point of departure for Ifriqiya and other countries.

The trading of slaves from the Sudân to Ifriqiya remained of crucial importance and, as we saw above, al-Bakrī describes that they were bought for pieces of cloth (hinting that textiles were an important good heading south). The rulers of Zuwila were careful to negotiate the politics of the Fatimids. In 992 they sent a mission with gifts of slaves, a giraffe and other goods from the Sudân to the Zirid governor of al-Mahdiyyah (Martin 1985: 78-79). The Mai of Kanim must also have passed through Zuwila on his two visits to Egypt between 1098 and 1150 (Martin 1985). Benjamin of Tudela mentions Zuwila as one of the nations whose merchants had established themselves at Alexandria (Adler 1907: 106), he also describes merchants of Helwan, near Cairo, leaving with copper, grain, salt, fruits and legumes and returning with gold and precious stones (1907, 96 – although surely many of these were exchanged at the oases along the journey, this is the same route that was taken by Friedrich Hornemann in 1798). The Bāb az-Zuwila, one of the gates of Fatimid Cairo was built in the late eleventh century (1087-1091) and its name has been attributed to the warrior-slaves from the south that garrisoned the gate who were known as the Zuwīlayin (Lyon 1821, 217; Edwards 2011, 90).

Trade in slaves seems to have been a key element in the importance of Zuwila from the very start of contact with the Arab world (Levtzion and Hopkins 2000: 1-131). While some have argued that slave trading was a development of the eighth or ninth centuries (on the different commodities of trade, see Bovill 1968; Vanacker 1973; Haour 2007; 2011; though mainly focused on later periods Savage 1992 is also useful), it seems equally plausible that it was part of the raison d’être of a site like Zuwila in the first place. We might note that the raid of ‘Uqba bin Nafi’ in AD 666-667– attacking the main oasis locations in Fazzân and following the route south to Kawar - involved the taking of slaves from every point on the route (with the levy from Waddan evidently being a reimposition of a tribute levied in slaves reportedly first instituted in the 640s, Levtzion and Hopkins 2000: 12).

During the Banū Khaṭṭāb dynasty, Zuwila also appears to have developed a significant role in the trans-Saharan gold trade. The Persian geography Hudud al-’Alam mentions the gold riches of Zuwila’s Berber inhabitants (Baadj 2013: 286) and we have already seen Benjamin of Tudela’s description of merchants returning with gold (Adler 1907: 96). In 1023-24 Zuwila even issued its own dinars as is firmly attested by the publication of two coins, one of unknown provenance and the other from Zuwila itself (Lavoix 1896: 86-87; Mostafa 1965: 126-127). These bear the name of the Fatimid Khalif az-Zahar le-l’zaz Din Allah. It is possible given the discovery of coin moulds at Tadmekka (Nixon et al. 2011) and the descriptions of blank dinars in al-Bakrī (Levtzion and Hopkins 1982: 85) that the people of
Zuwīla were stamping coins that had been produced from West African gold on the southern fringes of the Sahara.

In the eleventh century there is evidence that the Banū Khaṭṭāb dynasty was able to establish control over the whole of Fazzān and this coincides with the evidence from Jarma and Tsāwa for the adoption of Islam. At Jarma and Qaṣr ash-Sharrāba we also see renewed construction of walls and fortifications that may indicate a revitalisation of these sites as regional centres under Banū Khaṭṭāb suzerainty.

Although outlasting the Fatimids, the Banū Khaṭṭāb dynasty was finally overthrown in 1172-1173 by Qarāqūsh, a general of Saladin who conquered Fazzān and many other parts of the Maghrib. Qarāqūsh was himself besieged at Waddān where he was eventually executed by Yaḥyā of the Banū Ghaniya in 1212. Baadj (2013: 287-288) has argued that this period corresponded with a more than 80\% reduction of the annual gold minted by the Almohads of the Maghrib and that this was evidence of a major disruption in the gold trade. Hence the instability may be the result of the Almohads, Ayyubids and Banū Ghaniya vying for the valuable trade routes with Zuwīla the key nodal point.

It is possible that the Qarāqūsh dynasty set up its own state based on Zuwīla and Waddān, but this came to an end in 1258. A year earlier, a delegation had been sent from the king of Kānim to the court of the Hafsid Caliph al-Muntasir to present him with the gift of a giraffe (Ibn Khalḍūn, cited in Martin 1969: 19-20). Martin suggests that this is evidence of an alliance between the two states. The next year the army of Kānim invaded Fazzān and defeated and killed the last son of Qarāqūsh.

\textit{Thirteenth to eighteenth centuries}

The invasion of Kānim marked the beginning of Zuwīla’s political and economic decline. The representatives of the Kānimi rulers, known as the Banū Naṣr, constructed a new capital at a site just to the south-west of modern Trāghan. The Kānimi capital may well be identifiable with a large oval walled site (2.2 ha) located by Lange and Berthoud (1977) c. 5 km south-west of the modern centre. This site is still clearly visible today in satellite imagery and we have located another walled structure of very similar morphology close to Tsāwa – both these fortifications are very different from the fortified villages of Garamantian and early Islamic towns and seem to have parallels in Kānim.

There are no significant mentions of Zuwīla in the Arabic sources after this time though sources are scarce for Fazzān in general. Both Duveyrier (1864: 277) and Nachtigal (1974: 151) recorded a tradition that the Banū Naṣr were succeeded by the Khurmān, a Fazzāni group from the Wādī al-Ajāl (probably the descendants of the Garamantes) who made Zuwīla capital of Fazzān once again for some period between the fourteenth and fifteenth centuries. Regardless Zuwīla seems to have maintained a role in trans-Saharan trade for some time.

In the sixteenth century, when Muḥammad al-Fāṣī was establishing his rule over Fazzān as the first of the Awlād Muḥammad, Zuwīla was one of the towns that was subdued and its chief eliminated (el-Ḥesnawi 1990; cf. Ayoub 1968; Duveyrier 1864, Lethielleux 1948). The foundation of Murzuq, possibly in the fifteenth or sixteenth century (Sterry and Mattingly
2013) appears to have reduced Zuwīla’s importance still further as it lost its role as a terminus of Trans-Saharan trade.

**European travellers of the eighteenth-nineteenth centuries**

There are a number of accounts of Zuwīla by European travellers in the eighteenth and nineteenth centuries and because these contain both important details and some enigmatic aspects, we have chosen to cite them in extensive passages. hen Frederick Hornemann visited in 1798 he described Zuwīla as a town a third of its former size with its congregational mosque in ruins. The reference to the ruins of a large building with very thick walls within the walled area is a clear reference to the existence of the castle or * qaṣabah* (Hornemann 1802: 56-57, quote from 57):

“Zuila has received the name of Belled-el-Shereef, or town of the Shereefs: in former times it was an important place, and its circumference appears to have been thrice the extent of what it is now. Some of the Shereef’s family told me, that some centuries past Zuila has been the residence of the sultans, and the general rendez-vous of the caravans: and even yet the voyage to Fezzan is termed, the voyage to Seela, by the caravan from Bornou.

This little city stands on a space about one mile in circuit; as in Augila, the houses have only a ground floor, and the rooms are lighted from the door. Near the centre of the town, are the ruins of a building several stories high, and of which the walls are very thick; and report says this was formerly a palace. Without the town near the southern wall, stands an old mosque, little destroyed by time, servings as a sample of the ancient magnificence of Zuila; it contains in the middle a spacious hall or saloon, encompassed by a lofty colonnade, behind which runs a broad passage, with entrances to various appartments belonging to the establishment of the mosque. At some little distance further from the city, appear very lofty edifices, which are the tombs of shereefs who fell in battle, at time the country was attacked by infidels”

Despite its dilapidated state, many leading and wealthy men and relations of the Sultan of Fazzān were said to live in Zuwīla (Hornemann 1802: 56) such that it was known as the ‘town of sharifs’ and it was customary for the wife of the Sultan to be a sharif from Zuwīla or Waddān. There was also evidently enough wealth for Hornemann’s caravan to be met by Sharif Hindy with 20 horsemen on white horses (1802: 56).

George Francis Lyon, visiting in 1819, similarly drew attention to the ruins of the castle, the mosque and the tombs of the Banū Khattāb along with the towns continuing prestige. Lyon’s description is worth citing extensively 1821: 214-217):

“We rode out of town to see the extraordinary ruins… The one most esteemed by the Shreefs is an old Mosque, standing at about half a mile to the westward of the town. It is a large oblong building of evidently an early date, though certainly of Arab origin. The walls are built with a neatness now unpractised and unknown, of unbaked rough bricks and strong binding clay. At the north-west corner is the Mouaden (or minaret), much dilapidated, but still of a height sufficient to command an extensive view of the surrounding country. The length of the Meseed inside is 135 feet and its breadth is 90, immense dimensions for an Arab building, which has no cross walls to support the roof. It is quite open overhead and nothing
remains to give an idea of what it once was covered with. There are two niches for the Imam; one is in a partition built partly across and near one end, for that purpose; the other is in the wall, and in the form of a pulpit … From this mosque we went to a spot half a mile east to examine five buildings, the appearance of which was much more interesting. These are in a line with one another, and have a passage between them of three or four feet in breadth. They are square; their diameters are about twenty feet, and their height about thirty. They have dome tops, and two windows; one low near the ground, the other high and narrow and situated about ten feet above it. The rough skeleton of the building is of sun-dried bricks and clay, which has hardened to nearly the consistency of stone; over this, to about half the height of the building are laid large flat stones of reddish colour, and unhewn, as found in the neighbouring mountains. Few of these still adhere.

The interior of the buildings are perfectly void, and appear never to have had any floors or partitions. From the smallness of the lower windows, it strikes me that these places were the tombs of the Shreefs, who first settled here about five or six hundred years ago … each contains a Shreef, whose grave is ornamented in the usual complement of broken pots, shreds of cloth, and ostrich eggs. The people here look with much reverence on these edifices, and tell many wonderful stories of the dead now enshrined within them.

On these tombs are the inscriptions about which so many ridiculous tales are told; but only two at present retain them, and these are on the point of falling. The Zuela people … attribute strange buildings and writings to the Christians … The inscriptions are on the upper parts of the walls, and on the sides instead of the front, which makes it very difficult to see them, owing to the neighbouring buildings not allowing sufficient space to walk back in order to distinguish them more clearly. The least perfect has only one or two lines, resembling the tops of letters, on a white cement of about a foot square; the other has about two feet of plaster, and some long letters are sunk in, apparently Arabic, and much broken… The letters I drew were these, which I conceive clearly prove the Arabic origin of these buildings. [Figure3] Under these characters is a small piece of very neat cornice, of the size of a cocoa nut, having little flourishes on it.

On my return I went to see the Castle, or rather the ruins of one, which occupies a large space in the centre of the town. Its walls must once have been of great strength, as in some places I observed them to be about thirty feet in thickness … the Castle had nothing to boast of but the solidity of its materials … the present walls of Zuela are of the same materials as the Castle. The town has but few good houses; but, judging from the ruins I saw, I should conceive it must once have been of much consequence and built in a manner rather superior to Arab towns in general … The town has three good mosques, and three gates of entrance.”

He also mentioned an ‘archaeological’ discovery he made by accident (1821: 217):

“Near the town, my horse stumbled and fell into a grave, which, from its being hollow, led me to examine it … From the side of the first pit a chamber of the same length is excavated in the gravel, which lies under the surface of the sand, and the body is placed in the vault, the pit alone is filled with earth.”
Hugh Clapperton also left a diary record of a visit in May 1822. When he refers to the Castle, he is referring to the walled town, rather than the qaṣabah (Bruce Lockhart and Wright 2000: 59-60, the punctuation and spelling are as in the original):

“We were waited upon by Shereef Hamed before we got out of bed & in about an hour afterds he returned & we went with him to visit the remains of the castle which has been the largest in this country that we have seen but is now in ruins it is built of clay & gravel being placed in large wooden frames & beat down with ramers at first sight they look like immense stones and are mostly as hard it has flanking towers of a square form about 20 paces distant from one another - the north end which is complete & joins part of the Town wall is 200 paces in length & the height of what remains may be about 35 feet & is nearly 25 feet thick at the base decreasing in thickness as it goes up - the greater part of the town is built within the square of the castle the houses are the best I have seen in Fezan & the streets are much broader than in Moorish towns in general -

from the Castle we went to the ruins of a Mosque about a 1/4 of a mile to the Eastd of the town the walled part of the Mouadan & most of the Arches that supported the domed roof yet remain they are formed much like the gothic arch but the pillars are very rude - the whole is built of sun dried bricks & morterd it has been white washed & plasterd inside from the church we went to their tombs which they say were built by the Romes but they were Mislem each tomb may be about 30 feet high having [a] small window near the top covered with [a] dome at top containing one grave each the bodies lying north & south like all true believers who are buried with their right arm under their head & their faces looking towards Mecca they are built of sun dried bricks faced over with flags of sand stone & round the tops below the dome has been a cornice with ornaments & arabic inscriptions only two or three of which now remain - There are two windows at the [top] & one at the bottom of each of the buildings those at the top being longer & broader & arched over”

Most of the other nineteenth-century Saharan travellers by-passed Zuwīla and did not add significant information about the site.

Accounts of colonial authorities in twentieth century
By the time of the Italian census of 1931 it is clear that Zuwīla like much of Fazzān had shrunk to a fraction of its former size. Only around 80 houses were habitable and Gigliarelli (1932: 139-141, 146) records the population as just 363 with 6 camels, 1 horse, 70 donkeys, 40 sheep, 21 gardens, 8,000 palms and 15 active wells. According to Scarin, there was some modest recovery in numbers a few years later, but the population was still just 525 strong, supported by only 5,500 palms (Scarin 1934: 336-340; 1937b: 629, 637-638). In the entire region round Zuwīla Scarin recorded 125 operational wells, but around 700 abandoned wells (Scarin 1937b, 638). By comparison the nearby village of Umm al-Arānib had overtaken it in almost every one of these measures.

Gigliarelli (1931: 141) had the following to say about the Zuwīla (for original text see Appendix 3):
“It is one of the oldest settlements of Fazzān, and it reached its greatest population maximum commercial growth under the Banū Khaṭṭāb dynasty, who chose it as the capital of the region... The village, quasi-rectangular in shape, is constructed in a depression that is completely detached from the oasis [of ash-Sharqiyat?]. To the north and south the depression is limited by two chains of hills about 6 kilometres from Zuwīla. In the middle of the village are the ruins of an ancient castle with massive walls, which could be traced back to Roman times: in fact, the quadrangular plan is reminiscent of a Roman castrum [fort], but the stones of which it is built do not have the squaring and regularity used by the Romans in such important buildings. Currently, these remains have almost disappeared under a new building that is used as a barrack by the CC.RR [Italian colonial force]. The construction of the circuit wall is more probably Roman, of which some stretches are still standing. The era of the Banū Khaṭṭāb is widely remembered, as well as from the ruins of the Great Mosque, also from the tombs of the sultans of the dynasty. There is a line of seven structures each with the form of a low tower surmounted by a dome. They have rectangular windows on the east and on the west sides and the blocks of sandstone of which they are built are exactly square.”

(trans. Martin Sterry)

Scarin (1937, 637-638) largely reprised the account of Gigliarelli, but did not comment on the larger enceinte around the qaṣabah.

In the 1940s, the French mission to Fazzān identified Zuwīla as one of two centres (the other being Tmissa) where occupation had been continuous for more than 1000 years (Despois 1946: 103-104). From an original open and extensive settlement, the site had eventually withdrawn within a strong enceinte of pisé construction, pierced by four gates. In the north-west angle of the fortified town, Despois credited the Turks with the construction of a small fort (the qaṣabah) and this was further adapted by the Italians later. The growth of the town beyond the northern and eastern defences seems to have followed the reorientation of the settlement following the creation of this fort, with a wide area of ground around it cleared of buildings and a new main mosque constructed facing it to the east. Despois was also the first modern visitor to comment on the ‘assez nombreux’ remains of foggaras in the Zuwīla area, but his account (1946: 214-215) otherwise adds little to the earlier reports on the old walls, the ruins of the ‘white mosque’ and the tombs of the Banū Khaṭṭāb. He reported the population of the ash-Sharqiyät region as 2,530 people, of which Zuwīla, Umm al-Arānib and Tmissa were the largest villages, and with just 50,700 palms and 188 gardens, by then entirely fed by wells.

**Archaeological Fieldwork at Zuwīla**

The earliest archaeological fieldwork in and around Zuwīla was by Pace (Pace et al. 1951: 416-419) in October 1933. Although only a note, this provides the earliest plan of the walls of Zuwīla and the monumental tombs that have been commonly ascribed to the Banū Khaṭṭāb (Figures 4a and 5a). The largest campaigns of survey and the only excavation were undertaken in the 1960s and 1970s. The controller of antiquites for Fazzān, Muḥammad Ayoub evidently undertook some fieldwork around Zuwīla although the nature of this was not reported (Ayoub 1968).
Charles M. Daniels first visited Zuwīla in 1968, as part of a Middle East Land Army expedition (Daniels 1968; Boxhall 1968, 26-27, 50), undertaking a systematic survey of sites around Zuwīla, a detailed plan of the town walls (Figure 4b) and Banū Khaṭṭāb tombs (Figure 5c), collecting ceramic material and producing an invaluable photographic record (Daniels 1968; 1989; Mattingly 2010: 10-11). The photographs along with some of the ceramic material collected in 1968 are held in the Libyan Studies Archive. The Daniels photographs provide the most important record of the state of the mosque prior to excavation (Figure 6), of the town walls before late twentieth-century redevelopment and further demolition (Figure 7) and of the tombs prior to their being restored, with alterations (Figure 8). He appears to have made a brief second visit accompanied by John Hayes in April 1972, when he observed that the Department of Antiquities had carried out considerable reconstruction work on the tombs of the Banū Khaṭṭāb. His notes record that the Department workmen had found a fragment of mortar cornice and traces of three or four Kufic letters on the side of a tomb – this seems to be the same fragment spotted by Lyon (see above). This evidence suggests that the tombs were originally covered in plaster externally.

The German archaeologist Helmut Ziegert published some brief notes on the archaeology of Zuwīla (1969: 49-52), focused on the town walls (1969: 49-50), the main mosque (1969: 50), the tombs (1969: 50-51) hydraulic features (1969: 51) and various cemetery areas (1969: 51-52), including a shaft burial (Figure. 9b) that was evidently similar to that described by Lyon. Ziegert was the first to identify the extensive area of undefended settlement to the south of the great mosque (Figure 9a, though many details of his sketch plan are erroneous or oversimplified). He also claimed to have identified an inscription in Latin letters (“FUZIU”) on the south-east corner of mausoleum 5 (see Figure 5b for his plan). This is contradicted by Lyon and Daniels, who both identified the script of the inscriptions as Arabic/Kufic.

The congregational mosque was subsequently partially excavated by Ziegert and Abdussalam (1969; 1973) and more substantially by Abdussaid (1979; see also the summary by el-Mahmoudi 1997, s.v. Zuwīla). It is one of the largest mosques known in the Central Sahara, especially given its presumed early date (Figures 10 and 11). Abdussaid’s short English account (1979: 327-329) was accompanied by a slightly longer Arabic text (Arabic pages 59-70) and 65 photographs and six fold-out plans and section. The account of the mosque (1979: 327-328) suggests that there was some damage as a result of an earthquake. He also has brief comments on the tombs (1979: 328), noting that they were made of white mudbricks and coated with stone slabs and decorated around the topmost part of the walls with plaster painted with Kufic inscriptions. The size of the white mudbricks used for mosque and tombs was similar and this led Abdussaid to suggest that the two were contemporary – though as we shall see there are now reasons to doubt that. Abdussaid recognised that the main settlement associated with the mosque was unfortified, but his comments on the walled enceinte to its north are very brief, notwithstanding the fact that a survey and plan of the walls appears to have been done at this time (1979: 329, see also photos 42-45 and plan):

“The fortifications that still stand promenantly (sic) were built nearly at the north-west corner of the early city. It is difficult to date these late fortifications, but it is clear that they were
The verdict as regards the date and relative care and timescale of construction can both be questioned, though the plan is certainly not a regular rectangle.

John W. Hayes was sent a small amount of ceramics from Ziegert’s excavations in 1972, the full details of his report are described below (Appendix 2). Importantly, the material included a number of Roman imports, providing the first evidence of Garamantian origins of the site.

The most recent fieldwork was undertaken in 1998 and 2001 by the Fazzān Project. The project revisited many of the sites originally located by Daniels, establishing for the first time a systematic list and map and collecting further ceramic material (stored at the Jarma Museum) and obtaining a number of samples for radiocarbon dating from key standing structures. The initial results were published as part of the gazetteer of the Fazzān Project (Mattingly 2007: 282-288). The Fazzān Project’s baseline account of the archaeology of Zuwīla is recapitulated and expanded here, in particular drawing on the now available AMS dates from the Oxford Radiocarbon Accelerator Unit. Finally, in the preparation of this article we purchased a 25 km$^2$ Worldview-2 scene centred on the Zuwīla old town and integrated this along with a sequence of vertical air photographs from 1958 to create a comprehensive plan of all features in the Zuwīla environs (Figure 12). Despite the lack of recent excavations at Zuwīla, there is a substantial amount of new data to present that clarifies in important ways the literary accounts.

**The Archaeology of Zuwīla**

The main archaeological features identified at Zuwīla are mapped on Figure 12 and described briefly in this section, with slightly more detail provided for each structure as Appendix 1 at the end of this article. We have continued the naming convention for archaeological sites used by the Fazzān project (Mattingly 2007: 3-6). ZUL001 is the walled circuit of the medieval town (c.3.5 ha), built up of massive pisé (rammed earth) blocks with a total height in excess of 6m and a regular pattern of projecting external rectangular towers (Figures 4, 7, 12, 13). The southern and eastern sides are partly obscured by later developments in those directions (ZUL018), but the west and north side are substantially preserved. At some point in time, the north-east corner of the walled enceinte was converted into a citadel or qaṣabah with thick walls (ZUL016). As the walls stood over 7 m tall in this sector and towers were more closely spaced, it is possible that the early modern qaṣabah replaced an original citadel in this area, dating back to the initial construction of the walled enceinte. It is mentioned as already ruinous by Hornemann, but was evidently later refurbished by the Ottoman and Italian authorities.

ZUL002 is the ‘white mosque’, so named because of the employment of distinctive white mudbricks, that is identified with the congregational mosque mentioned by al-Bakrī (Figures 6, 10-12). The position of the mosque is interesting as it lies outside and south of the walled ‘town’ and on the northern edge of or an unwalled area of settlement (ZUL012) that is visible on the 1950s air-photographs (Figure 14), but which is now largely built over. Towards the
eastern end of this c. 20 ha nucleated settlement there was a fortified building or qaṣr (ZUL004).

ZUL003 is the number given to the so-called tombs of the Banū Kaṭṭāb, monumental tower mausolea built in a north-south line adjacent to the main route leading east away from Zuwīla across the desert in the direction of Cairo (Figures 3, 5, 8, 12, 15). The position from which the AMS samples were taken on shown on Figure 15, which also indicates the presence of a number of less substantial funerary monuments to the west of the main line of tombs. This is in fact one element of a larger Islamic cemetery area (ZUL020-ZUL021) which continues beyond the large well marked at top of Figure 15. There is a further Islamic cemetery area on the south side of Zuwīla (ZUL022).

A number of earlier cemetery areas have been identified on the south side of the undefended settlement (ZUL005, ZUL006, ZUL008, ZUL009) and these are associated with Roman-era pottery and other finds.

Curving around the west, north and east sides of the walled site (ZUL001) there are traces of an extensive field system (ZUL007) of at least 630 ha, divided into roughly square plots of c. 75-150 m a side, many with traces of a centrally positioned well (Figures 12, 14). A different form of irrigation work has also been identified in the landscape to the south of the unwalled settlement area, comprising two main clusters of the distinctive underground channels (foggara) that area characteristic elsewhere in Fazzān of the Garamantian era oasis cultivation (ZUL013, ZUL014). These evidently fed water into a broad shallow depression about 2 km southwest of the town (ZUL015).

There are probably additional smaller settlements in the close vicinity of Zuwīla, one example of a small tower-like qaṣr having been visited by the Fazzān Project team (ZUL010 – marked on Figure 12).

It is clear from the different character of settlement features, cemeteries and irrigation works that we have a palimpsest landscape here. Without more substantial field investigation and excavation picking this apart is not easy, though some surface collections have been made (see Appendix 2 at end of paper) and this can now be supplemented by AMS radiocarbon dates on some of the key structures. The origins of the oasis settlement at Zuwīla can confidently be placed in the Classic Garamantian era, in light of numerous finds of imported Roman pottery of the first few centuries AD. There are no certain ceramics of the Proto-Urban Garamantian period (500-1 BC), a characteristic also of the Murzuq area, where the main development of oases appears to fall in the Classic and Late Garamantian eras (Sterry and Mattingly 2013; Sterry et al. 2012). A small fragment of a Hellenistic eye-bead reported by Daniels in his unpublished notes on the site could have been long curated before its deposition at the site. The presence of foggara irrigation systems is another probable indication of the initial Garamantian development of the oasis, since the introduction of this technology to the central Saharan region can now firmly be dated to Garamantian times, while the Islamic sources specify the use of wells for irrigation at Zuwīla and elsewhere in Fazzān.
AMS Samples from Zuwīla

With the agreement of the Libyan Department of Antiquities, a total of four samples were taking from the key standing monuments of Zuwīla (Table 1 and Figure 16) during survey work of the Fazzān Project in 2001. In each case botanical remains relating to an annual growth cycle (date stone, chaff) was extracted directly from the wall fabric. The sample from the urban wall circuit came from the north-western corner bastion and comprised a date stone thoroughly embedded in the rammed earth wall about 1.5 m above ground level. Another date stone was extracted from a mudbrick of the external face of the eastern wall of the white mosque, just to the south of the mihrab, again at c.1.5 m above ground level. Both of these contexts were judged to be primary in constructional terms, with no obvious evidence for rebuilding or repair. The two samples from the so-called Banū Khaṭṭāb tombs were taken from the mud bonding mortar of the interior mudbrick walls. While the external faces of the monuments had been extensively renovated in recent times, the interior walls appeared untouched in modern times. The sampled material consisted of thin plant fibres (chaff?) within the mud mortar. The most northerly and most southerly tombs were sampled in case there was a significant time lag between the construction of the first and last tombs in the line. All samples were sent for analysis at the Oxford Radiocarbon Accelerator Unit.

Table 1. AMS dates from Zuwīla. The calibrated ranges in this paper were generated using OxCal 4.2 and IntCal13 (https://c14.arch.ox.ac.uk/oxcal/OxCal.html; Bronk Ramsey 2009). All the calibrated age ranges presented here are 2-sigma values, incorporating 95.4% of the probability distributions.

Discussion Points

The date on the mosque, calAD 671-855 (95.4%), is perhaps the most surprising result of these analyses. This would make the mosque one of the earliest known in Libya and one of only a handful of seventh-ninth-century mosques identified in North Africa (cf. Fenwick 2013). It also places the construction of the mosque somewhat earlier than the presumed Fatimid date of the tenth century. The Fatimid attribution is based on its similarity in plan to the mosques at Ajdābiya and Maḍīnat as-Sultan although neither of those has been firmly dated (Figure 11; Blake et al. 1971; Abdussaid 1967). The construction of a mosque at this early date at Zuwīla is not improbable. As already mentioned there is good evidence that there was a large Ibāḍī population in Zuwīla in the eighth century and it is therefore likely that they had a mosque even if Islam was not widely accepted in Fazzān at this early date. In al-Bakri’s account of the Saharan towns, the chief entrepôts were regularly described as having congregational mosques, baths and markets. In the case of Sijilmāsa, he attributes the construction of the mosque to the early ninth century (Levtzion and Hopkins 2000: 64-65). By the eleventh century, Awdaghust evidently possessed a congregational mosque and many smaller ones (Levtzion and Hopkins 2000: 68).

However, the earliest parallels for a courtyard mosque of this type are from the mid-ninth century (see for example the grand mosques of Sousse, Sfax and even al-Qayrawān although they are much larger than that of Zuwīla). This would favour an early ninth-century date over
a late seventh-or eighth-century one. While it is not impossible that the sampled mudbrick
was reused from an earlier substantial building, the fact that distinctive white bricks were
used for the mosque construction would seem to preclude substantial reuse of materials.
Close examination of the plan does suggest that the prayer hall may have lacked an
associated courtyard in its initial phase – the offset between the south wall of the prayer hall
and courtyard hints that the latter may be a secondary addition). Though Abdussaid’s
excavations produced evidence of multiple floors and reinforcement within the mosque, the
location from which the sample was taken looked like part of the primary phase of the
building (Figure 10). The simplest interpretation of the date is that it does relate to the initial
construction of the mosque. The fact that the white mosque was outside the walled citadel at
Zuwīla is a further argument in favour of the early date, since the walls can now also be
firmly dated (see below).

The two samples from the Banū Khaṭṭāb tombs have produced similar dates of calAD 900-
1032 and calAD 973-1032. This would seem to confirm that they have been correctly
associated with the Banū Khaṭṭāb dynasty (AD 918-1172) and we can further link them to the
earlier part of the dynasty. As the samples came from tombs 1 and 6 at either end of the line,
that would suggest that all six tombs date to the first century of Banū Khaṭṭāb rule at Zuwīla
(Figure 15).

Al-Bakrī’s statement that Zuwīla was a town without walls has led subsequent scholars (with
the notable exceptions of Pace and Gigliarelli who suggested they were of Roman/Byzantine
origin) to conclude that the pisé walls were a later addition and likely post-dated Zuwīla’s
primacy during the Banū Khaṭṭāb dynasty. The context of the date stone sampled for AMS
dating within the rammed earth matrix of the pisé walls is most readily interpreted as dating
the primary construction, rather than a secondary repair (Figure 13). Our AMS sample would
thus appear to place the construction of the walls at calAD 898-1020 (95.4%) - once again in
the first century of the Banū Khaṭṭāb dynasty and in the same general period as the erection
of the monumental tombs and the issuing of the Fatimid coinage of AD 1024. When al-Idrīsī
attributed Zuwīla’s foundation to ‘Abd Allāh ibn al-Khaṭṭāb al-Hawwārī, it is highly
plausible he was referring to the erection of this fortress in the early tenth century (Levtzion
and Hopkins 2000: 122). Rammed earth fortifications are uncommon in North Africa, apart
from the largely undated Ksar of southern Morocco, with which Zuwīla’s walls have
significant structural similarities (Nami et al. 2014: 69-83). There are also several similar
constructions in the Iberian Peninsula that date to the ninth and tenth centuries (Jaquin et al.
2008).

Although the construction style and plan is unique to Fazzān, the other urban site in the
southern oases, Qaṣr ash-Sharrāba also had an enclosed citadel on the northern edge of the
town. At 0.7 ha, however, this was much smaller than Zuwīla’s 4.5 ha. The Garamantian
villages HHG001 and GBD001 stand out for the size of their wall-circuits, both
encompassing 3-4 ha. In particular, HHG001 is of a similar rectilinear, multi-towered
arrangement. All three of these sites have been securely dated to the Late Garamantian period
(AD 400-700). Although the plan of the fortified complex at Zuwīla follows in this
Garamantian tradition, there is no reason to doubt the logic of the AMS dating of the walls to
the Banū Khaṭṭāb dynasty. This is an important conclusion. It looks rather as though the walled citadel was a new addition to the north of the main settlement. Only much later did these walls define the urban site, with houses now congregated inside and the area of the undefended settlement and the ‘white mosque’ now abandoned.

**The ash-Sharqiyyāt depression**

The ash-Sharqiyyāt area forms the eastern end of a long linear set of oasis depressions, with Zuwīla for long its *chef lieu*, but with Umm al-Arānib emerging in this role by the twentieth century. There has been no archaeological survey of the oases that are part of the same depression as Zuwīla (Umm al-Arānib, al-Bdayir and Misqwīn), but aerial photographs and recent satellite imagery allow some preliminary assessment of the remains (Figure 17). There is a further important outlying oasis at Tmissa, c.75 km to the east of the ash-Sharqiyyāt. There is a further small oasis to south of Zuwīla at Tirbū, but separated from it by c.40 km of sand sea. It is not normally viewed as part of the ash-Sharqiyyāt area, but associated rather with the Wādī Ḥikma oases to the south (where the major sites are al-Qāṭrūn and Tajirhī. Here we provide brief details of the west to east line of oases of ash-Sharqiyyāt as a basis of comparison with the visible archaeology of Zuwīla.

**Umm al-Arānib**

The most remarkable remains at Umm al-Arānib are of a walled village c. 3 ha in area. The buildings are largely upstanding apart from some modern bulldozing in the north-west and south-west corners allowing the full plan to be seen with around 100 houses. The village walls are sub-rectangular in plan with corner towers and two intermediate towers on each side. The internal buildings do not abut the village walls on the east side and either the walls are a later addition to the village or there has been an extension of village and walls to the east at some point. No building can be identified as a mosque from the satellite imagery, but there is an Islamic cemetery on the northern side with more than 1000 visible tombs. The closest parallel for the settlements is the abandoned southern sector of Murzuq which has structures of similar size and plan and dates to the sixteenth-eighteenth centuries (Sterry and Mattingly 2013). To the east of this settlement there is a group of c.10 foggaras that run south-north into a small depression. There is no clear evidence of further settlements or cemeteries but several mounds are likely the remains of field-systems and wells of unknown date.

**al-Bdayir**

At least 15 foggaras run north-south at al-Bdayir and feed into an extensive area of field-systems on the edge of a playa. Although there are stretches of mudbrick wall, settlement is elusive in this area, but the overall level of preservation is poor. On the western edge of these fields is an unusual 0.8 ha fortification that is sub-circular with ten evenly spaced towers and a number of buildings in its centre. The closest parallel is the supposed Kānīmi fortification at Trāghan (which is also sub-circular but three times larger with 23 towers, the site is briefly described by Lange and Berthoud 1977: 31-32), which would date it to the thirteenth-fifteenth centuries although there are several irregular shaped *qsur* in Fazzān that are of likely post-medieval date. There are several thin scatters of cairns and possible hut clearings on the
plateaux to the north that are most reminiscent of those on the Hamada al-Hamra and are probably of Pastoral date (Neolithic).

**Humera**
South of al-Bdayir another foggara group (about five in number) run south to north into the same depression. At the southern end of these there is a badly preserved mudbrick settlement c.0.5 ha that may contain a fortification. This cannot be directly dated, but the preservation of the mudbrick is consistent with Garamantian settlements in the Murzuq region. There are several abandoned wells in this area and to the east of the settlement an area of disturbed gypsum that is similar to the cemeteries south of Zuwïla. 500 m to the north-west of the settlement there is a rocky outcrop which is almost entirely covered with a nucleated shaft cemetery c.6ha that is almost certainly of Classic Garamantian date.

**Misqwîn**
Once again a foggara group of c.20 channels runs into this oasis. A field-system on the edge of the playa is well preserved and covers at least 300 ha. There are some possible buildings scattered throughout, but they need ground confirmation. The early modern village is still standing, but largely abandoned on the northern edge of the field-system. Two square *qsur* with corner towers are visible, the first on the western edge is c.15 x 15 m with some upstanding walls, the second is to the north-east and is c. 28 x 28 m with a building in the centre and a clearly defined ditch. Both of these are of very similar morphology to examples elsewhere in Fazzân that date predominantly to the third-sixth centuries AD (Late Garamantian era).

**Tmissa**
The best preserved remains at Tmissa are of a large multi-phase settlement on the edge of a large playa (Figure 18). Parts of this settlement are still occupied and have a character that is reminiscent of the houses at Zuwïla. The centre of the settlement appears to have been a square *qaṣabah* that has been heavily modified and incorporated into the fabric of the town’s housing. An earlier (medieval?) phase consisted of a sub-oval settlement c.5.5 ha with the *qaṣabah* built into the southeast side. This was in disrepair by the time the site was visited by Hornemann (1802: 53-55), but the eastern side is still visible and seems to have had several intermediary towers and gates. On the interior of the eastern side there are traces of a few buildings and compounds and a small Islamic cemetery is located on the exterior (although this looks to be fairly recent and is not on the plan of Despois). Despois (1946: 95) mentioned three mosques, a *souk* and a *zawiya* within the town but these buildings are no longer visible, however, there are several mounds that are likely to be the remains of further mudbrick buildings. Around 1.8 km to the west are the remains of a large field system with numerous wells on the western side of which is a possible Late Garamantian *qaṣr* c.16 x 16 m within a 0.2 ha enclosure.
Summary

The distribution of the visible archaeology in the ash-Sharqiyyāt region closely mirrors that of the oasis villages in existence today. This has led to a certain degree of clustering rather than the linear spreads of settlement that are found in many of the other depressions of Fazzān. Each oasis has a group of 10-20 foggaras and substantial areas of relict field systems and/or wells. Given that the total population in 1931 was only 1,495 we can assume that as with other parts of Fazzān (Mattingly 2013a: 537-544) the population in the past could easily have been two or three times larger. Apart from Zuwīla there is no evidence for urban settlements and we may consider that, as with the Murzuq region, the dominant settlement forms were the nucleated village and the qaṣr. We almost certainly have examples from the Garamantian, medieval and post-medieval periods. There are very few settlements visible and in part this must be due to the substantial development at each of the oases, but it is also possible that there were relatively few fortifications in this region. The lack of upstanding remains (and here fortifications are particularly useful) prevents the landscape phasing possible elsewhere in Fazzān and we are not in a position to describe how the region changed over time. The numbers of foggaras, the scale of gardens with wells and the settlement evidence all make Zuwīla stand out in comparison to the other sites in the region (Figure 17). There is no reason to doubt the primacy of Zuwīla for much of its history, despite its modern eclipse by Umm al-Arānib.

The Urban Biography of Zuwīla

In this final section, we present a series of models tracing the hypothetical evolution and decline of the oasis of Zuwīla. Without further fieldwork certainty on many points is impossible, but we think our reconstruction is plausible and coherent given the evidence currently available. It will provide a basis for future work to build on (Figure 19a-f).

The Garamantian era

We suspect the establishment of the oasis to have been in the late first or second century AD. The presence of substantial Garamantian activity in the Zuwīla region is indisputable as is evident from the numerous cemeteries and the presence of ceramics from the first-fourth centuries AD.

Figure 19.a presents the possible appearance of the site around AD 300. The size of the Garamantian settlement cannot be determined with any precision, but we would expect that it was located next to the fortified building (qaṣr) ZUL004 which is probably Garamantian. Such fortified structures within settlements are characteristic of the Late Garamantian era (Mattingly and Sterry 2013; Sterry and Mattingly 2013). We cannot distinguish at present whether Zuwīla was a large village or a town in its own right (as we suspect). The modern destruction of most of this urban area may hinder any attempt to resolve this question, but a key aspect to look for in any future work will be evidence of craft working. The spread of cemeteries on the south side of the site and also perhaps to the east certainly implies a substantial site and the apparent scale of the cultivated area (if our reconstruction below is correct) would also imply a large population. The quality of imports with finewares and glass at Zuwīla indicates that the oasis was well connected and these finds came from both the
urban area and its cemeteries. Comparison with other oases in the southern belt where we have carried out field investigation again suggests that there was an atypical scale of trade activity at the site. We speculate that the site may have grown in Late Garamantian times, at some point asserting its autonomy from the Garamantian capital at Jarma and increasingly emerging as a rival entrepot for trade.

The two foggara groups (comprising up to 30 channels) flowed from north to south, irrigating low-lying ground about 2 km to the south of the settlement. It is probable that part of the extensive garden area irrigated by wells to the north of the settlement also should be dated to this period. This is supported by finds of imported Roman pottery from the surface of some of the gardens and by parallels with other sectors of the southern oasis belt of the Garamantes, where wells and foggaras appear to have been used in combination (Sterry and Mattingly 2011). The position of the main Garamantian settlement close to these northern gardens, rather than right alongside the foggara-fed southern gardens is another indication that the Garamantian settlement employed both types of irrigation works. Foggaras can be seen in the other oases of the ash-Sharqiyyat depression.

The Early Islamic period: the first Iḥādis

Figure 19.b presents the possible configuration of the site around AD 850. The reconstruction envisages the undefended settlement approaching its maximum size, with the congregational mosque constructed on its northern periphery and the qaṣr still in active use at the heart of the settlement. It is unclear if the foggara irrigation and gardens in the depressions south of the town were already abandoned, but the garden zone with numerous wells to the north of the town was probably fully developed, though arguably at this stage irrigated by simple water-lifting shaduf wells. The location of cemeteries in this period is uncertain, though there is an extensive funerary zone (ZUL020) with possible transitional forms on the east side of the oasis which is a candidate.

The Banū Ḫaṭṭāb dynasty

In contrast to the rest of Fazzān, Zuwīla seems to have thrived with many of the major constructions in the city dating to this period. Although they were certainly intimately connected to the various Arabic and Berber states of the Maghrib we cannot view Zuwīla or Fazzān as simply an extension of Arab rule created by ‘Uqba bin Nāfi’’s conquest. The historical sources are clear that the region was largely independent, never being directly ruled from afar for more than a few years at a time (this is a theme that is common to the later Ottoman period too). Despite the small number of archaeological finds that can be linked to Trans-Saharan or Saharan trade it is clear that this was what underpinned the growth and decline of Zuwīla’s wealth and influence. We have elsewhere argued that urban-sized centres in the central Sahara are unsustainable without some form of outside investment due to the increased stress of feeding a nucleated population in an environment in which all water (for drinking and irrigation) had to be lifted from wells or foggaras (Mattingly and Sterry 2013: 515). Trade and political authority (perhaps in tandem with religious authority) are the most likely reasons for this sort of investment. However, the process was not uni-directional, settlements were not imposed in some form of Saharan colonisation. Stahl (2014: 20-22) has drawn attention to the importance of Bayart’s (2000) model of extraversion in understanding
how societies produced power though mediating access to external resources and environments. In this sense Zuwīla can be considered to both mediate Maghrībian access to the Trans-Saharan staples of slaves and gold, but also to control the access of caravans to water, food and camels.

The strength of this model in Fazzān is that although the extraversion would create social distinctions (we may see the rise of Ibāḍīsm and Islam at Zuwīla in this light) it did not initially encourage the exploitation of others within that polity (Bayart 2000: 231). Hence we see little evidence of a Fazzānī state during the seventh-tenth centuries, only the decline of centres that had previously relied upon trade such as Jarma (Mattingly 2013a). However, things seem to have changed when the Banū Khaṭṭāb established themselves as rulers of all of Fazzān. We do not know if Zuwīla had a central ruler prior to the tenth century, but it is certainly a possibility that the Banū Khaṭṭāb actively pursued a policy of state-building. Certainly they seem to have been keen to monumentalise their dynasty through creation of a substantial fortress, dynastic tomb building and minting their own coinage at Zuwīla. They may also have been responsible for the contemporary building and repair of walls at Qaṣr ash-Sharrāba and Jarma. A possible reference to the king of Zuwīla also being king of the Mazāta Berbers may also indicate imperial ambitions over a much greater swathe of the central Sahara. This must also have included a proselytising component as it is during this period that we see the final examples of the Garamantian burial tradition in the Wādī al-Ajāl to the north-west of Zuwīla (Mattingly et al. forthcoming) and the adoption of Islam across all of Fazzān (Mattingly 2003; Mattingly and Sterry forthcoming).

The period of Banū Khaṭṭāb suzerainty also coincided with the adoption of Islam in Kānim-Borno by the early twelfth century (Levtzion and Hopkins 2000: 138). Islam has long been seen as a key part of what made Trans-Sahara trade possible, but the issue is obviously more complex (Haour 2007). Trans-Saharan trade and Zuwīla both existed prior to Islam, although the Ibāḍī network certainly appears to have benefited both Zuwīla and traders. The reasons for and impact of the widespread adoption of Islam is even less clear although it is likely that Fazzān needs to be seen in the context of the increased prominence of Islam in North Africa in the ninth and tenth centuries (Fenwick 2013). Certainly this is a fertile area for future research.

Figure 19.c shows the possible appearance of the town c.AD 1050. The construction of the fortified citadel is the most striking change. Henceforth, the trading, herding and farming communities who came together in the markets at Zuwīla were very visibly dominated by the imposing 6 m walls of the fortress palace. The undefended settlement area (with the congregational mosque) to the south remained occupied, though the old qaṣr may have passed out of use. The major cemetery was now certainly on the east side, round the monumental mausolea of the dynasty. The garden area was probably of similar extent to before, though it is highly probable that wells were now being widened and deepened to combat a falling water table that threatened the efficacy of shaduf wells. Al-Bakrī’s account of Zuwīla specifically mentions wells powered by camels, a clear reference to the dalw (self-dumping bucket) (Levtzion and Hopkins 2000: 63; Wilson and Mattingly 2003: 266-270 on the different well types). Surface inspection of many wells at Zuwīla shows that they were
modified and deepened, with the addition of animal walkways and A-frame structures of the dalw type well.

Under the Awlād Muḥammad
Zuwīla’s decline from urban centre to village mirrors those of other former capitals of Fazzān (Jarma and Trāghan). When the Kānimi sought to establish themselves as the major power, controlling Saharan trade would have been of paramount importance. Given the silence of the historical sources, the exact sequence of events and speed of transformation are uncertain, but the diverting of caravans into the new capital of Trāghan probably had a rapid impact. Without these external resources to mediate, Zuwīla would have quickly become unsustainable in its expanded urban form. In the political anarchy that followed the successive overthrow of the rule of Qarāqūsh, Kānimi power and the Khurmān, Zuwīla may have been briefly revived as capital, but the ascendancy of the Awlād Muḥammad with a new capital at Murzuq from c.1500 marked a new era.

While the settlement shrank in size and importance, in keeping with the model of extraversion discussed above it is notable that much of the social hierarchy was still intact and that even in the Ottoman period, the few inhabitants still had a high social standing within Fazzān because of their sharif status.

In Figure 19.d we present a model for the mid-sixteenth century state of Zuwīla. It is possible that the Awlād Muḥammad made use of the fortress initially as a garrison point from which to oversee the oasis, with some habitation still present in the open settlement area and the congregational mosque continuing. The loss of status as a trade entrepot and political centre could well have rapidly reduced the population base and our model assumes that by 1550 the settlement was reoriented entirely within the protective walls of the citadel, with a new qaṣabah created in the north-east corner, and the open settlement and mosque to the south entirely abandoned. This was certainly the situation first encountered by European travellers to Zuwīla in the late eighteenth and early nineteenth century. Lyon for instance makes it clear that there was a dilapidated police post set into the north-east corner of the walled settlement. While we cannot be certain when this was established, it is quite likely that Zuwīla was a location that recurrently required supervision because of its liminal position on the eastern and south-eastern fringes of Fazzān.

Ottoman outpost: the nineteenth century
By the early-nineteenth century there are some slight indications of Zuwīla undergoing a slight revival in population. This is shown in Figure 19.e. By this date, if not earlier, the settlement had expanded beyond the north, east and south walls, leading to partial demolition of the walls and creation of new breaches in them. There are traces of an additional wall built further out on the north side and the walls of new buildings on the east and south limited access to a few gates and entry roads. The motivation for the remodelling may have been a desire to create a wider open area around the qaṣabah, with buildings being demolished to achieve this effect. New quarters were at the same time laid out in such a way as to make the qaṣabah the heart of the settlement, rather than an isolated structure in the corner of the old enceinte. A new main mosque was constructed on the east side of the square that the qaṣabah
now opened onto – that is, outside the original walled area. It is hard to know how extensive the cultivated area was at this date. There may have been some slight revival in population from the sixteenth-century position, as the nineteenth century settlement appears to have been about a third larger. As the European powers came to exert more pressure on the Barbary states regarding slave trading through the nineteenth century, there is some evidence that caravans once again were diverted towards Egypt, which may have befitted villages like Zuwīla on the eastern margins of Fazzān.

**The Italian-era village**

The final stages of the site’s history were somewhat similar to the pattern established by the nineteenth century (Figure 19.f). The final decline of Trans-Saharan trade, after the abolition of the slave trade and the collapse of the European market in ostrich feathers, in all probability led to further decline at villages like Zuwīla (Haarman 1998; Martin 1985; Wright 1998). The qaṣabah continued to be used as a police post by the Italians, but this was a population reduced to extremis by loss of trade and by 20 years of resistance to and warfare with the Italian colonial regime. Air-photographs taken in the 1950s reveal a massively shrunken area of oasis cultivation, now reduced to a few scattered pocket-handkerchief gardens, rather than a consolidated area of gardens. The Italian census bears this out, with a very low established population and comparatively few wells and gardens compared to the numbers that were visibly derelict on the air-photographs.

**Conclusion**

The urban biography of Zuwīla has some similarities with the story of the Garamantian capital at Jarma (Mattingly 2013a: 505-544), but there are also important differences. Jarma was founded c.400 BC and peaked much earlier than Zuwīla in the first few centuries AD. In its late period, it was probably a walled site, with a citadel structure (qaṣr) at its heart. As Jarma lost its trade and political influence in the second half of the first millennium AD, the material culture, architecture and even the diet at the site changed. Although Jarma remained a large site (by central Saharan standards) into the twentieth century, long before the end it was a village masquerading as a town. There are hints of the same sort of process at Zuwīla, once political and economic supremacy passed to other centres, first Trāghan, then Murzuq and Sabhā. Zuwīla appears to have been a moderately successful and quite important settlement for some time under Garamantian and Ibāḍī suzerainty, without being anything out of the ordinary. The change appears to coincide with the creation of the Ibāḍī state of the Banū Khaṭṭāb. The most dramatic development was the erection of the urban defences in the late tenth or early eleventh century. This fortress expressed the larger territorial ambitions of the Banū Khaṭṭāb dynasty and sent a message well beyond the adjacent oasis settlement, to the rest of Fazzān, to Tripoli at the Mediterranean end of the trade route and to Kānim in the south. The line of monumental tombs no doubt served a similar purpose in announcing Zuwīla as the centre of a powerful state, with prestigious and holy rulers.

After the fall of the Banū Khaṭṭāb dynasty, the settlement at Zuwīla appears to have been carefully supervised by the successor states (Awlād Muḥammad) or external powers seeking to control Saharan trade (Kānīmi, Qaramānli, Ottoman, Italian), as demonstrated by the
erection of the *qasabah* in the corner of the walled enceinte (possibly linked with the partial demolition of the walls to weaken the site’s defensibility for the inhabitants).

However, we cannot consider Zuwîla solely in terms of its political position. A correlation can be seen with Marandet, Tadmekka and probably Timbuktu on the fringes of the Sahara which have similar booms in activity in both the archaeological and historical sources related to trade (Bernus and Cressier 1991; Haour 2007: 93-95; Insoll 2000; Magnavita et al. 2007; Nixon 2013). We cannot necessarily link Zuwîla to these centres but it highlights that a break in part of a trading network would have implications for all the traders that were part of it. Haour (2007: 101) has argued that these sorts of settlement – dependent upon the patronage of traders and rulers - were vulnerable to geopolitical considerations and therefore far more prone to decline and abandonment than say the towns of the Maghrib. The start-up costs of oasis farming were high, sometimes prohibitively so, making trade a crucial catalyst (Scheele 2010). Oasis settlements, especially large ones, were peculiarly dependent on the ability to supplement the farming economy with the profits of trade. The population of such sites was very susceptible if the cross-subsidy of trade was removed, as we can also see in the case of Jarma.

Other factors affected the sustainability of the site. Water is a pressing concern in the central Sahara and the fossil water aquifers that are tapped by wells and foggaras recharge very slowly and have been in a continual state of decline since the last Saharan pluvial phase ended c.5,000 years ago (Wilson and Mattingly 2003). This has two effects, firstly individual irrigation components can be exhausted which, in combination with land salinisation, can lead to patches of unproductive land and secondly new wells will have to be dug increasingly deeper, reducing their overall efficiency. The combination of these factors means that over the longue-dureé an urban settlement will become increasingly difficult to feed, especially if it is also a stop-over point for caravans that could number thousands of slaves and camels. It is notable that many oases have had a pattern of shifting settlement (e.g. Kawâr and Djad – Lange and Berthoud 1977; Fazzân – Mattingly 2007; Sterry and Mattingly 2011; Merlo et al. 2013; Ghât – Liverani 2006 and al-Jufra).

The evidence from Fazzân leads us to question the dominant development narratives of other oasis chains in the central Sahara, especially those of Wadi Righ, Suf, Mzab, Tuwat and Kawâr. In all of these areas Ibaḍite and other Berber groups have been given a prominent role in the establishment of these centres, as they were at Zuwîla. The recent archaeological results from Fazzân should give pause for thought about whether pre-Islamic oasis development took place more widely in the Sahara. We should question to what extent this is absence of evidence rather than evidence of absence. Our new evidence demonstrates that Zuwîla was not an Ibaḍite foundation nor inconsequential in the pre-Islamic period. The same is also true of Ghadāmis which appears to have been a major centre in the Roman period (Mattingly 1995; Mattingly and Sterry 2010).

The spread of Islam in the Sahara capitalised on the prior development, no doubt adding new networks (Haour 2007), apparently also giving opportunity to newcomers or the early local adopters of the new dominant religion. The pattern observed at Zuwîla and Ghadâmis may
also be true of other oasis belts and it likely that the seventh-tenth centuries were characterised as much by a reorganisation of existing networks of settlements as much as they were by new foundations (although the latter may well have been important). We now know that Trans-Saharan trade existed before the coming of Islam and the Arab dynasties established in the Maghrib were from very early on particularly interested in its potential. The supply of slaves for the slave markets in Egypt and Ifrīqiya and perhaps also West African gold, was a matter of huge interest and profit and the intervention of the generals, governors and merchants of Muslim Africa transformed the nature, loci and political underpinnings of pre-Islamic trade. The rise of sites like Zuwîla to far greater prominence and the final decline of Garamantian power were symptoms of these new relationships.

Appendix 1: Archaeological sites in and around Zuwîla
The Fazzān project identified ten sites of significance (labelled ZUL001-010, ZUL011 relates to a foggara group at al-Bdayir, 14 km to the west), our satellite remote-sensing and re-analysis of the aerial photographs has identified a further two foggara groups, allocated numbers to several Early Modern structures and a number of Islamic cemeteries (ZU012-ZUL023). We have also clarified the plans and descriptions of a number of sites (some of the descriptions below were originally published in Mattingly 2007: 282-88, but the expanded and improved gazetteer seems worth inclusion here).

ZUL001 Urban settlement, wall 26°10.09/15°07.71
The sub-rectangular town walls of Zuwîla, enclosing an area of 4.5 ha, are of unusual construction, in comparison with other walled Fazzānese towns (see Mattingly et al. forthcoming for a detailed presentation of this walled enceinte). The wall line was presumed to have been roughly rectangular, but closer study suggests a more trapezoidal layout published plans are to be found in Pace et al. 1951, Abussaid 1979; Mattingly 2007). The south-east quadrant has been lost beneath later buildings. Regular external rectangular towers were incorporated in the original design (probably originally about 40 in number). The wall is built in pisé style, with sections of c.2 m length x 1 m height x up to 1 m thick having been formed within wooden shuttering. The material used is a very gravely sand/mud mix, which has apparently been rammed solid. The walls survive to a maximum height of c.6-7m. The dating of erection of the wall circuit appears to be the tenth or early eleventh century (as determined from an AMS sample), despite al-Bakrī’s description of Zuwîla as unwalled.

The ‘Turkish’ fort (ZUL016) survives in the north-east corner of old Zuwîla. The domestic buildings of the old town are now very dilapidated, some occupied by Tubu migrants, others in ruins.

ZUL002 Mosque 26°09.92/15°07.51
Elements of walls of a large ruined mosque lie outside the south side of the walled town, measuring c.32 x 34m. This is the site mentioned by early travellers and often referred to as the ‘white mosque’ and is almost certainly the ‘congregational mosque’ mentioned by al-Bakrī). The standing remains were roughly planned by Daniels in 1968 and some further
observations were made in 1972 following trial excavations by H. Ziegert and Ali Abdusaleem (1973) and prior to the full exposure of the complex by Abdussaid (1979). Much of the large tower in the SW corner was thought to be of relatively recent (nineteenth century?) date, though it seems plausible that this was the basis of the minaret. The AMS sample suggests a late seventh-mid-ninth century date for the initial construction although the visible courtyard layout may be partly due to later additions (of tenth century date?) due to its similarity to similar mosques in Libya (Abdussaid 1979).

The comments by Daniels on the visible architecture are superseded by the data from the excavation (Abdussaid 1979; el-Mahmudi 1997, s.v. Zuwīla; Ziegert and Abdusallam 1973). The mosque is large by Fazzānese standards, 34.5 m east-west and 24 m north-south (30 m including the minaret projecting at the south-west corner). The prayer hall is 11.5 x 24 m, but the structure shows signs of several phases of modifications. Since the excavation there appears to have been some conservation work carried out on the mosque.

**ZUL003 Cemetery, mausolea 26°09.96/15°08.37**

Large cemetery area with tombs of Banū Khaṭṭāb, c.1.2 km to east of town. Tombs restored c.1970. The two AMS dates now give a firm association of the monumental tombs with the Banū Khaṭṭāb dynasty dating them to the tenth-eleventh century. The form of the monumental tombs was tower-like structures, c.6 m² at the base, c.8 m tall, capped by a dome which added another 1.5 m, for a total height of c.9-10 m. There were no doors into the structures, but a pair of tall windows just below the dome, with smaller observation windows about 1.5 m above ground level on the east and west sides. The walls are mudbrick, but with an outer facing of vertically mounted thin stone slabs. When Lyon visited the site in the 1820s, he observed burials intact within the lower chambers, still adorned with the sort of offerings (pots, ribbons, ostrich eggs) accorded to the graves of murābiṭūn (marabouts) in the Sahara (1821: 215). Even as late as 1968, Major Boxhall observed a ritual procession to the tombs by young boys from the town, which passed three times around the monuments (Boxhall 1968: 27). Traces of stucco decoration, with Arabic/Kufic lettering suggest that originally the top part of the external walls above the vertical slab-work and below the domes were plastered and adorned with dedications to the deceased. There are no obvious architectural parallels for the form of the tombs, though the ‘north to south’ alignment and ‘east’ orientation of the series of monuments coincidentally recalls the layout of royal cemetery of the Garamantes (Mattingly et al. 2011). The line is actually south-south-west to north-north-east, with the tombs facing 113°. This may have been intended to recall the direction of Macca, as the mosque ZUL002, for instance, faces 124°, but it seems just as likely that the tombs were constructed in a line to the north of the main route leading eastwards from the fortress.

The CMD survey made an extensive photographic record of the main tombs, providing an invaluable record of their condition prior to restoration. At that time, much of the stone cladding of the structures had been robbed on their west sides, but they appeared much better preserved on their east sides. These photographs are important as they show the state of preservation of the monuments prior to restoration work by the Department of Antiquities.
**Tomb 1** had lost much of its north side before 1968, and much of surviving north wall may have been a rebuild, lacking large blocks of type used in the south side of the structure (and Tombs 2-5). **Tomb 2** was constructed to the south of and very closely abutting Tomb 1. The dome was still intact in 1968 although much of the stone cladding had been lost from the west side. The structure was primarily mudbrick with six courses of horizontally laid stone slabs framing an external stone cladding. The dome is ‘false corbelling’. **Tomb 3** was very similar to Tomb 2 using the same technique of stone cladding. Two windows are preserved in the lower west face and one on east side. **Tomb 4** differs from the other tombs with the presence of two arched niches in the north and east sides. There was also a narrow offset in the walls c.3.2 m above ground level. The niche on the north side indicates that this tomb predated Tomb 3 which otherwise blocks it. Fragments of wooden sill beams survived across the windows as well as across the angles on which the dome sat. The interior walls were plastered. Its slightly larger size and different elaboration might suggest that it was in fact the first tomb to be built (and must have some claim to be that of the founder of the dynasty, ‘Abd Allāh ibn al-Khaṭṭāb al-Hawwārī. **Tomb 5** was much decayed and had lost its dome and much of its superstructure by 1968. The lower exterior walls were largely rough stone, the interior mainly mudbrick. **Tomb 6** at the south end of the row was built entirely of mudbrick and was relatively intact in 1968. The arched heads of the two windows on the east and west sides were higher than the springing of the pendentive. Tomb 6, lacked the exterior stone cladding, but was otherwise identical in form to numbers 1-5. It was thought to perhaps have been the latest in the group and have been awaiting its outer facing when the dynasty of the Banū Khaṭṭāb came to an end. However, the AMS date obtained indicates a similar terminus post quem for this tomb as for tomb 1 and that both monuments were probably erected in the first century of Banū Khaṭṭāb rule (that is, by the early eleventh century). A plausible sequence of construction based on the physical proximity of the tombs to each other and the AMS dates is as follows: Tombs 4, then 3 and 5, then 2, then 1, then 6, with development starting in the centre of the line and working out to north and south and all tombs being built by the early eleventh century (though not necessarily all occupied by burials at the date?).

**Tomb 7** lies to the south-west of the main group of tombs. It was constructed in mudbricks, larger than those used in the other tombs, it stood much lower than Tombs 1-6. It is preserved to the level of base of dome c.3 m high. There is an arched door on the west side and small windows in the north, east and west sides. Several other mounds in this area probably mark other mudbrick tomb superstructures.

Recent excavations under the auspices of the Department of Antiquities have shown that the standing tombs are surrounded by an extensive cemetery of less monumental burials, with superficial surface structures.

**ZUL004**  **Qaṣr, enclosure**  **26°09.78/15°07.72**

Identified on air photographs, this is a fortified building (qaṣr) 300 m east of ZUL002 on the eastern edge of the open settlement (ZUL012). Despite its prominent remains there is no comment of it by either Daniels or Ziegert and it is possible that it had been levelled by the late 1960s. Hayes recorded a bag of wall sherds of Roman date that came from the ‘old qaṣr’
that may relate to this site. It had a rectangular core structure c.32 x 37 m across with towers at the corners and centre of walls, the entrance was likely on the south-east side. There is also an outer enclosure wall c.60-70 m across (0.47 ha). All standing remains of the site have been destroyed by the expansion of modern Zuwīla. The majority of rectangular qṣur of this type in southern Fazzān are dated to the Garamantian period (Sterry and Mattingly 2013).

ZUL005  Cemetery  26°09.60/15°07.03

A cemetery area c.2 km south of the town. The location of this cemetery is not clear from Daniels’ notes and it may be confused with another cemetery. It had been previously robbed and part-excavated? Sherds of imported pottery were found on the heavily disturbed surface (see below). These are probably the graves described by Ziegert (1969, Taf.IB).

ZUL006  Cemetery  26°09.51/15°07.59

Area of a cemetery (numbered as ZUL 1 or ‘eastern cemetery’ by Daniels), apparently where Ziegert also excavated. There are a number of excavated hollows that have evidently pierced a gypsum substratum. Local informants mention underground funerary chambers. Finds of Garamantian pottery suggest a pre-Islamic date. The area of gypsum crust is visible on satellite imagery, but no funerary chambers can be identified.

ZUL007  Field system  26°09.81/15°08.26

An area of c.630 ha is covered by field/garden boundaries and wells that are visible on both aerial photographs and satellite imagery. The expansion of both the town and agriculture of Zuwīla since 1958 have destroyed many of the remains. A small area of possible field/garden boundaries visible on the air photographs was inspected on the ground in 2001. These comprise low banks of heaped up earth and stones. Many of the enclosures have large well cuts in their centre, now all dry. There are few traces of associated buildings (though see ZUL010) and pottery is generally sparse (a few sherds of Garamantian and possibly Islamic pottery were recovered). The interpretation of these traces as marking the limits of abandoned gardens/fields appears confirmed.

ZUL008  Cemetery  26°09.71/15°07.47

Another cemetery area on a low mound to the south of Zuwīla reported by a local informant in 2001. It is possible that Ziegert excavated here. The site is now on the fringe of the built up area and is at critical risk from future development. No tombs are identifiable on either aerial photographs or satellite imagery.

ZUL009  Cemetery  26°09.57/15°07.36

Another cemetery area reported by a local informant on the south side of Zuwīla (Daniels numbering ZUL 2 or western cemetery). There is what appears to be a slightly raised mound with a subterranean chamber, cut into a thick gypsum strata here. Daniels recorded Roman fine ware (ARS), glass and beads here indicating a pre-Islamic date. The site is surrounded by
the expansion of Zuwīla and is at critical risk from future housing development. No tombs are identifiable on either aerial photographs or satellite imagery.

**ZUL010  Qaṣr, settlement, wall  26°10.52/15°07.13**

Situated c.2 km north-west of Zuwīla old town on the edge of the zone of gardens ZUL007, this site comprises the remains of a small tower-like qaṣr on the north corner and an enclosed settlement (in total covering at least 1 ha). The tower, in yellow mudbrick, stands c.8m high and is c.10 m square. There is a very deep well alongside the qaṣr. A large volume of Garamantian pottery (including handmade and amphora) and Islamic glazed wares was noted on the surface and a sample collected. The site now sits between two modern fields which have truncated its extent and is at severe risk from modern development.

**ZUL012  Open settlement, town  26°09.83/15°07.57**

On the 1958 aerial photographs there is an area of disturbance c.20 ha in area that stretches from the mosque (ZUL002) to the enclosed qaṣr (ZUL004). Within this area there are no field boundaries and only a few features that could be wells. The most southerly part of the area has several upstanding walls and just to the south of the mosque there are the walls of a large, rectangular structure. We can be confident that this is an area of mudbrick buildings and likely it is the same area described by Hornemann as the abandoned part of the town and may be the un-walled area described by al-Bakrī. Unfortunately this is the area into which modern Zuwīla has expanded and the only remaining part is the area directly south of the mosque. The remains of some mudbrick structures including part of the rectangular building are still visible in this area although they are likely badly damaged from construction and waste dumping and are under critical threat from further expansion. A selection of Roman finewares and glass analysed by Hayes c.a from this area indicating the Garamantian origin of the settlement although they do not provide resolution on its size. The settlement may have reached its maximum extent in the ninth to eleventh centuries.

**ZUL013  Foggara Group  26°09.42/15°06.81**

Group of c.10-15 foggara systems up to 1.3 km in length that flow from north to south, feeding into a slight depression c. 2 km south-west of the town, by a playa. The available DEM data indicate that these foggara channels could not have irrigated part of the field system (ZUL007). The channels are generally narrow with little spoil suggesting that they are not very deep. A Garamantian date is assumed on the basis of the predominant use of this form of irrigation technology at that period in Fazzān.

**ZUL014  Foggara Group  26°09.23/15°08.10**

Group of c.10-15 foggara systems up to 1.7 km in length that flow from north to south, feeding into a slight depression c. 2 km south-east of the town. The channels are generally narrow with little spoil suggesting that they are not very deep. A Garamantian date is
assumed on the basis of the predominant use of this form of irrigation technology at that period in Fazzān.

**ZUL015**  
**Depression linked with foggaras**  
26°08.80/15°06.80

The foggara groups ZUL013 and ZUL014 flow towards a large playa on the south-east edge of the Zuwīla oasis. Potentially this could have been a cultivated area of 100 ha or more, but no field boundaries are now visible.

**ZUL016**  
**Qaṣabah within ZUL001**  
26°10.08/15°07.71

The north-west corner of the walled enceinte at Zuwīla (ZUL001) is occupied by a fortified citadel (qaṣabah) of late medieval of Early Modern date. It reused and built on the original pisé walls and towers in this quarter, which were here higher than elsewhere around the enceinte, suggesting the presence from the start of an inner citadel or palace complex in this corner. The visible structure of the qaṣabah is probably a mixture of rebuilding and modification spanning its use as a garrison post by the Awlād Muḥammad, Ottoman and Italian rulers of Fazzān between the fifteenth and twentieth centuries. At some point, parts of the original enceinte to west and south of the qaṣabah were demolished to create an open area around the fort and with new areas of domestic housing laid out to north and east (ZUL018).

**ZUL017**  
**Early Modern main Mosque**  
26°10.06/15°07.73

The main Early Modern mosque of Zuwīla lies just to the east of the original fortified area ZUL001 and directly opposite the qaṣabah ZUL016. This was the Friday mosque by the time of the earliest European accounts of Zuwīla. In the 1960s local reports suggested the mosque was around 250 years old (Boxhall 1968, 27).

**ZUL018**  
**Early Modern suburbs of ZUL001**  
26°10.05/15°07.75

By 1958 and presumably sometime in the Ottoman period, the main urban centre had spilled over the pisé walls of ZUL001 to form 6 groups of mudbrick houses. It is not clear if these were ever occupied simultaneously as several observers commented on the numbers of abandoned dwellings and the small recorded population in the Italian censuses implies that much of the town was unoccupied. The main areas of housing remain largely visible today.

**ZUL019**  
**Enclosure wall on north side of ZUL018**  
26°10.14/15°07.72

Along the northern edge of the suburbs ZUL018 there is a small wall that runs between two groups of housing that restricts access into the town. This is unlikely to have served any serious defensive function.

**ZUL020**  
**Islamic cemetery**  
26°10.03/15°08.38

Located just to the north-west of ZUL003 this is a cemetery of several thousand tombs that appears to have been initially located within an enclosure of the field system ZUL007. The tombs are mostly supine burials laid out north to south in the Islamic tradition. However, the centre of the cemetery consists of several oval cairns and enclosures that appear to be the
oldest funerary structures present. The precise nature is unclear, but they may represent a transitional funerary form from the Garamantian drum tomb or some kind of funerary shrine. In the south-east corner of the cemetery is a small square structure that is probably a maqam tomb, a type common in Fazzân.

**ZUL021  Islamic cemetery  26°10.02/15°08.44**

Located directly north of ZUL003 and east of ZUL020 this is an extension of ZUL020 and clearly post-dates the construction of the field system ZUL007 as there are two abandoned wells in the centre of the cemetery. There are several thousand tombs, all are supine burials laid out on a north to south orientation and some are quite new indicating that the cemetery is probably still in use. On the southern edge there is a small square structure that is probably a marabout tomb.

**ZUL022  Islamic cemetery  26°9.89/15°07.90**

Located 500 m to the south-east of ZUL001, this is a large cemetery of several thousand tombs. The cemetery is laid out over the top of the field system ZUL007 and the remains of wells and mudbrick walls are clearly visible. It is probably of relatively recent date.

**Appendix 2. Finds from Zuwîla**

Only a small amount of ceramics has been studied from Zuwîla. John Hayes inspected a small assemblage collected in 1972. Two bags of surface finds included a mixture of imported Roman pottery, including fine ware (African Red slipware), coarse wares, a lamp, glass and glass beads. Charles Daniels collected ceramics from two cemeteries: ZUL006 and ZUL009, these were mostly a mixture of body sherds from handmade vessels but again with some imported wheelmade vessels (coarse ware and amphora). Finally, the Fazzân Project collected a small amount of surface ceramics from cemeteries ZUL006, ZUL007 and from the qaṣr ZUL010 (handmade, amphora and coarse wares were present at all three of these sites, with African Cooking Ware noted at ZUL006 and Glazed Ware at ZUL010. Together these finds demonstrate the presence of a community at Zuwîla with links to the Mediterranean from the first century onwards (Table 2).

Table 2: Diagnostic pottery and other finds reported from Zuwîla.

In general, these unsystematic collections focused on the Roman era finds because of the lack of historical attestation of the site at that time. Though it is regrettable that a larger collection of Islamic pottery was not made, notes on these visits indicate that Islamic glazed pottery was relatively common among surface material, certainly more so than at Jarma, where they made up only 0.03% of the ceramic assemblage (Mattingly 2013a: 326-333, 406-408). The five seasons of survey by the Fazzân Project only located 25 Islamic sherds and the reconnaissance survey in the Murzuq region also located only a few sherds from the medieval villages MZQ021 and HHG012, though again the urban centre of Murzuq has much larger quantities visible on the surface, possibly mainly of the Ottoman period (Sterry and Mattingly...
Islamic imports are rare finds at sites on the south side of the Sahara, as at Tadmekka (Nixon 2009) and Gao Saney (Cisse 2011: 178-179).) As Nixon (2009) has demonstrated with the evidence for Trans-Saharan gold trading at Tadmekka the lack of imported ceramics does not preclude major activity and trade at these medieval sites.

Appendix 3. Original Text of Gigliarelli 1931: 141

“È uno dei più antichi paesi del Fezzàn, ed ebbe il suo massimo sviluppo demografico e commerciale sotto la dinastia dei Bèni el-Chattàb, che la elessero capitale della regione ... Il paese, a forma quasi rettangolare, è costruito in un avvallamento del terreno completamente staccato dall’oasi. A nord ed a sud due catene di alture limitano la depressione a circa 6 chilometri da Zuila. In mezzo all’abitato si ergono i ruderi di un antico castello, di mura massicce, che vuolsi far risalire all’epoca romana; in realtà la sua pianta quadrangolare ricorda il castrum romano ma le pietre di cui è costruito non hanno la squadratura e la regolarità usata di solito dai romani per edifici di tale importanza. Attualmente anche questi resti sono pressoché scomparsi sotto una nuova costruzione adibita a caserma dei CC. RR. Più probabilmente romana è la costruzione del muro di cinta, di cui rimangono in piedi ancora alcuni tratti. L’epoca dei Bèni el-Chattàb è largamente ricordata, oltre che dalle rovine della grande moschea, dalle tombe di sultani di quella dinastia. Sono sette costruzioni allineate a forma di basse torri sormontate ciascuna da una cupola. Hanno aperture rettangolari disposte ad oriente e ad occidente, ed i blocchi di arenaria di cui sono formati si mostrano esattamente squadrati.”

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