

Laser-Scanning Shihrazad's Baths: 1001 Tales of Zanzibar Nights

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This paper presents the first archaeological survey of the ornate Kidichi baths on Zanzibar. The baths were built for or by Shihrazad, a wife of Zanzibar's nineteenth century ruler Said bin Sultan (1806–1856). Laser-scanning the ornate plaster stucco was used to clarify two inscriptions, the precise meaning of which had been lost. By combining archaeological survey results with historical research, and a translation of the inscriptions, a new narrative is presented in which the main protagonist is, unusually, female. Her story raises a host of questions relating to heritage, gender, religion and politics in modern-day Africa and beyond.

INTRODUCTION

The nineteenth-century Kidichi baths on the Island of Zanzibar are a legally protected historic monument, but surprisingly have never been recorded in detail beyond an unpublished tape and plane-table survey in 1984¹. The preliminary surveys conducted by the authors in June 2017, were undertaken as part of a Global Challenges Research Fund (GCRF) workshop to explore the threats facing tangible and intangible heritage in Africa, and the use of modern and ancient technologies to facilitate heritage engagement. The site was selected primarily as a convenient location to demonstrate a range of archaeological methodologies to invited workshop participants including ground penetrating radar (GPR), terrestrial laser scanning (TLS), unmanned aerial vehicle (UAV) and photogrammetry to promote understanding of their utility in African contexts. Given the international scope of the meeting, a short site summary was produced in conjunction with the Department of Antiquities to facilitate a site tour prior to the practical demonstrations and survey. In doing this and through surveying, it swiftly became apparent that information about the baths was disparate and limited. Numerous questions arose including, for example, the exact date of their construction. This was surprising given their recent age in archaeological terms; their mention as a key tourist attraction in numerous websites and popular books such as the ‘Lonely Planet’; and their use as a key stop during the ‘spice tours’ of Zanzibar that have proliferated since the late 1980s. This paper aims to redress this situation, provoke discussion about heritage construction, and present a fuller narrative based on new research as a basis for future research. Following a review of the site’s historical context, a summary of the scientific survey is presented. The materiality of the baths is then used to present a series of new interpretations which inform the historical narratives, before concluding with a consideration of the wider theoretical implications of this research.

ZANZIBAR: A CULTURAL ENTREPÔT

The island of Zanzibar (also known as Unguja) lies 40km off the coast of Africa, and is part of the United Republic of Tanzania (fig 1). It is known to have been populated since 40,000 BP, probably by Late Stone Age hunter-gatherers² and in recent years has become a popular tourist destination with the number of international visitors more than doubling since 2013 to over 350,000 by 2016.³ Excavations at Unguja Ukuu demonstrate that by the seventh century Zanzibar was part of a major

¹ Horton and Clark 1985.

² Shipton *et al* 2016; Prendergast *et al.* 2016.

³ Zanzibar Commission for Tourism.

maritime trading network connecting the peoples of eastern Africa, India, Oman and Persia.⁴ It is likely that Arab, Persian and Somali traders were living along the Zanzibar Channel at this time. Unguja Ukuu is also mentioned on a Fatimid map circa ACE 1060⁵ (fig 2). [INSERT fig 01 HERE] [INSERT fig 02 HERE]

The earliest surviving mosque on the island is located in the south, at Kizimkazi, with a dated mihrab of 1107CE (fig 3). Today the capital of Zanzibar is located in the Stonetown in the central west coast, and the oldest part, known as Shangani has its origins as Swahili settlement in the eleventh or early twelfth century. Zanzibar did not feature significantly in the Portuguese colonisation in East Africa, following the arrival of Vasco da Gama in 1498, until the establishment of a factory or trading post around 1571, and an Augustinian mission in 1612 that survived until the murder of the Vicar in 1694. The mission and the factory were taken over by the Arabs, who constructed a small fort reusing the old buildings. This fort became the centre of power for the emerging Busaidi clan who came to rule Oman and develop an East African coastal empire. Zanzibar became the centre of a vibrant trading network throughout this period and by 1810, up to 8000 slaves passed through Zanzibar.⁶ Trade (mostly ivory and slaves) increased during the reign of Said bin Sultan (1806–1856) (fig 4), alongside the creation of plantations of spices and coconuts. After initial visits in 1828 and 1830, Said relocated the sultanate's capital from Muscat to Zanzibar in 1832, moving there permanently in 1840.⁷ The indigenous ruler, or 'Mwinyi Mkuu', Mohammed bin Ahmed was exiled to the centre of the island where he built an African palace at Dunga in an Arab style⁸ (fig 5). He retained a degree of local authority power akin to that of a regional governor until the last Mwinyi Mkuu (Mohammed's son) died of smallpox and the line ended.⁹ [INSERT fig 03 HERE] [INSERT fig 04 HERE] [INSERT fig 05 HERE]

SAID BIN SULTAN AND SHIHRAZAD: THE HISTORICAL CONTEXT

The surviving range of Persian baths at Kidichi are the most ornate in Zanzibar, and are notable for their elaborate plaster stucco decoration. They once formed part of a nineteenth-century palace complex dating to the period of Said bin Sultan's rule (1804–1856) and were built for, or as argued here, by his third wife. The site of the palace has been lost, although the Zanzibar guide notes a

⁴ Horton and Clark 1985; Juma 2004; Wood *et al* 2017).

⁵ Rapoport and Savage-Smith 2014.

⁶ Sheriff 1987; Deutsch, 2006.

⁷ Sheriff 1987; Romero 2012.

⁸ Lyne 1905.

⁹ Longair 2015.

mound nearby that is reputed to be its site.¹⁰ No archaeological investigations have taken place at Kidichi.

Said bin Sultan was born in Samail, Oman in 1788 and was the second son of the Sultan of Muscat and Oman¹¹. He became joint ruler with his brother in 1804 and sole ruler in 1806¹². There are numerous sources of information about him including the remarkable 'Memoirs of an Arabian Princess from Zanzibar' originally published in 1888 by his daughter Salme who was born in Zanzibar in 1844 and spent her childhood years in the royal harem.¹³ Accounts of explorers, missionaries, seafarers, traders and politicians (eg two *Memoranda* written in 1842 by James Silk Buckingham, a journalist working for the East India Company¹⁴) often contain contradictory information especially concerning dates and names, but an overview of Said's personal life based on these various accounts was written by Romero.¹⁵

Said first visited Zanzibar when he was 11, had 3 free wives (*Harīno*), 75 secondary or slave wives (*Sarari*) at the time of his death, and once made an unsuccessful proposal to the Queen of Madagascar.¹⁶ Said's harem included numerous nationalities including women from Iran, India, Turkey, Ethiopia, Nubia, the Black Sea region (Cicassians) and presumably Swahili women. His 36 children were all from these Sarari, whose specific social and legal status are elucidated by Sheriff.¹⁷ The eldest of these were Hilal (b. ca. 1815) and Khalid (b. ca. 1819).¹⁸ Said was an Ibadi, fluent in Persian, Hindustani and Arabic, though on Zanzibar he insisted that only Arabic was spoken in his presence and his Sarari and children dressed in Arab fashion whatever their nationality.¹⁹ By most accounts he was a good looking but unaffected and modest man. He was described as generous, a brave but reluctant warrior, and loved horses keeping a fine stable of Arabian thoroughbreds. He travelled extensively during his lifetime, was an excellent seafarer and died in 1856 at sea.²⁰

Said's first wife, was his cousin, Azze, the daughter of Said's aunt, a politically powerful and influential woman, and Moza bint Azza bin Ahmed. Azze was Said's lifelong and most respected companion, whom he married sometime before 1825.²¹ Azze lived at the Mtoni Palace on Zanzibar (fig 1), and died before 20th July 1860 having had only one child who died young. She is described

¹⁰ Shelswell-White 1949.

¹¹ Romero 2012.

¹² Buyers 2013.

¹³ Ruete 2000.

¹⁴ Nicolini 2004.

¹⁵ Romero 2012.

¹⁶ Nicolini 2013, 154; Ruete 2000; Romero 2012, 385.

¹⁷ Sherif 2014.

¹⁸ Romero 2012; Sheriff 2014.

¹⁹ Reute 2002, 10; Romero 2012, 383.

²⁰ Romero 2012

²¹ Romero 2012; Buyers 2013.

as strict, regal and of noble manners.²² Said took a second legitimate wife in 1827 in Bandar Abbas, Iran. Sources vary but she was either the daughter²³ or a sister called Fatah, of Shahzada Muhammad Husain ‘Ali Mirza, *Tau’aman ul-Mulk, Farman Farma*, Governor-General of Fars and Governor of the Persian Gulf Ports.²⁴ Burton refers to her as the grand-daughter of Fath ‘Ali Shah Qajar of Persia (r 1797–1834).²⁵ The marriage was agreed on condition she could spend the summer with her family at Bandar Abbas or Shiraz, when not with her husband in Muscat; but following an argument in 1832 she never returned (ibid.). She subsequently wrote letters to her husband calling him a ‘Sunni dog’ and possibly suggesting that Said bin Sultan’s son Khalid had betrayed him in his own harem.²⁶ Ultimately they divorced. There is no record of her having visited Zanzibar.

There are also inconsistencies between sources about his third legitimate wife who is variously referred to as Shahruzad bin Irish Mirza bin Muhammed²⁷ or Binti Irich Mirza (nickname Shesade)²⁸ with both ‘Irish’ and ‘Irich’ appearing on the information boards at the Kidichi baths. This may be a phonetic spelling of the Persian name, ‘Iraj’, though Romero (using several sources) refers to her as Shihrazad bint Arish Mirza ibn Mohammed Shah, and states she was the granddaughter of Mohammed Shah. This is improbable as Mohammed Shah was not born until 1808,²⁹ so for her to be his granddaughter and of age to marry by 1847 (ie puberty³⁰), both her father and grandfather must have been siring children by their early teens. Interestingly Burton casts doubt on the genealogy stating that Irich Mirza was a ‘*suppositious* [emphasis added] son of Mohammed Shah, and hardly a second class noble’.³¹ Burton reports the arrival of Irich Mirza’s daughter, whom he does not name, in Zanzibar as 1849.³² An alternative explanation of her genealogy is given in SI 1.

Whatever her parentage, Shihrazad was considered Persian royalty, a member of the Qajar dynasty. Like Said’s second wife, she would have been a Shi’a. For Said, marrying a non-Ibadi was allowed, and especially when diplomatic or trade relations could be improved by such a match.³³ Shihrazad came from Shiraz which was a well-established centre of learning, poetry, music and the

²² Burton 1872, 309; Ruete 2000.

²³ Buyers 2013

²⁴ Romero 2012; Buyers 2013.

²⁵ Burton 1872; Amandat 1997; Nicolini 2004, 99; Buyers 2015.

²⁶ Nicolini 2004, 99; Hamilton, 1957, 71.

²⁷ Buckingham in Nicolini 2004, 99.

²⁸ Hamilton 1957, 72.

²⁹ Amanat 1997.

³⁰ Tucker 1995, 237.

³¹ Burton 1872, 302.

³² Burton 1872, 302.

³³ Romero 2012.

arts,³⁴ and her arrival on Zanzibar in 1847 or 1849 was certainly dramatic. Her entourage included her groom, carpet spreaders and private executioner.³⁵ Burton wrote:

She astonished the Arabs by her free use of the dagger whilst her intense relish of seeing her people ride men down in the bazar, and of superintending bastinadoes administered with Persian apparatus, made the Banyans crouch in their shops with veiled faces, and the Arabs thank Allah that their women were not like those of the A'ajám.³⁶

In accordance with Persian tradition, Said gave his third free wife her own rooms in a new palace, Bet il Tani, which was connected by a suspension bridge (over the *hammam* or 'steam baths') to Bet il Sahel. Both these palaces were in Shangani. Salme never met Shihrazad, but when she was 9 she was moved to Bet il Tani and was told that the upper floors were once occupied by a woman of 'entrancing beauty' who hunted with her retinue of 150 Persian horsemen.³⁷ That Shihrazad rode is not unusual. Salme herself was taught to ride and to shoot by her brother. What was shocking was that Shihrazad rode in broad daylight, with her male entourage and hunted which was unheard of for Omani or Zanzibari women at this time.³⁸ Salme wrote:

The Persian women are subjected to quite a Spartan training in bodily exercise; they enjoy great liberty, much more so than Arab women, but they are also much more rude in mind and action.³⁹

Shihrazad's first stand against her husband was in refusing to adopt Arab dress, refusing to veil, and continuing to wear the Persian style. This vibrant, wild, horse-riding, hunting bride must have been a stark contrast to Azze who was seldom seen outside her palaces⁴⁰, but Shihrazad's behavior would probably not have been that unusual for a woman of her class in Persia. For example, Jayran, a favourite slave wife of the Persian Qajar Shah, Nasir al Din (r 1848–1896), hunted and rode with her face-cover wrapped around her head.⁴¹ Sheriff argues that in the mid-nineteenth century, sea travel would have been one of the most common ways of moving around the island as the streets in Shangani were filthy and there were no proper roads.⁴² From a practical perspective, if Shihrazad wanted to explore the island, probably one of the easiest ways would have been on horseback.

Like all royal women from Persia, Oman and Zanzibar at this time, Shihrazad was richly jeweled. Her clothes would have included fine embroidered silk and she would have worn loose

³⁴ Farahani *et al* 2015.

³⁵ Burton 1872.

³⁶ Burton 1872, 303.

³⁷ Reute 2000, 44.

³⁸ Ruete 2000; Romero 2012.

³⁹ Reute 2000, 44.

⁴⁰ Reute 2000.

⁴¹ Nashat 2004, 54.

⁴² Sheriff 2014

trousers that were the fashion in Persia. Salme records an anecdote that Shihrazad's clothes were covered with pearls, and that these were collected by the servants when they dropped off, but which Shihrazad refused to take back.⁴³ Shihrazad did not have any children, (though she was kind to the children in the harem) and she may never have had sexual relations with her 59 year old husband.⁴⁴ Her date of birth is not known, but it is likely she was in her late teens or early 20s.⁴⁵ The impression that emerges from the descriptions of Shihrazad is of a beautiful, imperious, rather bored, but demanding young woman.⁴⁶

Salme writes that Shihrazad was enormously extravagant, 'wantonly draining' Said's exchequer. However it was not these excesses of expenditure that led to the break-up of the marriage by 1850. The details are unclear, but it has been repeatedly suggested that Shihrazad fell in love with, or engaged in a relationship with Said's eldest son, Hilal who would have been about 33 and was reputedly handsome.⁴⁷ Romero suggests that alcohol may have been involved; for though alcohol was forbidden by the Quran, Hilal had become accustomed to drinking with the French Consul at Zanzibar, and was disinherited by his father in 1844 for alcoholism.⁴⁸ Alternative explanations concerning Hilal's disinheritance suggest that he had violated his father's harem, but it is also possible this was a malicious rumour deliberately spread by his aunt, to promote the second son Khalid.⁴⁹

In 1845 Hilal travelled in secret to England to petition the British government to intercede on his behalf.⁵⁰ The British government wrote to Said requesting him to restore Hilal to favour, but this only served to annoy Said who then exiled his son in 1849.⁵¹ Whether Hilal's disinheritance is related to a dalliance with Shihrazad, or whether the combination of a beautiful and energetic princess, and an alcoholic, handsome prince simply proved a powerful source of inspiration for rumour-mongering and politicking in the harem (and beyond), remains unknown. By 1850, both Shihrazad and Hilal had left Zanzibar, to Shiraz and Muscat respectively.

By 1851, Hilal was dead, according to a Frenchman Guillain, writing at the time, 'of a long disease said to be caused by sorrow'.⁵² Said divorced Shihrazad, which was permissible by law, though it would have required Said to pay the bridewealth to her in full, (an important asset to a divorced or widowed woman) and would probably have required her father's permission to return to

⁴³ Reute 2000

⁴⁴ Romero 2012, though see Nashat 2004.

⁴⁵ Nashat 2004, 40

⁴⁶ Hamilton 1957.

⁴⁷ Romero 2012, 388.

⁴⁸ Reda Bhacker 1991.

⁴⁹ Reda Bhacker 1991.

⁵⁰ Reda Bhacker 1991.

⁵¹ Reda Bhacker 1991.

⁵² Reda Bhacker 1991.

his court.⁵³ Said was obliged to spend much of his time moving back and forth to maintain governance particularly between Bandar Abbas in the Gulf, the port of Gwandar on the Arabian Sea and Zanzibar⁵⁴. Said went away to settle affairs at Suhar returning to Zanzibar in 1852, but left again in 1854 in part to settle a dispute with Persia.⁵⁵ The last written record of Shihrazad relates to these journeys. Salme mentions rumours that Said saw Shihrazad at Bandar Abbas fort in 1854, where she was leading troops and where she took aim at members of the family herself.⁵⁶ Once again whether there is any truth in these rumours is unclear.

KIDICHI BATHS: TOPOGRAPHIC AND ARCHAEOLOGICAL CONTEXT

Kidichi baths lie to the northeast of Zanzibar Town, about 4km inland from the main coast road, in the island's main clove and coconut plantation area (fig 1; fig 6). Further along the road, is another set of baths at Kizimbani, very similar to Kidichi in design, though they lack the same stucco decoration and contain an additional room and more elaborate entrance. The date of construction is presumed to be similar to Kidichi but again no archaeological research has been done here. Sources vary concerning who built the Kidichi baths. Some say Said built them for Shihrazad, whilst others suggest Shihrazad had the baths built both at Kidichi, and at Kizimbani. She is certainly recorded as having brought craftsmen from Persia especially to decorate them⁵⁷ and she may have introduced the fashion for Persian bathing among the Arab élite in Zanzibar. As a royal bride, she would have had the power and funds to undertake such a task.⁵⁸ [INSERT fig 06 HERE]

Kidichi is located on a ridge, and was therefore a little cooler and commanded views down to the coast. The baths form a long corridor, with toilets at one end, and a series of rooms ending in the hot bath at the other end. This was heated by an external furnace that would have been operated by slaves. The plasterwork is exceptional, and includes representations of foliage and birds. The information board at Kidichi indicates that a date of 1247 AH (ACE 1832) is inscribed in the plasterwork suggesting the baths may have been constructed prior to Shihrazad and Said's marriage. No date was immediately obvious in the plasterwork, and although text was visible, no-one could read it as it was written in an 'old' text.

KIDICHI BATHS: SURVEY METHODOLOGY AND RESULTS

⁵³ Keddie 2006, 30–31; Nashat 2004, 40; Romero 2012, 380.

⁵⁴ McDow 2018.

⁵⁵ McDow 2018.

⁵⁶ Reute 2000, 44.

⁵⁷ Farsi 1986.

⁵⁸ Nashat 2004.

During the workshop in June 2017, several surveys were completed, the technical details of which may be found in S2. Geospatial control was established using a differential global positioning system (GPS) to which other surveys were related. Unmanned Aerial Vehicle (UAV) survey, often referred to as drone survey, is a method of collecting geomatics and other imagery aerially to provide information not visible from the ground. The results of the UAV survey show the extent of the baths, and the increasing encroachment of cultivation and building on the monument (fig 7). The situation is worse at Kizimbani with maize cultivation directly in front of the baths (LSB pers obs 2017).

[INSERT fig 07 HERE]

Ground Penetrating Radar (GPR) is a non-destructive method of geophysical survey that can be used to map subsurface archaeological features. Fig 7 shows the GPR area surveyed to determine whether further structures could be identified but the results were inconclusive. However, one of the workshop participants, Father Patrick Devine, noticed a small part of an old building nearby (fig 8) in an area with clear views down to the sea, and near a very large, old tree. This area has been developed in recent years, so if this was the location of a palace or other buildings associated with the baths, it is likely that modern building has destroyed them. [INSERT fig 08 HERE]

Digital photogrammetry is when overlapping photographs of an object, structure, or space, are taken and geometric information obtained by processing measurements and imagery through computational models. This allows the creation of 2D or 3D digital models. Limited photogrammetry was undertaken inside the baths, but due to the high humidity, echoing acoustic, and confined space most of the photogrammetry demonstration occurred outside. As the results are not methodologically or theoretically significant they are not presented here, although this low-cost approach may be useful in future research. General photographs were also taken.

The external plan form and wider context of the site had been surveyed using the plane table and UAV survey, so the Terrestrial Laser Scan (TLS) survey focused primarily on capturing the internal form of the baths. TLS survey is a method of geodetic imaging, which permits 3D digital recording of topographic and other surfaces, (including vegetation, and cultural objects) at sub-centimetre resolution. By active scanning with a laser, clouds of points are generated from the surfaces it hits, each of which has an x, y and z co-ordinate. These point clouds can be combined and manipulated to generate high resolution models, cross sections, measurements, 3D dynamic fly throughs and 2D outputs. Typically scanners simultaneously take photographs or videos which then allow the point clouds or models generated from them to be realistically coloured.

The toilet block was not scanned internally, but the ornate plaster stucco work inside the first bath-room (BR1) was captured in detail at high resolution with photographs using the Leica P40 TLS. The vestibule linking the main baths, V1, and BR2 and BR3 were also scanned at high

resolution but without photographs due to time constraints and fading light. Part of the rationale for the internal TLS survey was that the inside of the baths had very recently been whitewashed with a thick layer of paint, presumably to address the issue of mould growing on the stucco work reported in several of the travel guides since 2006 and still visible, especially in BR3. Who had authorized and paid for the painting was not clear, but the stucco relief and clarity had been significantly reduced as a result.

The laser scan allowed the rapid acquisition of point clouds fully georeferenced in real world co-ordinates via the differential GPS control points. When manipulated in relevant software, ‘Cyclone’, the rapid creation of cross sections, novel view-points and precise measurements becomes possible. This would take days of work using more traditional survey methodologies. The method of survey is of value in that it also permits the remote interpretation of data (though admittedly only to those with appropriate software); and more widely, when the data are disseminated in readily accessible digital or hardcopy formats. Nonetheless it should be emphasized that any remote sensing data is best interpreted in conjunction with extended ground-truthing and first-hand observation and discussion. The length of time it takes to process and interpret data depends largely on the questions being asked and desired outputs; and the questions often change and proliferate as the data are explored. Analysis of the Kidichi TLS data are a case in point, so results focus on a limited range of observations and interpretations based on a preliminary analysis of the dataset.

The wider extent of the point cloud is shown in fig 9. This shows that the scan incorporated the external wall of the baths and some parts of the external dome. The main scanning focus was inside the bath rooms (BR), but generating cross sections through the areas which had captured both the internal and external surfaces, allowed the precise measurement of the wall and dome thickness. fig 10 shows the BR1 dome thickness to be 430 mm in the area of the vent shaft, and the distance between the external wall surface and the internal wall at the same level in BR1 to be c. 600 mm. Fig 10 also illustrates well, the precision and symmetry of the construction, and that the floor level inside the baths is below ground level. The entrance vestibule (EV) is reached by descending 2 steps.

[INSERT fig 09 HERE] [INSERT fig 10 HERE]

The walls of all rooms were examined for text. Two instances were found in the BR1 which is the most ornate room. On entering the room, the text is directly ahead of the observer, above the door into the next vestibule (V1). To the observer’s right, there is a seat with 3 niches underneath and elaborate decoration above the seat. The second cartouche containing text is at the top of this panel (fig 11). [INSERT fig 11 HERE] On entering BR2 from BR1 the observer is struck by the decrease in the quantity of decoration. No text is immediately apparent and the whitewashing in this room was not as thick as in BR1. Large areas of wall are undecorated and several large areas have blank cartouche panels. Turning back to face the doorway from V1, a panel of writing is found at the

top of the wall/base of the dome (fig 12). [INSERT fig 12 HERE] Adjacent to the V1 entrance is a second entrance leading to a small room (Room 2a), currently used to store the jerry cans of whitewash. All the script was indecipherable to readers of modern Arabic and their meaning had faded from local memory.

BR3 is not separated from BR1 by a vestibule but accessed via 3 steps under an arch, the underside of which is richly and symmetrically decorated with images contained within stylised cypress tree motifs (DA in fig 13). The dome of the ceiling in BR3 has some simple decoration but is otherwise plain. The room has a circular deep well in the floor and is built up on the western side to form a bath. The ceilings of the three rooms are each slightly different in form as can be seen from the side and plan views (fig 13). All three domes have a single central 'Jakhaneh'⁵⁹ as well as angled tunnel vents on their western and eastern sides. BR3 has southerly links to the furnace area. [INSERT fig 13 HERE]

INTERPRETATION AND DISCUSSION

Structure and Function

Islamic society took over the idea of public baths (hammam) from Byzantines, (and ultimately the Romans).⁶⁰ Examples are known from the early eighth century, of which the most famous, Qusayr Amra in Jordan, is extensively decorated with Persian-inspired mural paintings.⁶¹ Bath-houses are generally rare between the ninth and twelfth centuries, but the idea was revived by the Ayyubids in the thirteenth century. These baths used a central flue as heating rather than classical hypocausts, and the plan evolved as a central warm room, from which side rooms led. By the eighteenth century the central room, which was generally octagonal in plan, became the main focus of the baths particularly in the Ottoman world. Baths were often associated with female bathing and sociability, as was observed by foreign travelers to Istanbul, Aleppo and Damascus such as Lady Mary Montague.⁶²

In Iran, the notion that purity of the body and soul is closely associated with washing, has great antiquity. Hejazi and Saradj argued that evidence of washing ceremonies can be traced back to a time before Zoroaster.⁶³ Islam also emphasises the importance of washing and ablution before each

⁵⁹ Saremi and Gorji 2015, 52.

⁶⁰ Peterson 1996, 107.

⁶¹ Creswell and Allen 1989, 105-17.

⁶² For example in her letter 26, written 1717, 'I fancy it would have very much improved his art, to see so many fine women naked, in different postures, some in conversation, some working, others drinking coffee or sherbet, and many negligently lying on their cushions, while their slaves (generally pretty girls of seventeen or eighteen) were employed in braiding their hair in several pretty fancies. In short, 'tis the women's coffee-house, where all the news of the town is told, scandal invented, &c.' Montagu, 1790.

⁶³ Hejazi and Saradj 2014, 91

of the five times for prayer, such that public baths became widespread in Iran with complex designs, improved construction methods emerging during the Seljuk (ACE 1000–1157) and Safavid (ACE 1491–1722) periods.⁶⁴ Of particular relevance here is the Hammam i-Vakil (c. 1776) built in the royal quarter of Shiraz which can still be seen today, and like Ottoman baths has a central warm room (fig 14). It is likely that Shihrazad and her craftsman would have been familiar with its beautiful interior, and possible that elements of the design of these baths inspired the much smaller ones on Kidichi, although the plan there is based on a succession of rooms rather than a central warm room. [INSERT fig 14 HERE]

By the twentieth century the use of traditional public baths discontinued, with private baths becoming more popular.⁶⁵ On Zanzibar the opposite occurred. The Hamamni baths in Shangani were built during the reign of Sayyid Barghash (r. 1870-1888) and subsequently became a public bath.⁶⁶ Kidichi baths are comparatively small in size, and although the number of toilets indicate they were part of a larger palace complex, the baths were probably designed for private use by a limited number of people. They are likely to have functioned in a similar way to the Hamamni described by Rajabi⁶⁷ with fabric covering the doorways, and specific areas and rooms reserved for particular activities such as eating, massage and shaving, as well as for ablutions. In Persia, winter and summer palaces were common for the wealthy.⁶⁸ Although Azze remained at Mtoni, Shihrazad may well have felt her status entitled her to two palaces and it's easy to imagine such a free-spirited woman desiring a retreat from the claustrophobia of Shangani and prying eyes.

In Persia, baths were carefully designed to control the temperature and moisture in each room and were generally divided into 3 parts: 1-semi hot and semi humid 2-hot and humid 3-very hot and very humid.⁶⁹ The Kidichi baths conform in part to the Persian plan but BR2 and BR3 are not connected via an indirect tunnel or vestibule.⁷⁰ From an engineering perspective the flow of water and heat was critical to ensuring the heat gradient was not too drastic between rooms and to ensure sewage was washed away. In Persia, fuel would have been burned both to heat water, and the floors of the baths. This would have been necessary in Iran, where temperatures drop to freezing during the winter, but in Zanzibar, the temperature range is consistently between 20–30°C with high humidity. It was beyond the scope of this research, but it would be interesting to compare the architectural design and engineering of the baths to see whether compensations were made for the local conditions in Zanzibar, particularly with respect to air flow, and the degree to which local construction

⁶⁴ Hejazi and Saradj 2014

⁶⁵ Hejazi and Saradj 2014.

⁶⁶ Rajabi 1959.

⁶⁷ Rajabi 1959.

⁶⁸ Scarce 1986.

⁶⁹ Ghobadian, 2006.

⁷⁰ Ghobadian, 2006.

techniques were incorporated in the design. Qajar art is characterized by an exuberant style and flamboyant use of color.⁷¹ Many public baths dating to this period in Iran are tiled and are brightly coloured. There is no evidence of tiling at Kidichi, but it seems highly likely given the vibrant colours found in most Qajar art and the large blank panels in BR2, that the plasterwork may have been painted to highlight and supplement specific elements.

From as early as ACE 900, geometry has been used to communicate ideas, instructions and to send messages using the abjad numerological system.⁷² The design and structure of Kidichi is full of meaning. There are 8 domes in total, a number that is associated with heaven in the same way that 7 is associated with hell.⁷³ The dome itself was considered as the infinite unity of centrality. Domes were symbolically important because they solidified and joined 4 sided chambers, which represented the 4 natures of human beings.⁷⁴ Pre-Islamic domes often figured paradise, and the house of God (heaven).⁷⁵ The morphology of domes changes through time but further analyses are needed to relate Kidichi to these developments. Variation in thickness of the dome and the wall would be a key part in determining this (fig 10), and also whether interconnecting wooden struts were been used between the inner and outer shell.⁷⁶

Looking at the ceiling plan of each of the domes some key differences can be seen (fig 14). In BR1, the Jakhaneh has 8 sides, referencing heaven. From this central point expands highly decorative stucco work featuring birds and flowers within a 12-pointed star. 12-pointed stars are known on Kharraqan tombs in Iran as early as the eleventh century⁷⁷ but at Kidichi the reference is most likely to be to Twelvers. This term describes the largest branch of Shia Islam and each of the 12 points represent the spiritual and political successors of the prophet Mohammed. The association with prophets is further emphasized with the presence of a rose at the tip of each point (discussed below). Twelvers are virtuous humans who rule with justice and are able to interpret the esoteric meaning of the Quran. In BR2, the Jakhaneh evolves into an 8 pointed star and in BR3 the points grow so that it resembles a sun and heaven, as well as being a metaphor for the increasing heat between the three baths rooms. The number 8 is also associated with wind, so the location of this 8 sided shape between the two ventilation shafts in the dome again consolidates and emphasises the meaning.⁷⁸ In producing a repeated star shape in a dome, other geometric patterns are created, and like domes they have meanings and change through time. It is beyond the scope of this paper to

⁷¹ Scarce 1986.

⁷² Burrows 2012.

⁷³ Alavijeh 2013.

⁷⁴ Ashkan and Ahmad, 2009.

⁷⁵ Ashkan and Ahmad, 2009.

⁷⁶ Ashkan and Ahmand 2009, 112.

⁷⁷ Lee 1987, 189.

⁷⁸ Shahidi 2010.

explore the quantities of motifs, and minor differences between the dome ceilings at Kidichi; but because in abjad, the numbers of sides of polygons, rosettes and other design forms encode meanings, and the numbers alone can be symbolic, it is likely that continued research will reveal additional meanings.⁷⁹

Design Imagery

Much of the imagery at Kidichi is of plants, flowers and birds. This naturalistic theme, whilst common in Qajar art⁸⁰ has deep roots in Iranian culture, is highly symbolic and representative of paradise.⁸¹ It is no co-incidence this was chosen to decorate a building designed for bathing. The Persian garden was considered as an image of paradise on earth, and in ancient Iran the scarcity of water rendered it particularly significant. It was a central element in Persian gardens, and culture.⁸² Anahita was considered by Zoroastrians as the goddess of all waters, and had the power of purification and of life-giving. Water remained of central importance with the rise of Islam in Iran, as a means of cleaning and purification. The Quran describes paradise as a garden beneath which the rivers flow⁸³ and the Iranian garden may be considered a canal towards the most inner layers of thought and dream, inextricably bound with the Persian philosophy of life and divinity.⁸⁴ In addition, Shihrazad's home town of Shiraz was considered a 'City of Gardens'.⁸⁵

Flowers and birds are common in all the decorated panels at Kidichi. Examination of the Kidichi panels reveals a range of different forms which include roses, pomegranate flowers, lotus flowers and almond tree flowers (fig 15). [INSERT fig 15 HERE] This bird-flower theme is traditional, known in both Persian painting and poetry since the pre-Safavid era (ca. ACE 710–1501).⁸⁶ The theme was popular due to its earthly and divine meanings and because of its stylistic versatility.⁸⁷ A sub-theme known as *gol o bolbol* which focusses on the rose and the nightingale, was the principal decorative subject of the Safavid (1501–1722) and Qajar (1785–1925) eras and was applied to many objects from ceramics to carpets, woodwork to manuscripts.⁸⁸ In the Safavid period roses symbolized courtly elegance, refinement and idealized beauty and in the seventeenth century, Persia was known for its magnificent gardens and horticultural prowess. By the late Qajar period,

⁷⁹ Abdullahi and Rashid bin Emi 2013.

⁸⁰ Scarce 1986.

⁸¹ Diba 2001.

⁸² Shahidi *et al* 2010.

⁸³ Farahani *et al* 2016.

⁸⁴ Shahidi *et al* 2010.

⁸⁵ Farahani *et al* 2015.

⁸⁶ Scarce 1986; Diba 2001.

⁸⁷ Diba 2001.

⁸⁸ Diba 2001.

the rose and nightingale theme had become so dominant, it became synonymous with the land of Persia and its culture, with Shiraz playing a key role in this development.⁸⁹ Roses were also associated with the Prophet Mohammad who was said to have created the rose from a drop of his perspiration.⁹⁰

Diba suggests that the enduring popularity of the rose may also be linked to the socio-economic importance of rose petals and rose water, noting that rosewater is a common ingredient in Persian sweets, sherberts and preserves.⁹¹ On Zanzibar, the use of rose petals and an attar of roses for use in the hair, as well as the consumption of sweets is recorded by Salme.⁹² In her description of bathing at Mtoni Salme describes regular massages; clothes and bathwater strewn with jasmine and orange blossom; and clothes being scented with amber and musk.⁹³

Stylised cypress trees are also present in the detail at Kidichi. These trees are representative of eternal life that comes after death, and later become stylized into the paisley design commonly seen in kanga patterns today.⁹⁴ Due to their ability to survive and remain green in very dry climates, they are a symbol of agelessness and longevity and in Persian culture were sometimes included in dowries.⁹⁵ In the design of Persian gardens they often border watercourses that divide the garden into plots, and here they are being used in the decorative archway (DA) that divides BR2 from BR3.⁹⁶ Similarly, the flowering almond was seen as a symbol of regeneration of the earth and the date palm as a source of year-round sustenance.⁹⁷ A huge almond tree continues to flourish directly outside Kidichi and it would be interesting to explore whether particular species were planted in the immediate vicinity of the baths for practical purposes. Stylised palm fronds are also identifiable.⁹⁸

It's likely that many of these plants (like baths) gained significance not only because of their scents and visual beauty, but also due to their medicinal properties. For example, pomegranate flowers have been used historically for a range of medicinal purposes including the treatment of diarrhea, ulcers and hypertension; and cypress oil is known to have antioxidant and anti-inflammatory properties.⁹⁹ If the streets of Stone Town and Darajani Creek (fig 1) were as dirty as reported in travellers' accounts, and the risk of disease as feared as Salme suggests, then it is

⁸⁹ Diba 2001.

⁹⁰ Diba 2001.

⁹¹ Diba 2001.

⁹² Ruete 2000, 53 and 162

⁹³ Reute 2000, 51.

⁹⁴ Boswell 2006.

⁹⁵ Dehkordi, 2015.

⁹⁶ Farahani *et al* 2016.

⁹⁷ Farahani *et al* 2016.

⁹⁸ Kamizi *et al* 2014.

⁹⁹ Destryana *et al* 2014.

unsurprising that baths became popular.¹⁰⁰ There were respected traditional healers on Zanzibar, but no physician until 1866¹⁰¹.

At least 3 types of bird are shown in the Kidichi baths and their size is disproportionate to the foliage that surrounds them. In BR1, there is a frieze around the Jakhaneh of peafowl facing each other, either side of a stylized vase of profuse blossoms. The shape of the vase which is very similar to a samovar (a container traditionally used to heat water). This image of animals facing each other with the tree of life between them can be found in a variety of myths religions and symbolisms.¹⁰² The placement of peafowl near the tree of life indicates them as guardians and the symbology is related to growth, fertility and heaven.¹⁰³ The rooting of the tree in a vase is to suggest the elixir of mortality and the vase symbolises ascension and the divine threat, or sometimes, the myth of creation of the cosmos.¹⁰⁴ In ancient Iran peacocks were representative of man's dual psychic nature, and they drew their life force from the principle of unity.¹⁰⁵ This notion of unity is consolidated by their positioning on the dome (discussed above). They were also associated with royalty and associated with the sun.

A Sufi legend suggests that a peacock sweated when shown its own divine image in a mirror. The drops that fell from its brow caused all other beings to be created.¹⁰⁶ This resonates with the story of Prophet Mohammed's sweat yielding a rose, as well as the famous Conference of the Birds by the Persian poet, Farid ud-Din Attar. Since this would be the coolest of the three rooms, it may be that when the baths were in use water would have condensed on the ceiling and walls, and that the metaphor became a physical reality with drops falling, or running down the wall from the peacocks' brows. In Islam the spreading tail of the peacock was a symbol of the dual aspects of light; both the full moon and the midday sun, and symbolizes the cosmic deployment of spirit.¹⁰⁷ Its powerful symmetry and beautiful colours mean it was a popular and enduring symbol in both Persia and in Islamic art more widely. Salme writes about the peacocks at Mtoni, so they were physically present on Zanzibar and in Said's palaces at this time. The frieze is likely to be referencing the 12 prophets as discussed above especially as each pair of peafowl is accompanied by a rose. The design is very similar to the royal tent made for Muhammed Shah.¹⁰⁸

¹⁰⁰ Saremi and Gorji 2015.

¹⁰¹ 'Sir John Kirk, G.C.M.G., K.C.B., F.R.S.' 1922.

¹⁰² Kamizi *et al* 2014.

¹⁰³ Kamizi *et al* 2014.

¹⁰⁴ Kamizi *et al* 2014.

¹⁰⁵ Weneress 2003, 320.

¹⁰⁶ Weneress 2003.

¹⁰⁷ Weneress 2003.

¹⁰⁸ Arlene and Arthur, 2015.

The peafowl are shown from a combined profile and oblique-frontal perspective, with the heads of the birds extending disproportionately above the fanned train feathers, and with the wing tips protruding at the rear beyond the fan. The depictions are clearly of displaying peafowl. Displaying occurs most commonly during courtship by both peacocks and peahens. With peacocks the wing tips are only clearly visible in profile when the train is fully extended and arches forward. The globular tips to the train feathers in the stucco work may represent train feather eyespots only present on peacocks, but these are not especially clear. Overall the proportion of the fan in relation to the body is much closer to a females' fanned train feathers. This raises the intriguing possibility that these peafowl may be depictions of peahens rather than peacocks. The other birds seen in the Kidichi plasterwork are, unsurprisingly, the nightingale which seems to be looking over its shoulder at the peacock in several panels (fig 16) and in BR2 sun birds drinking nectar (fig 15). The reference to birds drinking in this particular room, is related to the transcription of the text. **[INSERT fig 16 HERE]**

Text

The reason that no-one could read the inscriptions in BR1 is that although the text is Arabic, it was written in نستعليق or Nasta'liq (Persian: نستعلیق, from نسخ Naskh and تعليق Ta'liq). This is a type of calligraphic hand commonly used in writing the Persian script, and developed in Iran in the fourteenth and fifteenth centuries, but is sometimes used to write Arabic language text. Court poets and calligraphers were returning to earlier classical styles for inspiration during the Qajar period, and the Vesal (or Visal) family of Shiraz were masters of revival Nasta'liq scripts.¹⁰⁹ There were three generations of artists in the family. Both inscriptions in BR1 are the same and translate as 'Help from God and victory is coming soon' which is a phrase from the Quran (fig 11). Interestingly the same phrase is found on a nineteenth century canvas thought to have decorated the ceiling of a royal Persian palace, now housed in the Doris Duke Foundation for Islamic Art (DDFIA) collection, (Shangri La Museum, Honolulu, Hawaii, object 34.9) (DDFIA 2012). This painting includes the standard Persian motif of a female sun and additional cartouches and arabesques decorated with floral patterns birds and landscapes (DDFIA 2012). The Quranic inscription on the painting is translated as 'Help from God and a speedy victory' (61:13). This demonstrates that the choice of text in conjunction with the broader design theme was not unique, and would have been familiar to Shihrazad and her master craftsmen from multiple media in Persia.

¹⁰⁹ Ekhtiar and Sardar 2000.

The text in BR2 is particularly interesting being a poem written in Persian (fig 12). It includes the words خوشست which means happiness and ساقی which means 'sāqī' or 'wine-bearer'. The poem translates thus:

The rosie wine's a joy,
Served next to the fire,
Hunt's meat grilling,
And thy woman filled with desire.

It has not yet been possible to find the author of this poem. The famous fourteenth century poet Hafez of Shiraz wrote on similar themes but equally, it could be a nineteenth century poet of the bazgasht or 'return' literature movement.¹¹⁰ There also remains a possibility that the poem contains a date, through an alpha-numeric coding system known as abjad but initial attempts at 'translating' the poem for a date have not been conclusive. Abjad numerals are a decimal numeral system in which the 28 letters of the Arabic alphabet are assigned numerical values. Not only is this science of letters concerned with the numerological aspect of letters, but also with the study of the shapes of letters and their cosmological significance. The poem is also layered with meanings. Shihrazad's name in Persian is شهرزاد. In Arabic, if her name is شهرزاد then, using abjad, it means, 'woman filled with desire'.

The reference to alcohol is interesting because historically, most Muslims and particularly women, did not drink.¹¹¹ However the word alcohol is derived from the Arabic 'al-kohl', which refers to antimony used to darken the eyes, and Iranians are known to have developed the distilling process early.¹¹² From the tenth century wine drinking was closely associated with the theme of love, as well as being associated with loyalty and trust.¹¹³ Matthee explores the many examples of alcohol consumption in Muslim countries through history, particularly with respect to rulers and elites, including Persia.¹¹⁴ He notes that in the Qajar period alcohol consumption amongst the elite continued, and included drinking parties; but that Iranians also associated alcohol with European sexual debauchery and in an attempt to establish religious credibility, many adopted sobriety or moved drinking to private places.¹¹⁵

According to Salme, Shihrazad definitely broke the rules in Said's household, and made him so angry that it was only the actions of a faithful servant Nubi, that prevented him from a terrible crime against his young wife.¹¹⁶ It is reasonable to assume that Shihrazad was sexually informed to

¹¹⁰ Ekhtiar and Sardar 2000.

¹¹¹ Matthee 2014.

¹¹² Matthee 2014.

¹¹³ Gruber 2013, 217.

¹¹⁴ Matthee 2009; 2014.

¹¹⁵ Matthee 2009; 2014.

¹¹⁶ Ruete, 2000.

some degree, as an early nineteenth century treatise by educated upper class women was in circulation at this time which explained how to flirt, get around husbands and engage them in other pleasurable activities,¹¹⁷ and she is also likely to have been familiar with the watercolour depicting illicit love (fig 14).¹¹⁸ Indeed there was an enduring preoccupation with amorous affairs among the Qajar nobility.¹¹⁹

Could the Kidichi baths poem support the rumours of her own illicit love with Hilal and alcohol consumption? Was its message intended for her husband, or for her *sāqī*? He was certainly an educated and intelligent man, and *abjad* is closely related to mysticism and Sufism, something that Said's older brother was interested in, although he always remained an Ibadi.¹²⁰ Said was open to 'other' ideas about religion. For example, Burton notes that Said would never flog a medicine man or cut down a 'devils tree' believing in the African Fetish and in the Arab *Sahir*'s power of metamorphosis.¹²¹ It can't be ignored however, that much of the iconography depicted at Kidichi harks back to pre-Islamic Persia. Perhaps Shihrazad or her master craftsman/men designed this simply as an innocent reminder of home; or because that was the accepted way of doing things for royals, at a time when artists sought inspiration from the past.

It certainly suggests that Shihrazad could read, but if others could also read it, perhaps this poem was the very root of the rumours that spread about Shihrazad? It is notable that the poem is hidden from view physically as well as linguistically, from anyone approaching from 'outside'. This sits well with Schiewiller's exploration of sexuality and gender in Qajar Iran, which she argues was an ocular centred society, predicated on binary oppositions of public/private, seen/unseen, accessible/forbidden places.¹²² Whatever the case, it is clear that as one progresses deeper, into the hotter, steamier and more hidden parts of the baths, the themes shift from religion, heaven and paradise, to the pleasures of (illicit?) love, alcohol, food and fecundity, and conclude by ascending three steps to the hottest room of all, decorated only by the sun. There are multiple references to femininity, royalty and Shihrazad herself. Collectively the themes work together to emphasise Kidichi as a place of paradise, and the metaphors and symbolism are so rich, they allow significant freedom of interpretation, but on balance it is difficult to imagine these baths were conceived and built by Said.

CONCLUDING REMARKS AND HERITAGE POTENTIAL

¹¹⁷ Keddie 2006, 42.

¹¹⁸ Amanat 2003, 259.

¹¹⁹ Amanat 2003, 259.

¹²⁰ Romero, 2012.

¹²¹ Burton 1872, 304.

¹²² Scheiwiller, 2017.

The survey of the Kidichi baths employed new technologies that allowed new perspectives on this legally protected, historic monument. The data presented here were gathered in one day by five people. The use of such technologies is often justified as permitting the rapid acquisition of huge volumes of data from site to landscape scale. They are ‘cost effective’ and are said to be accessible in terms of outputs and data production especially with methods like photogrammetry being put forward as something that ‘anyone can do’. Undoubtedly they allow new perspectives – from aerial, to beetle’s eye views, (and even in spectral ranges that we couldn’t otherwise experience) which permits new questions to be asked. The digital ‘capture’ of sites, allows dissemination to large numbers of people, the justification being that this will increase the site’s or landscape’s importance, facilitate its protection, and allow the site’s degradation to be monitored. Ultimately this will promote tourism.

Conversely however, these data need storing, which raises questions of who should house the data, and where, and whether rapid acquisition of large quantities of data is ‘good’? Data storage often comes at a cost, and access to it may not be open to all with an interest in using it. Equipment accessibility is certainly improving but new equipment requires learning new skill sets, and much of the equipment remains prohibitively expensive. Ultimately such data are gathered by a select few who have the equipment and the expertise. Although new perspectives can be generated it is important to consider the relevance of these perspectives. It could be argued these are very specific (western) views that are irrelevant or simply a fleeting novelty for many of the people whose heritage is being recorded in this way, and that traditional and often marginalised intangible heritages should be prioritised.¹²³ Although data acquisition is rapid, data processing remains time consuming. The reality is that such capture methods simply defer part of the analysis. The ‘remoteness’ of the acquisition and processing/analysis off-site is a removal from the very materiality that lies at the core of archaeology. The wide array of output options permit dissemination to large numbers of people; but this potentially puts sites at risk, commoditises and ‘de-values’ them especially in the absence of financial and infrastructural support. Tourism is not always positive and brings with it a host of additional issues.

Having deliberately presented the Janus faces of ‘democratisation’ and ‘commoditisation’ in relation to modern survey methodologies, where does this leave this survey of Kidichi? Unusually, researching the baths was a secondary consequence of our visit, but in conducting the demonstrations we *practiced* archaeology. Through our physical presence, engagement and need to set up equipment in particular ways, we were forced to look at the building and its surroundings differently. Because we needed to ‘tell its story’ we asked questions, and found that the more we asked, the less certain the facts became. Bowsell has argued that tourism is not just about consumption. This seems equally

¹²³ Schmidt 2013.

applicable to heritage, if it is accepted that heritage is as much a creative process, as a protective and preserving one. She writes:

... it is also an imaginarium, an entity that allows one to re-imagine aspects of one's past or present and to temporarily express aspects of one's identity that under 'normal' circumstances one would not entertain.¹²⁴

Such imaginings are not fantastic. They are constrained by the materiality or the sensuality of the objects, stories, scents, and actions that inform them. In the same way, the materiality of this small building made us look differently and opened an unimagined book of stories of truly global connections and relevance. It is now possible to develop the historic narrative presented at the start of this paper and to supplement the accounts with a range of possibilities generated from interpretations of the baths themselves. The narratives touch on and feed into intangible heritages of scent¹²⁵ and dress;¹²⁶ they engage with contentious topics such as race and class in politics,¹²⁷ gender and sexual agency.¹²⁸ They speak to the highly topical themes of globalization, migration and blurred identities.¹²⁹ And if we so desire, Kidichi baths could be read as other worldly; an interface between the earthly and the divine, and a commentary on the fluidity of religious interpretations.¹³⁰

The baths stimulate us to move beyond the central, powerful individuals, to think of daily life on Zanzibar and the culturally diverse array of people that incorporated. This includes the craftsmen who built the baths, the slaves who operated them, and the people who used them. No longer are they the mould-covered disappointment of recent travel guides. Here is a building which saw hard work, love, laughter, politicking and intrigue; a building which would have been enlivened by bright colours, strong scents, sounds and flavours; a building carefully designed to steer and stimulate its users' thoughts; and possibly one that sought to emphasise Shihrazad's new power, position and identity. Despite being of the Arab elite and thus not necessarily representative of East African women generally, Shihrazad's story helps to subvert notions of the subjugated status of women in the Islamic civilization. Such colonial ideas are European prejudices born of a desire to portray the West as culturally superior and justify the colonial enterprise.¹³¹

It is impossible to view Shihrazad simply as a passive sexual or exotic object, an ignorant wife reduced to servitude under a veil or as a producer of heirs. Instead Shihrazad seems rational, powerful, creative, educated, intelligent and sometimes cruel. As a young woman she travelled

¹²⁴ Boswell 2011, 6.

¹²⁵ Boswell 2008.

¹²⁶ Boswell 2006.

¹²⁷ Sheriff 2001.

¹²⁸ Daly Thompson 2011.

¹²⁹ Ghazal 2005.

¹³⁰ Pouwels 2002.

¹³¹ Anwar 2004.

thousands of miles on long sea voyages. Like other migrants including the women of the harem, these travels would have exposed her to a wealth of new experiences and people. As was the case elsewhere during the nineteenth century, the result of such travels followed by a new life on Zanzibar, may well have been a reconfiguration of the symbolic features of collective identity and reworkings of gender relations.^{132 133 134}Shihrazad's agency echoes through time. In this paper, we suggest this agency, and potentially her reconfigured identity, is manifest in the choice of images, design and non-Arabic text in the baths. This supports the historic records of her refusal to veil, her daylight horse-riding with men and choice of a lover. She is a rare find in African archaeology – an 'outlaw'¹³⁵ who resists the constraints of interpretations which expound male dominance and gender segregation¹³⁶; but she is also a woman of her time and experiences who epitomizes Zanzibar as a cultural crucible. That said she and her lover are criminalized for their actions by Said and ultimately banished. She is a fabulous counterpoint to Azze, the first harīno who spends nearly her whole life on Zanzibar and rarely strays from her palace. Neither can be cast in the role of mother and both raise a myriad of questions relating to their political influence and power. Comparing and considering these women and those in the harem confound attempts of ethnic categorization; they may originally have come from distant corners of the globe, but whilst on Zanzibar, it could be argued that what they all become is Swahili¹³⁷.

Reflecting on this brief analysis of preliminary data it is possible to see what incredible potential the baths offer in terms of heritage tourism. Zanzibar has long been known for its diverse population. Here is a wonderful opportunity to imagine what it must have been like to be a third legitimate wife, or a Circassian Sarari, for example. Here's an opportunity to debunk common misconceptions about life in a harem, or to discuss, in the face of increasing religious conservatism, the many ways the Quran has been interpreted, and the long history of multi-culturalism and religious tolerance in Zanzibar. As Ghazal has noted, it is this fusion of identities, networks and encounters that has allowed communities to thrive.¹³⁸ Through hybridity, materiality, historically and archaeologically informed imagination, borders are broken down, new frontiers are created, and 1001 tales become possible.

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¹³² Cadinot 2013.

¹³³ Bouilly et al 2016.

¹³⁴ Wynne-Jones and Mapunda 2008.

¹³⁵ King 2018.

¹³⁶ Askew 1999.

¹³⁷ Ghazal 2005.

¹³⁸ Askew 1999.

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ABBREVIATIONS AND BIBLIOGRAPHY

Abbreviations

GCRF Global Challenges Research Fund

GPR Ground Penetrating Radar

GPS Global Positioning System

SUZA The State University of Zanzibar

TLS Terrestrial Laser Scanning

UAV Unmanned Aerial Vehicle

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FIGURES

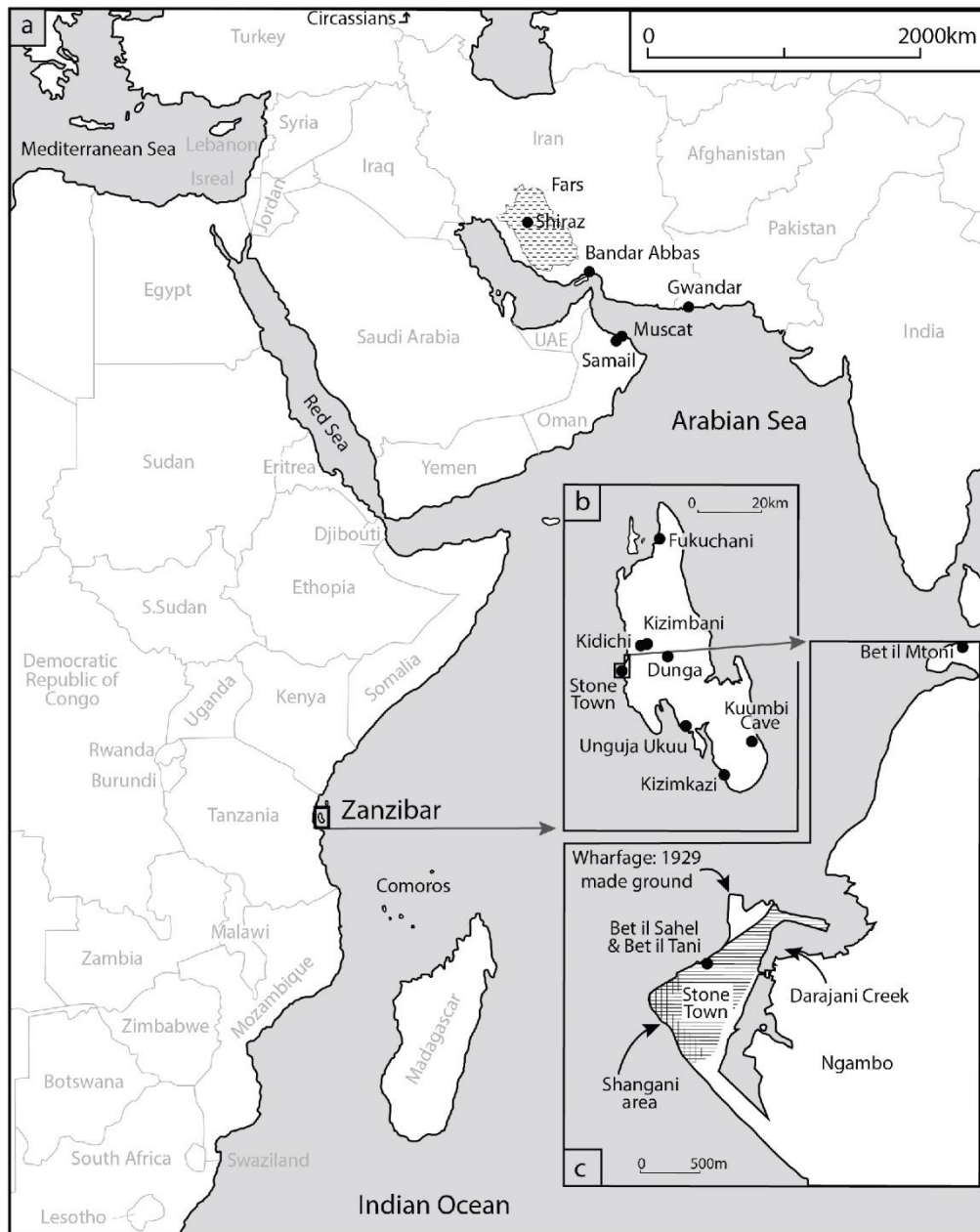


Fig 1. Location map a shows location of Zanzibar. Inset b shows the sites mentioned in the text. Inset c shows the modern coastline, but incorporates the old extent of stone town and location of Darajani Channel based on Oscar Baumann's map of Zanzibar City, 1892. Darajani Channel was filled in by 1956. *Drawing: Libby Mulqueeny and Laura Basell*

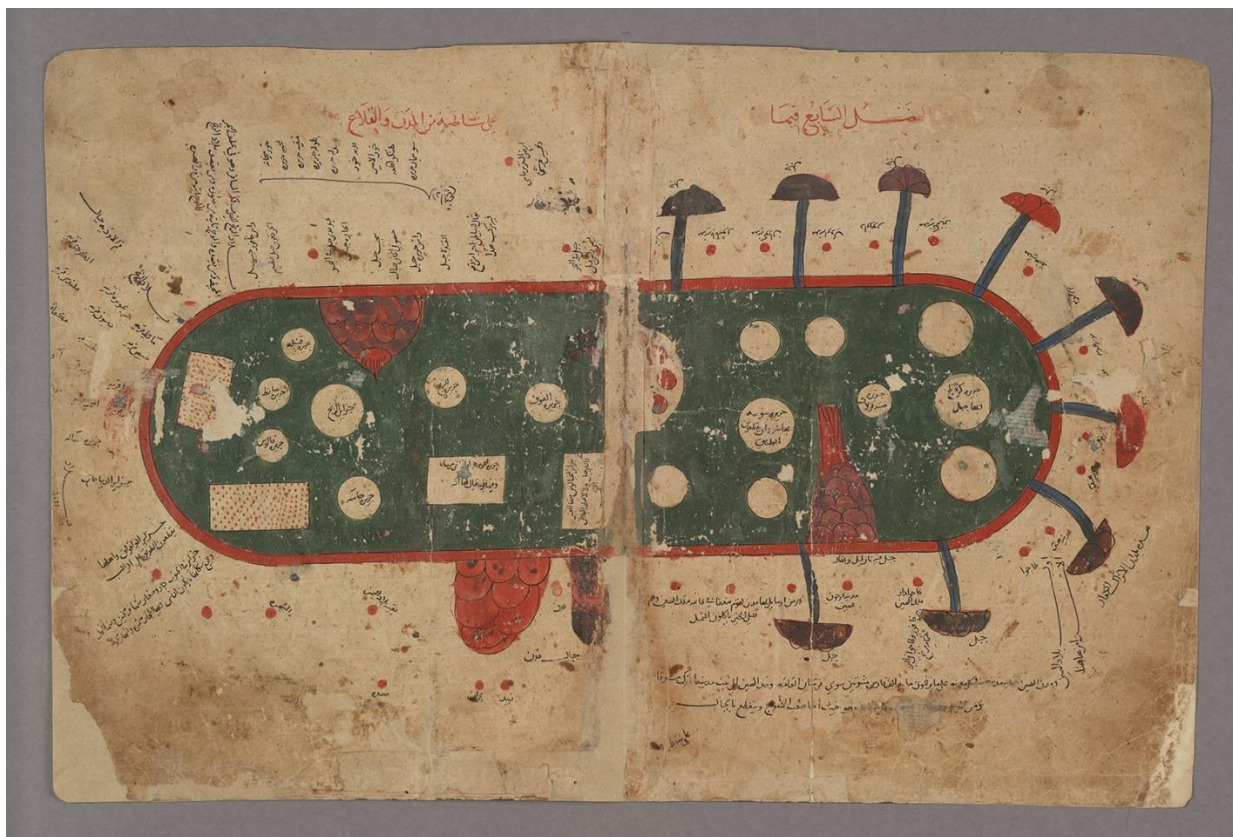


Fig 2. Fāṭimid map from the anonymous Medieval Islamic manuscript, *Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn* 'The Book of Curiosities of the Science, and Marvels for the Eyes'. This map which mentions Unguja Ukuu, was copied in the late twelfth century or early thirteenth from a work first compiled circa AD 1060. Photograph: Reproduced with permission to Laura Basell 2019 from The Bodleian Libraries, University of Oxford. Shelfmark: MS. Arab c. 90, fols. 29b-30a in Fromherz A J, 2018 'Gulf in World History', Edinburgh University Press

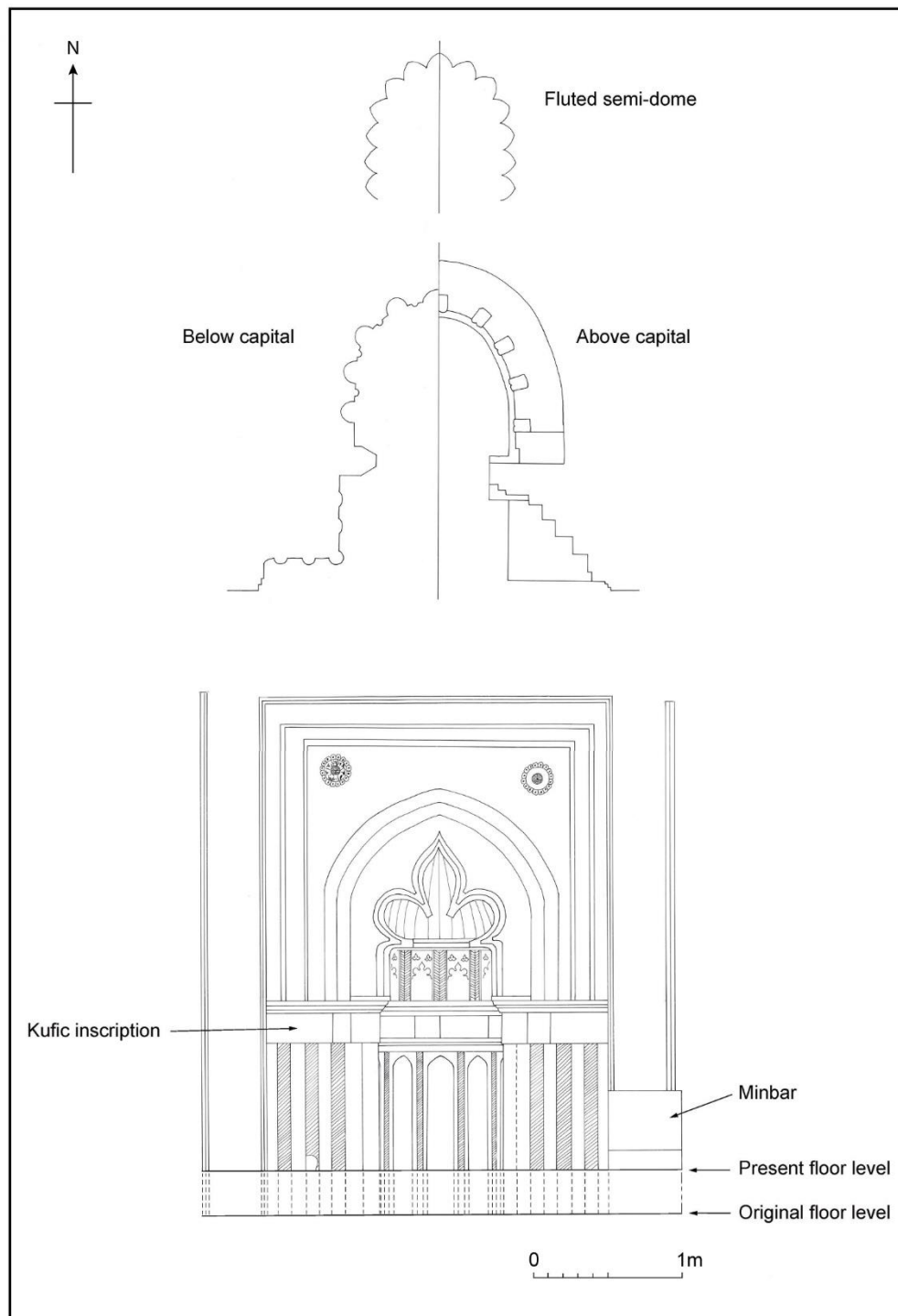


Fig 3. Kizimkazi mihrab. *Drawing:* Laura Basell 1997 for Mark Horton

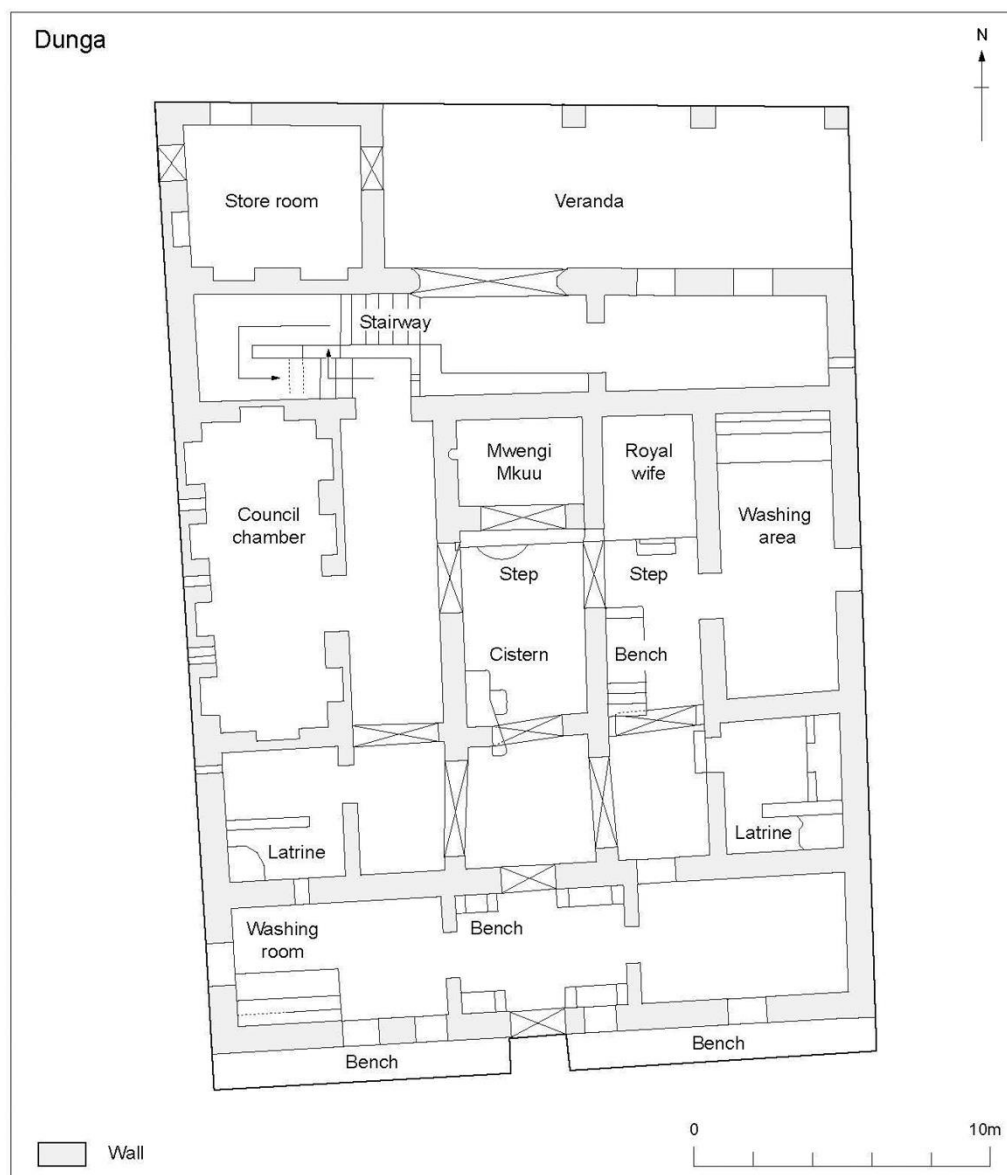


Fig 4. Plan of Dunga Palace. *Drawing:* Mark Horton and Laura Basell 1997



Fig 5. Portrait of Said bin Sultan painted by an American sailor, possibly Lieutenant William F. Lynch circa. 1855 and published at least as early as 1921. *Image:* Public domain, available online at <https://www.wikidata.org/wiki/Q506193>

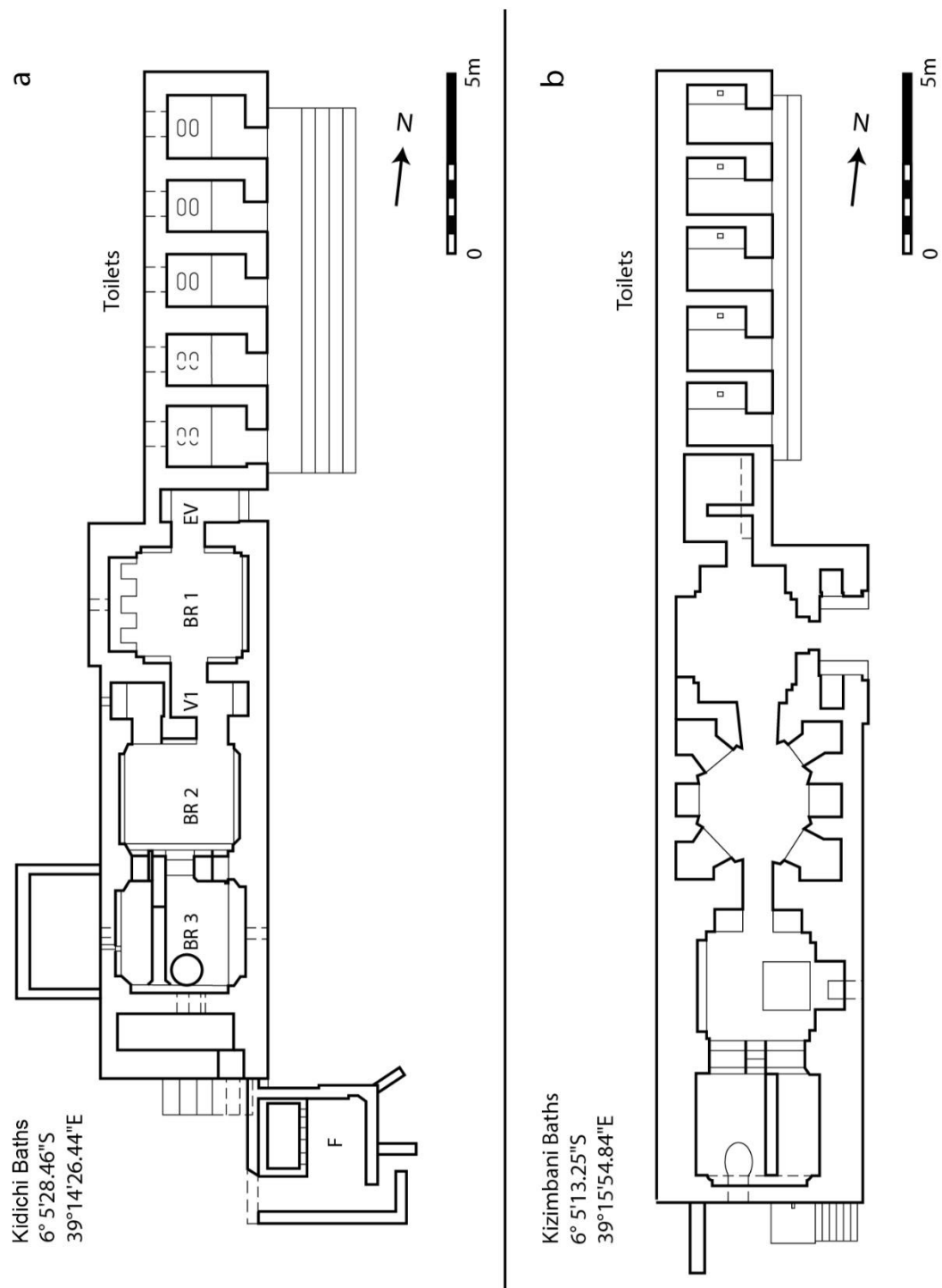


Fig 6. Plans of a: Kidichi Baths and b: Kizimbani Baths. EV = Entrance Vestibule, BR = Bathroom, V = Vestibule, F = Furnace area *Drawings:* Mark Horton and Kate Clark 1984. Digitisation Laura Basell 2019.

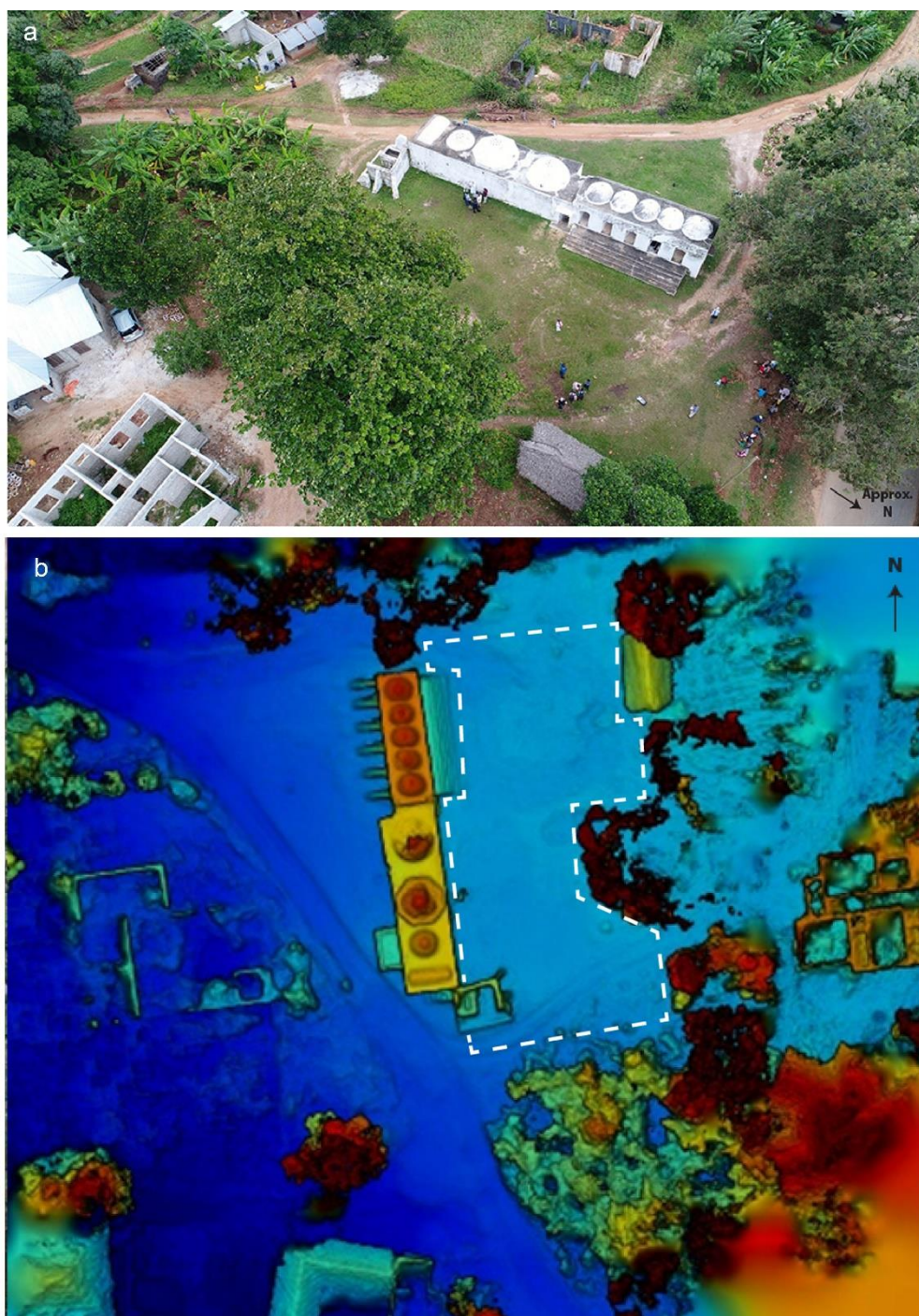


Fig 7. a. UAV aerial photographs of Kidichi showing encroachment of modern buildings. b. elevation model where red is high and blue is low. All imagery was processed in Drone Deploy. Data collected by N. Mellor and workshop participants, July 2017. Area of GPR survey is indicated white line. *Images:* Nicholas Mellor 2018 annotated by Laura Basell 2019.



Fig 8. a. Wall fragment of old structure possibly associated with the baths, located ca. 15 m due south of Kidichi Baths. b. View to the sea from location of ruin under huge old tree. *Photographs*: Laura Basell, June 2017



Fig 9. TLS of Kidichi baths showing capture of surrounding topography and vegetation. External point clouds have been draped with photographs. Internal point clouds (bright colours) are displayed using intensity values. *Image*: Laura Basell

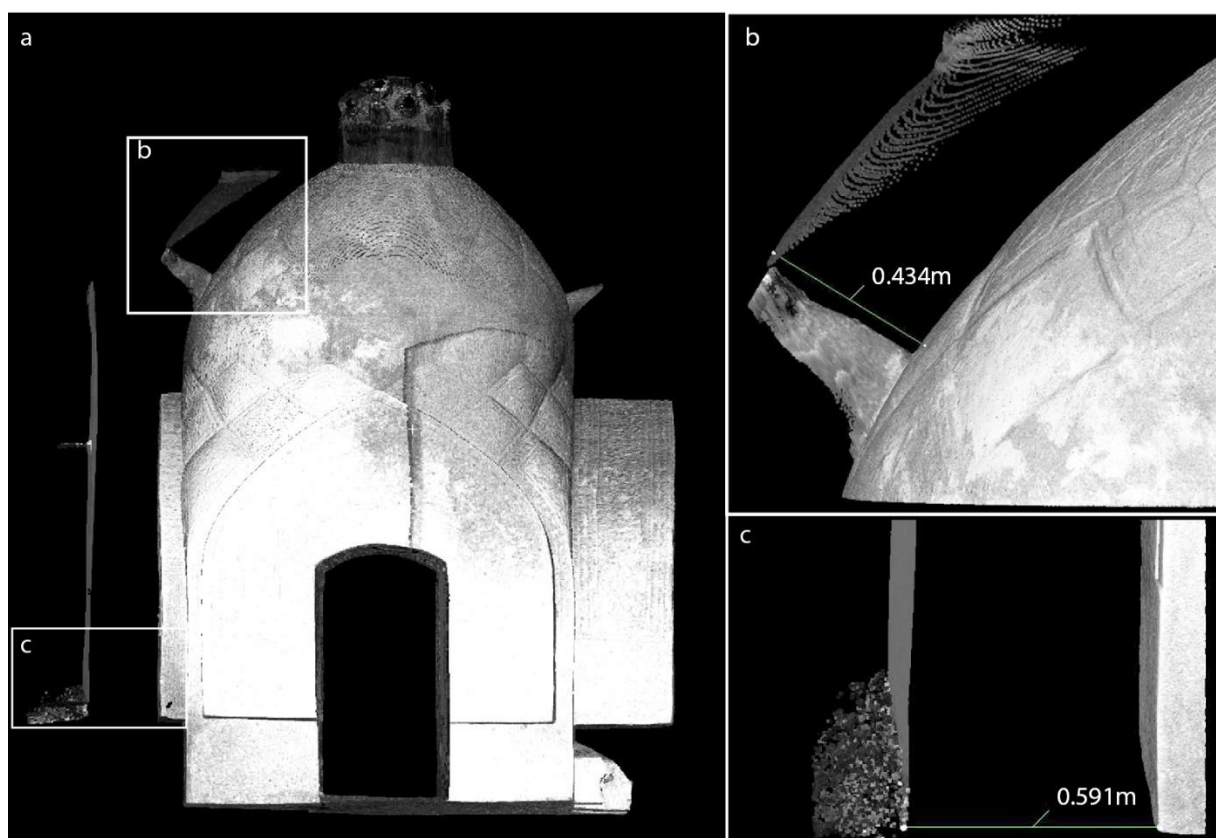


Fig 10. a: TLS of Kidichi baths BR1 rendered in black and white to show in inset b: dome thickness and in inset c: wall thickness. *Image:* Laura Basell

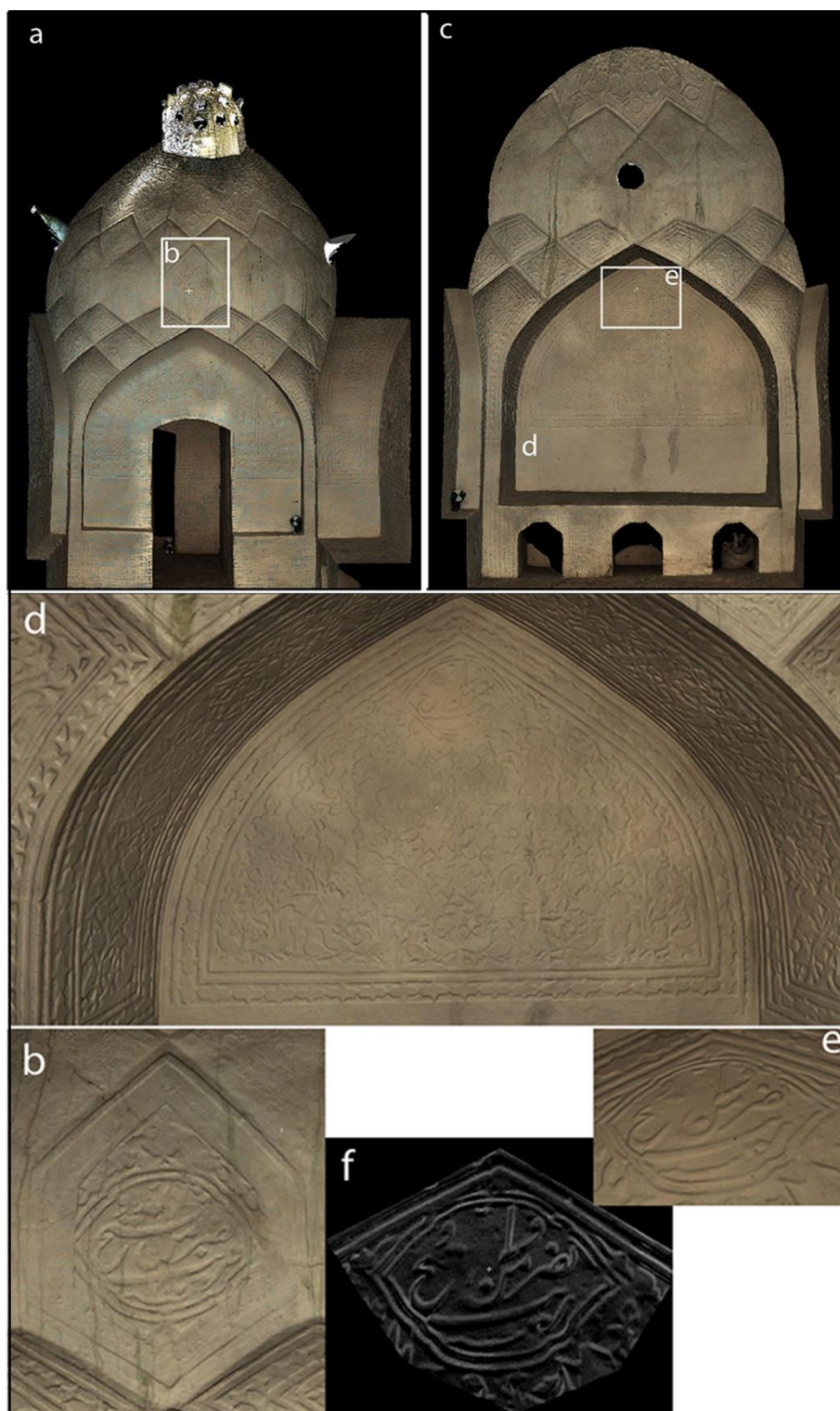


Fig 11. TLS of Kidichi baths BR1. a and c: general location of text in BR1, d to e: specific detail of text, e and f: are of the same text from location shown in c, e: is an oblique view to show the lettering. All point clouds, except for f are draped with photographs. *Images: Laura Basell*

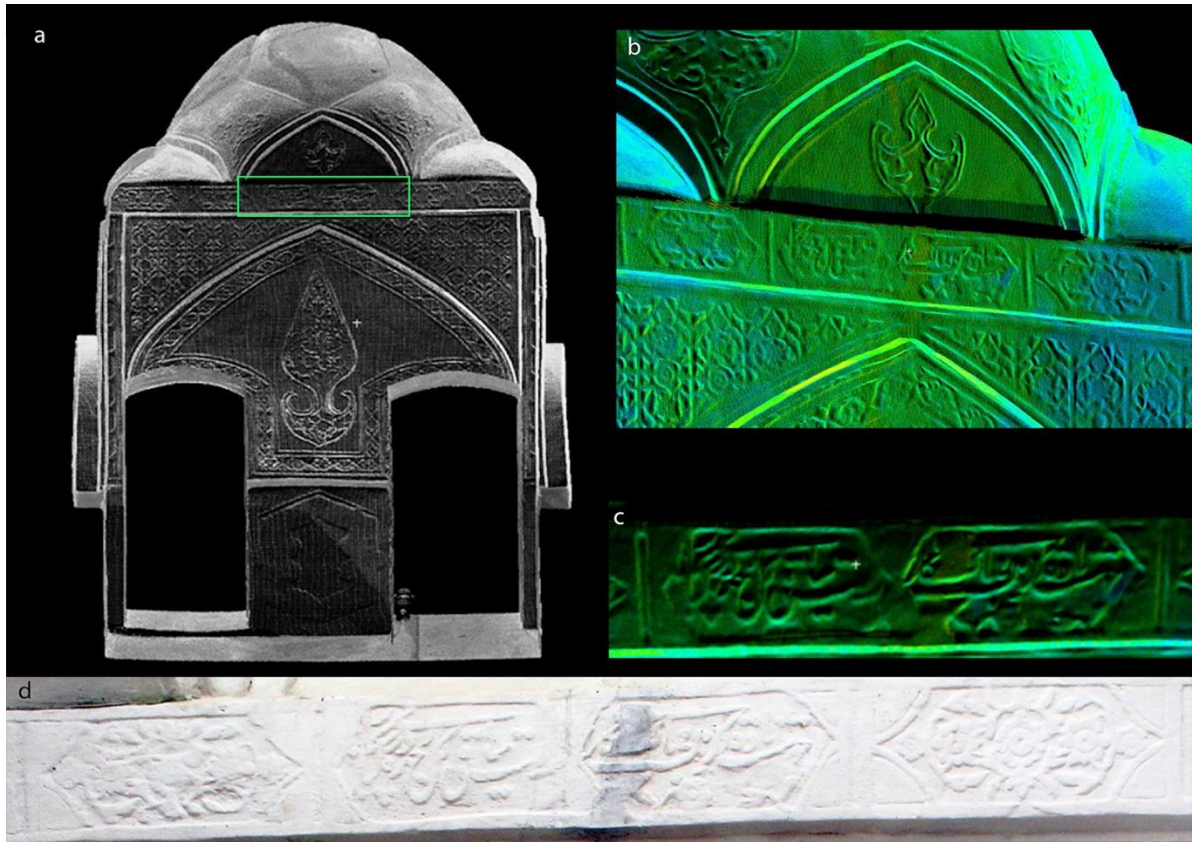


Fig 12. TLS of Kidichi baths a: silhouette rendering of BR2 south facing wall showing location of poem text. b and c: back-lit and silhouette rendering of point clouds displayed using intensity value colour map to clarify lettering and d: photograph of text and adjacent decorative cartouches.

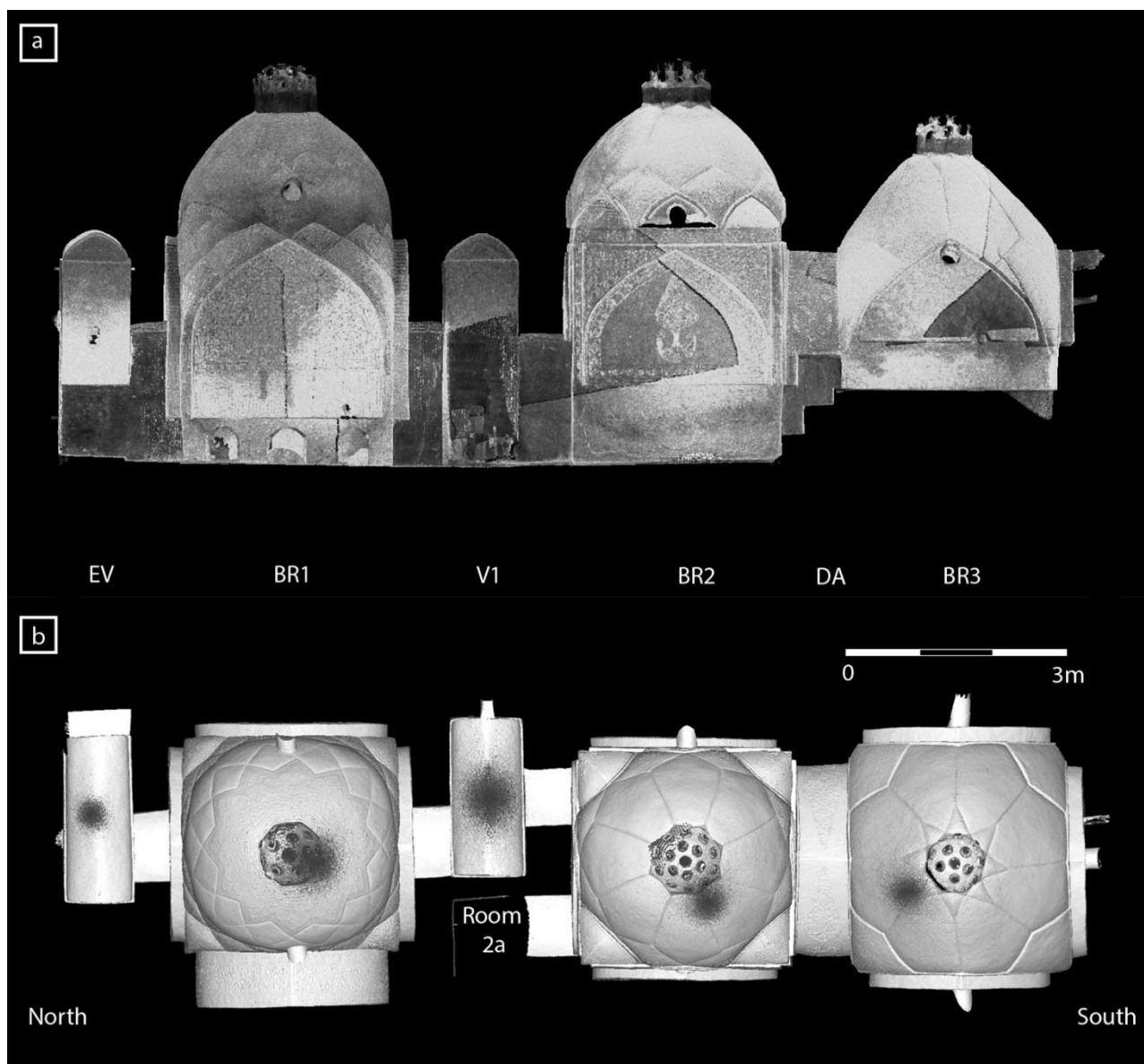


Fig 13. a: Cross section through point cloud data of internal laser scan of baths rendered in black and white showing differences in internal dome ceiling design and floor heights. b: Plan (aerial) view of highlighting differences in the geometric designs of the ceilings. EV = Entrance Vestibule, BR = Bathroom, V = Vestibule, DA = Decorated Arch.



Fig 14. a: the inside of the Vakil bath at Shiraz. Photograph: Diego Delso, delso.photo, License CC-BY-SA. b: Embracing Lovers Caught by Housemaids, signed by Mirza Baba Naqqashbashi, Persia, Qajar, circa 1860. Gouache on paper, a line of text in nasta'liq script in black ink beneath the painting. Photograph: © courtesy of Sotheby's, 2019.



Fig 15. a: Detail of cartouche in BR2 enclosing sun birds drinking from plants and a variety of flower motifs. b: rose, c: lotus flower, d: almond blossom with inset e: showing frontal form, f-i: the different flowering stages of a pomegranate flower, and j: a sun bird drinking. *Main photograph*: Laura Basell 2017. *Small photographs from top*: freely available under creative commons licencing. Sunbird: Steve Garvie.

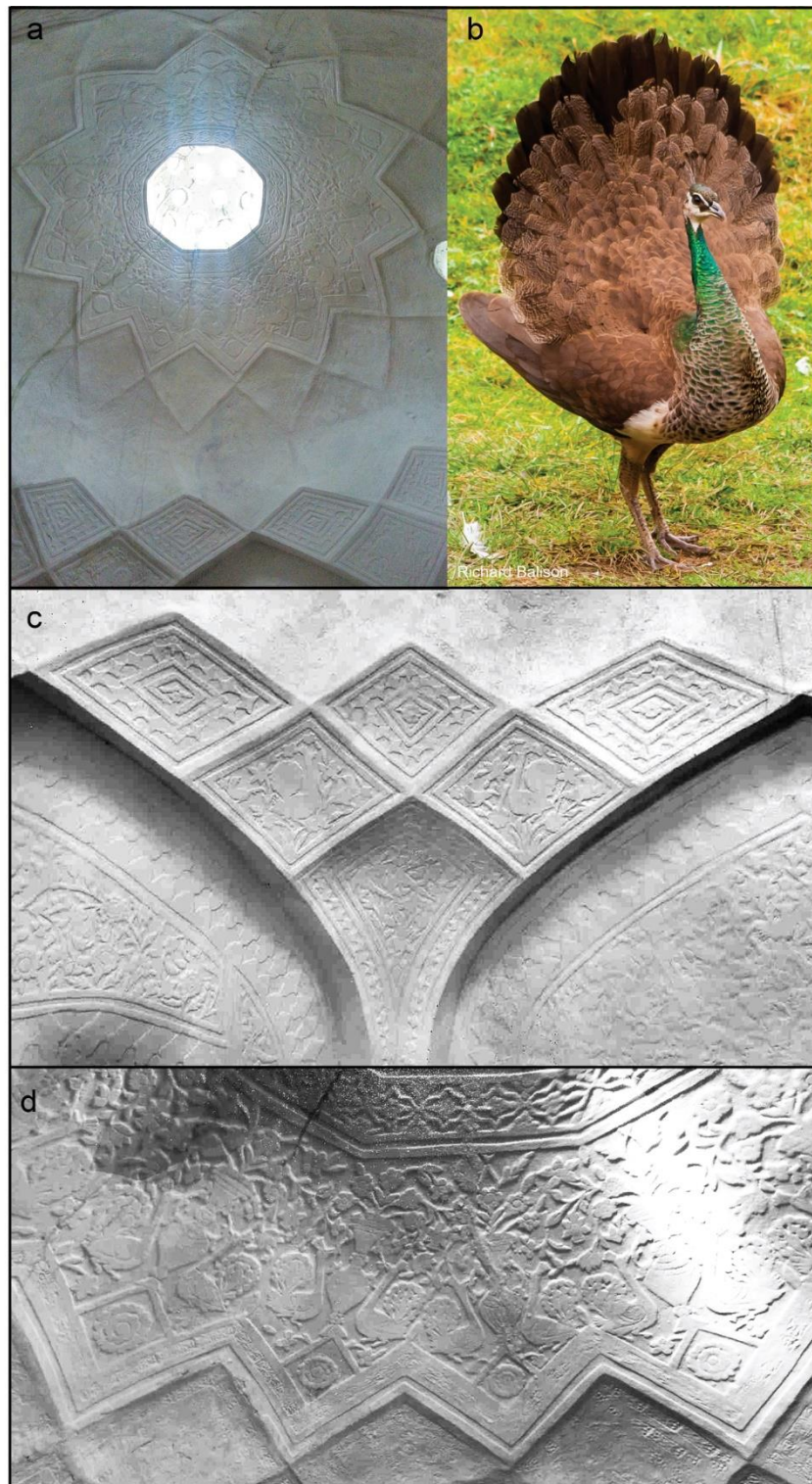


Fig 16. a: Domed ceiling in BR1 b: peahen displaying. c - d: laser scan detail of bird motifs in panels where point clouds have been draped with photographs then images changed to black and white to draw out patterns (right). *Photograph and Images*: a, c, d: Laura Basell b: © R. Balison 2010 reproduced with permission.

SI 1

Exploring the ‘Iraj’ line of enquiry is equally unclear. No ‘Iraj Mirza’ is listed in Amanat’s Qajar genealogical tree,¹³⁹ but Buyers lists the birth of a boy, Shahzada Iraj Mirza, *Mahabat ul-Mulk*, of Persia on 6th August 1807 to Fath ‘Ali, Shah of Persia.¹⁴⁰ Iraj Mirza had 3 wives, at least 10 children and one of these was a girl, Shahzadi Shahruzad Khanum, but the only detail given is her marriage to Said in 1847.¹⁴¹ The ‘bin Muhammed’ part of her name, and suggestions that she was the great granddaughter of Shah Muhammed of Persia¹⁴² could be a reference to Fath ‘Ali Shah’s uncle who was founder of the Qajar dynasty, the Agha Mohammad Khan (r 1789–1797).

SI 2

Geospatial control was established by defining a baseline using a Topcon differential global positioning system (GPS) to which all ground surveys were related. Relative vertical and horizontal precision (VDOP and HDOP) of ground control was 5mm while absolute precision was <2m in the absence of a base station on Zanzibar, the nearest being in Mombasa. The Ground Penetrating radar survey was conducted by Henry Webber, University of Bristol using a Mala GPR system rigged with a 75 MHz sensor and surveyed at a 30 cm spacing. The results were inconclusive. The Unmanned Aerial Vehicle survey was completed using a DJI Phantom 4 using a programmed transect survey, at 75% overlap and approximately 75 metre elevation. Data were processed using Drone Deploy software by Mark Horton and Nicholas Mellor. The 3D Digital Elevation Model was processed on Drone Deploy Nicholas Mellor. The Terrestrial Laser Scan was conducted by Laura Basell and Ella Egberts using a Leica P40 Scanstation. Basell processed and registered the data using Leica Cyclone under educational licence to QUB. The final point cloud used 19 reference locations, included 51 total scans (including target acquisition) in 32 point clouds. The total number of points gathered were 393,913,825. These were registered with a <5mm error.

¹³⁹ Amanat 1997

¹⁴⁰ Buyers 2015

¹⁴¹ Buyers 2015

¹⁴² Nicolini 2004, 99; Amanat 1997, 1