

Sindh

p-ISSN: 2617-1996
e-ISSN: 2709-0795

Antiquities

Vol-7, No: 1, 2021 Biannual Journal



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PUBLISHED BY
DIRECTORATE GENERAL ANTIQUITIES AND ARCHAEOLOGY
Culture, Tourism, Antiquities & Archives Department Government of Sindh

ISSN: 2617-1996
E-ISSN: - 2709-0795

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Government of Sindh

Volume 7- No: 01- 2021



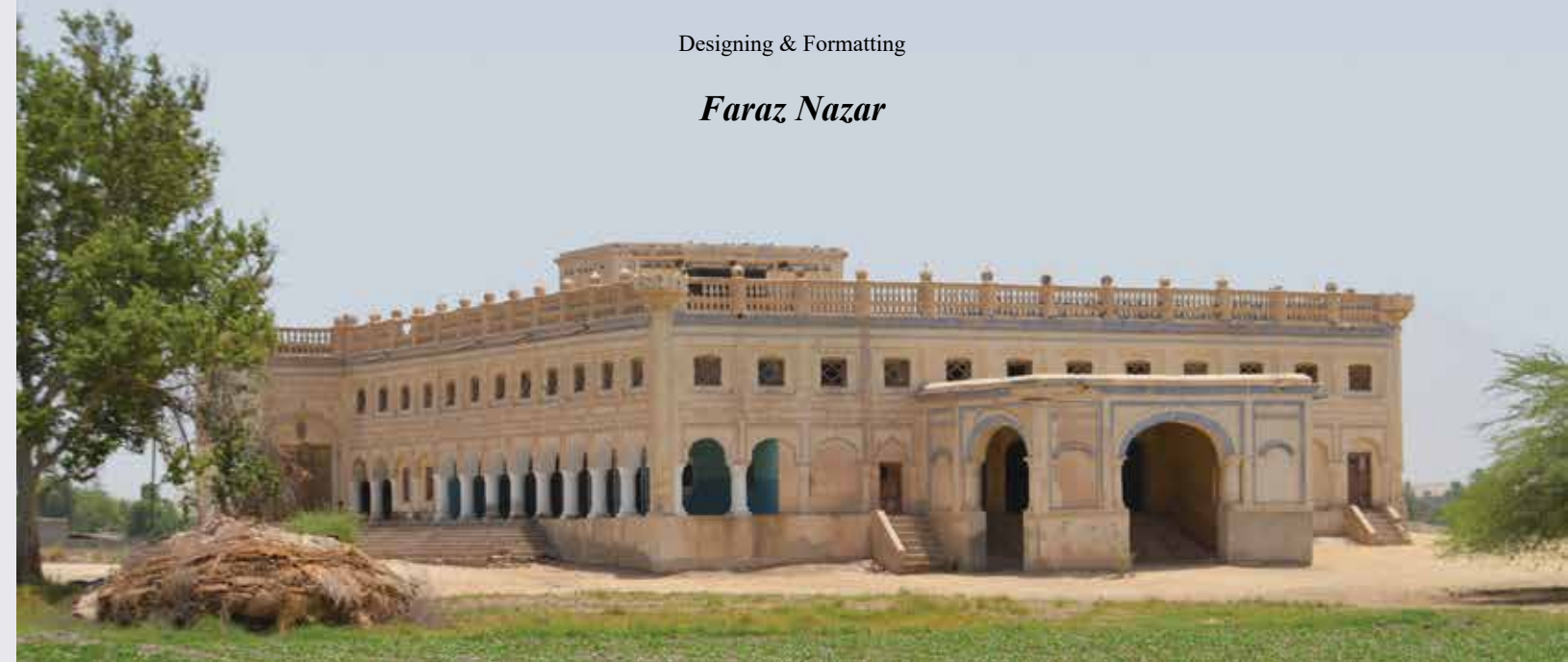
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3- Results: Present the results with a minimum of discussion. Use tables, charts, map and Photographs to clarify the findings. Finally, check the statistics if mentioned.

4- Discussion: Point out the significance of the data and the limitations. Speculation should be clearly identified as such. Do not repeat the introduction in this section. Do describe the findings of the research briefly in the light of other reports, including opposing views, and is important in order to limit bias.

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All bibliographic citations in the essay must be in the footnotes. In the body of the essay itself there is only the note number; the reference should be in APA style.

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The 2020 Italian-Pakistani Excavation at Banbhore A New Picture of Daybul and its Last Occupation Phase

(11th Century-Early 13th Century CE)

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Abstract

The paper describes the main results achieved by the Pakistani-Italian teams during the 2020 archaeological field season at Banbhore. The excavation around Building 2 provided further attestations of ivory in this part of the fortified town during the last occupation of the site in the late 12th-early 13th centuries. The most remarkable discovery is a small ivory workshop, the only one so far known from a certain archaeological context, outside the SE corner of Building 2. Two localized ivory dumps found in the E-W streets suggest the presence of more ivory workshops in this area, and possibly a place used for the storage of raw materials.

Keywords

Banbhore; Ivory workshop; Ivory; Islamic period;

Premise: a New Picture

The 2019-2020 campaigns brought to the discovery of an ivory workshop. Topographic documentation and the clearing of the upper levels of the East-West street and its skirting buildings, confirmed that the excavated area and its levels closely associated on stratigraphy with sherds and vessels represented the final stage of life of the site (late 12th-early 13th

centuries CE), and that the East-West street between Buildings 1 and 2 likely used as an easy refuse dump (cfr. Piacentini Fiorani 2019a, and the herewith following article).

It was a new environment, an unexpected panorama: a final blooming phase of about two centuries before the site's abandonment and its end as an important 'town' and 'harbour' on the Indus delta.

Textual research-work in contemporary chronicles and travelogues had been carried out (Piacentini Fiorani 2014, Felici et al. 2016, Piacentini 2019a), and, combining textual and non-textual data, at last it has been possible to outline through precise chronologies the historical events that led to the decline of the once prosperous harbour and town of Daybul, outlet to the sea of Mansurah, superb capital-city of the Emirate of Mansurah (850 CE ca – first two decades of the 11th century). The 'decay' of Daybul but not its end. Daybul survived despite the depleting siege by the troops of Qavurd Khan b. Chaghri Beg, the Seljuk Sultan. After one year of military skirmishes, Qavurd Khan offered a

peace-agreement accepted by Daybul's authorities. It signed Daybul's reorganisation as an autonomous territorial district (*nahiya*) of the Seljuk empire under the leadership of a native ruler. It also signed a new political-administrative stage for the site. Part of the Makrani seaboard was annexed to Sindh, the western frontier set at Gwattar. All in all, Daybul and its territory were strengthened under the military umbrella of the Seljuks, marking for it a new strategic role within the geopolitical panorama of the time.

Whilst Mansurah was finished, Daybul restructured its power and the forces supporting it, rearranged its ancient 'urban plan' into two main areas: a residential quarter (which included the Mosque) for the ruling classes re-occupying the site, on the one hand; and, on the other, a large working area for artisans convening from different and often distant regions (Trenches 1, 4, 9, 11, 12). A quarter, or quarters...still to be investigated, where workforces could settle and start their activities.

The re-occupation and the new urban planning of Daybul can be dated to the end of the Habbari dynasty, that is the first two decades of the 11th century. This date may also sign the beginning of this new phase marked by its repositioning within the regional maritime policy of the Seljuks and the sharp Red Sea-Gulf competition as main commercial routes between the Occident and the Orient. Against this backstage it is possible to state that Daybul played a central role as corner stone and hinge of the Seljuk maritime political line aimed to impose its military control on the prosperous trades between the Orient and the Occident, a political line that would come to a drastic end with the disintegration of the Seljuk order at the end of the 12th century.

Under Qavurd Khan's military order and the Seljuk patronage, Daybul stood out again, as capital city of an autonomous district (fifties of the 11th century). It was re-peopled by its same traditional groupings (landowners and merchants), that reorganised Daybul's traditional forces and connections and, through political and matrimonial allegiances, reached new understandings with the Omani and Iranian seaboard. For one century and a half circa, Daybul played the role of international market for precious goods and watch-dog to the Gulf and the Strait of Hormuz. It reordered its own activities within the traditional environment of its customary

partners in the Western waters of the Indian Ocean, from Gujarat and the Asian subcontinent to Oman, from Pemba, Kilwa, Manda to the Lands of the Zenjis (Zanguebar). The 'Peoples of the Sea', with their own costumes, language and maritime codes, represented the network of this new maritime structure. Despite being definitely cut off from the rich hinterland of the past, Daybul still had an important market and a wide range of contacts and business, that allowed this harbour to blossom again within a renewed regional and global order.

These last archaeological campaigns and the extraordinary archaeological and architectonic data brought to light, the firm collaboration and support by the Department for Antiquities and Archaeology of Sindh, and our Trainees' excited involvement on the field have allowed to write the final page of Daybul/Banbhore's life, archaeological and architectonic data confirming the data provided by the available textual sources.

Much there is still to investigate, analyse and write. What can be stated at this point is that Banbhore has a long lasting history of nearly fifteen centuries (if not longer), which mirrors Sindh's history and culture. Imposing relics still stand out at the foot of a plateau on a secondary branch of the Indus deltaic region, and point to one of the most mighty harbours and towns of its times, a site coveted by invaders and conquerors for the riches there traded and accumulated in its storehouses, a site which however for fifteen centuries managed to survive human and natural ravages, and rebuilt itself on its own natural and human forces and resources.

Introduction

This paper presents the result of the field campaign conducted at Banbhore in 2020 (January 15th - February 19th).¹ The main goal of this season was to expose Building 2 in Trench 9 until reaching the ivory layers (SU 119) already identified, and partially excavated, in the 2015 season (Felici et al. 2016, 2018). Activities were therefore aimed at exposing: i) the East-West street between Building 1 and Building 2 (Mantellini 2019); ii) the perimeter and the

1 This paper includes the result of the excavation of Trench 9. For the excavation of Trench 11, under the scientific coordination of Ms. Naheed Zehra, see the Preliminary Report submitted to the DGAA. Elevation is measured in m asl, and reported here below just as m.

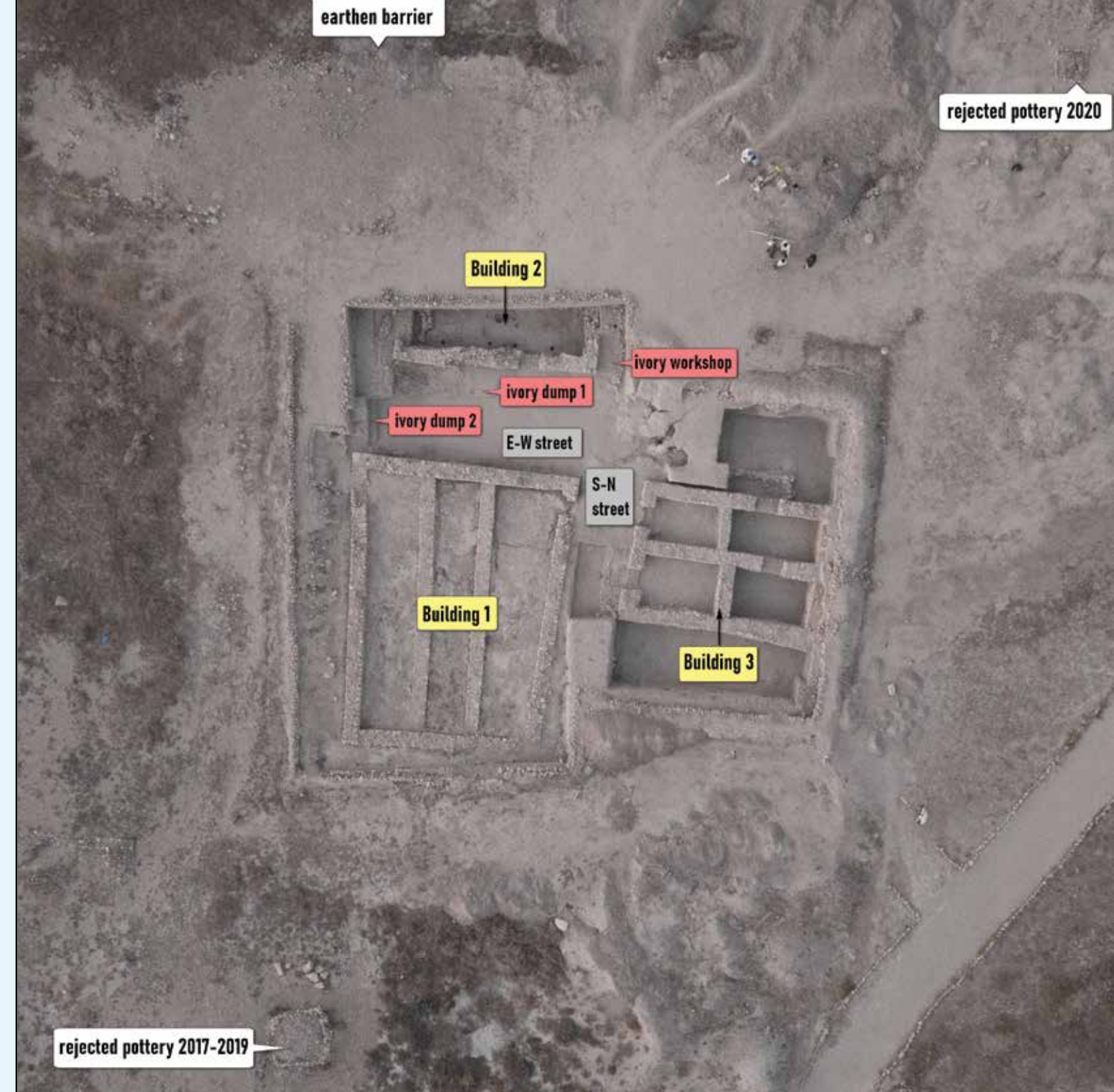


Figure 1. Trench 9 at the end of the 2020 Season (zenithal drone view, operator A. Tilia).

interior of Building 2; and, iii) the areas alongside Building 2, arguably two streets with a South-North axis (Figure 1).

The research work has been carried out within the Memorandum of Understanding - MOU signed in

November 2017 between the Università Cattolica del Sacro Cuore - UCSC, Milano (Italy) and the Directorate General of Antiquities and Archaeology - DGAA, Culture, Tourism & Antiquities Department, Government of Sindh (Pakistan).

The fieldwork dealt with the following operations (Figure 2):

1. Archaeological excavation, including topography and digital documentation;
2. Preliminary pottery analysis;
3. Preliminary study of the ivory.

As part of the MOU, the activities also included the training of ca 20 students from three universities of Sindh: Bahria University, Karachi; SALU University, Khairpur; University of Sindh, Jamshoro (Figure 3). Training comprised up-to-date archaeological approach and methods in excavation techniques, data acquisition/recording/management/processing/analyses, topographical survey and GIS, classification and study of pottery and other materials. At the end of the training, the level of learning of each student was evaluated with an individual test. All the students received a certificate of participation at the Technical Session held in Karachi on February 19th, 2020.

During the last campaign, a scientific collaboration was established with the Bahria University, Karachi Campus, with the aim of starting a systematic investigation of the maritime space around Banbhore, including an accurate mapping of the *intra-moenia* layout by non-invasive techniques.



Figure 2. A. Tilia engaged in training of students (photo G. Affanni).

A first geophysical seismic test has been conducted in proximity of Trench 9 by Ahsen Qureshi, Ph.D. student, under the supervision of Dr Salma Hanza, Department of Earth & Environmental Studies, Bahria University, Karachi Campus². (Figure 4)

The Italian Research Team of the 2020 season included:

2. See the preliminary report submitted to the DGAA.

Figure 3. Daily activities at Trench 9 (photo S. Mantellini).



1. Dr Simone Mantellini, Archaeologist, Field Director.
2. Dr Giorgio Affanni, Archaeologist, Ivory specialist.
3. Dr Agnese Fusaro, Archaeologist, Pottery specialist.
4. Mr Alessandro Tilia, Topographer, Surveyor.
5. Mr Daniele Redamante, Archaeologist, Excavation assistant.

1. Excavation of Trench 9: Stratigraphy and Architecture

The excavation covered an area of 15 x 10 m around Building 2 and Room 1 of Building 3, both inside Trench 9. The area was selected assuming that the southern wall of Building 2 would measure the same as the northern wall of Building 1 (11.70 m). Building 2 was actually only partially investigated in the previous campaigns, when consolidation and restoration were necessary after its exposure due to surface runoff (Mantellini 2019: 81-82).

1.2 Upper layers (S.M., D.R.)

The topsoil (SU 700, +8.58-9.10 m) and the upper layers (SU 703 +8.3 m, SU 707 and SU 708 +8.40 m) were deposits of colluvial origin composed by sandy clay with lenses of sand and fine gravel, and a marked South-North slope. The excavation of these layers opened a compact clay soil uniformly distributed over the entire area. Due to the difference in color, it has been distinguished as SU 701 (grey)

and SU 702 = SU 712 (yellow-reddish). They have both been interpreted as the result of the collapse of one or more mud-brick structures or walls. SU 701 was specially found in the north-east corner of the area (+8.68 m), while SU 702 (then established being equal to SU 712; +8.22/8.49 m) covered the rest of the area with a remarkable West-East slope. A rough alignment of mid-sized stones (SU 711, +8.36 m), possibly the remains of a later structure, was found in the eastern portion of the area between SU 700 and SU 702 = SU 712. In the same area, SU 702 = SU 712 also covered some sporadic lenses of fine reddish gravel (SU 716, +8.03 m)

1.3 Building 2 (D.R.)

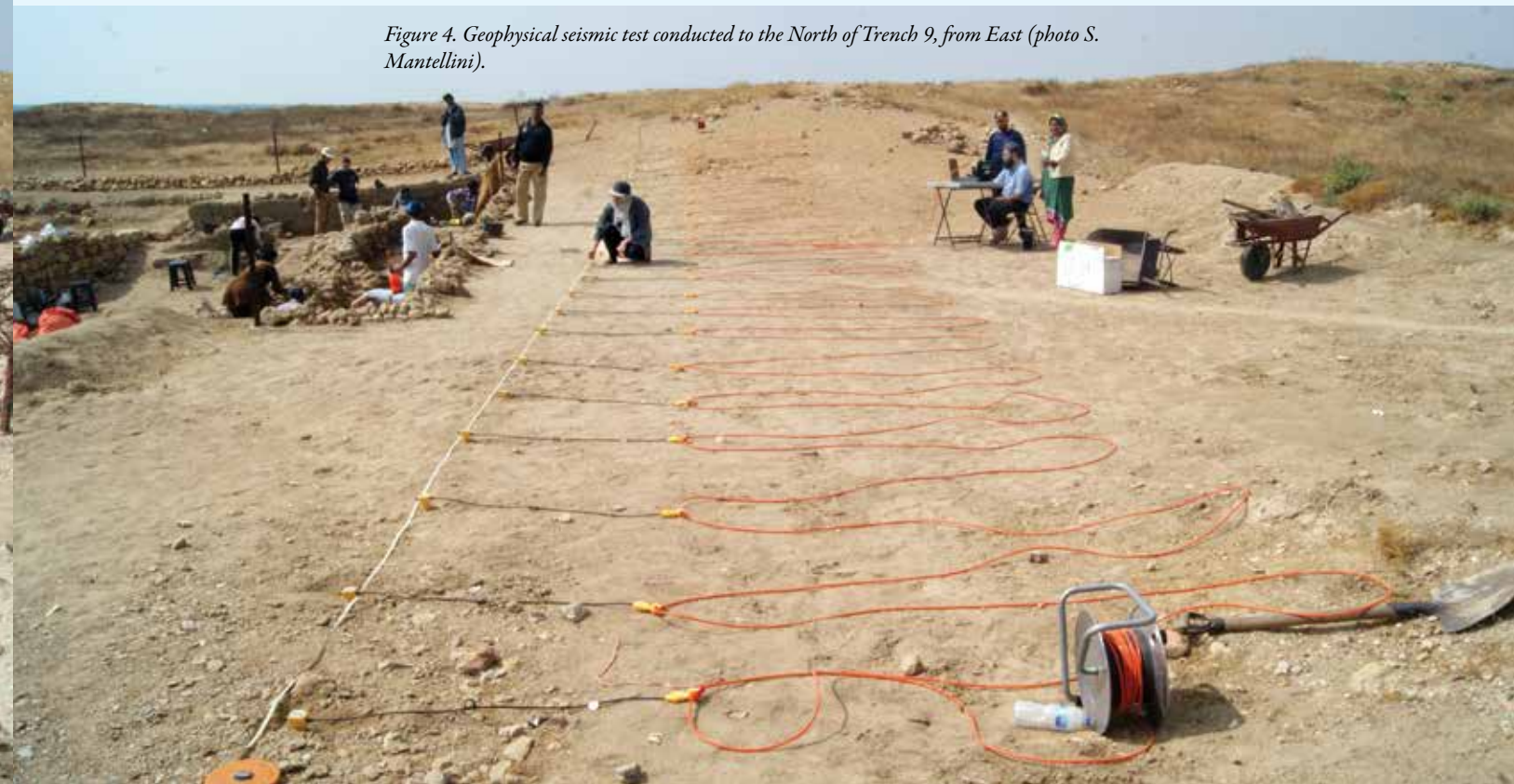
If the southern wall SU 836 and its threshold SU 837 were unearthed in 2017-2019 (Mantellini 2019: 81-82; SU numbers were assigned only in the last season), the removal of the upper layers exposed further the perimeter of Building 2 (Figure 5):

Eastern wall: SU 704 (2.06 x 0.55 m; +7.80/8.12 m) (continuing under the North section);

Southern wall: divided into SU 836 at East (2.90 x 0.75 m; +8.07/8.24 m); SU 837 the threshold/entrance (1 x 0.70 m; +7.47 m); SU 838 at West (6.26 x 0.66 m; +8.47/7.79).

Inside the central and eastern portion of Building

Figure 4. Geophysical seismic test conducted to the North of Trench 9, from East (photo S. Mantellini).



2, the upper layers covered a large mass of mud bricks (SU 717, top +7.88 m), ca 50 cm deep, which certainly points to the collapse of the upper part of southern and eastern perimeter walls (Figure 6). Nevertheless, bricks were well preserved and still arranged in rows so that it was possible to distinguish two main patterns according to their fabric and size:³ i) grey/yellowish sandy clay bricks prevail: 36/45 x 7.5/8 cm; ii) red bricks, made of a soft red clay rich in fine gravel, are instead fewer and smaller in size: 18/35 x 6 cm.

The aforementioned collapsed mud bricks covered two different groups of stones, both indicating the break of the lower stone courses of Building 2: the largest was SU 735 (+8.13 m), near threshold SU 837 and wall SU 838; and SU 757 (+7.23/7.72 m), in the South-East corner between walls SU 704 and SU 836. The western side of Building 2, where wall SU 838 was better preserved than elsewhere, was filled by several layers: SU 705 (+8.39 m); SU 709; SU 739 (+7.96

3 Only two of the three dimensions could be measured.



Figure 5. The area of 2020 excavation after cleaning, from West (photo S. Mantellini).



Figure 6. The collapsed mud-bricks SU 717 (zenithal drone view, operator A. Tilia).

m); SU 764 (+7.33 m). These accumulations share physical characteristics and materials, such as a brown to dark grey/black soft sandy-clayey and ashy soil, particularly rich in ceramic sherds, ivory fragments, osteological and carpological remains. Noteworthy finds from these layers are some clay figurines, one horse (BB.20.O.69, SU 709) (Figure 7) and two elephants



Figure 7. Terracotta figurine of a horse from SU 709 (BB.20.O.69, photo D. Redamante).

(BB.20.O.449, SU 739; BB.20.O.726, SU 764). The marked West-East slope that characterizes these levels suggests that they were intentional dumps, including remains of combustion and fires, originating from activities carried out near the building. After its abandonment, Building 2 underwent a slow and prolonged burial by natural and anthropic deposits from North, with its walls functioning as a sort of retaining barrier. There is, however, trace of sporadic occupations between the abandonment layers and the intentional filling, such as the fireplace SU 706 (+8.81 m) and an attempt of refurbishing SU 714 (bottom +8.57 m/top +8.76 m) the upper part of the western corner of SU 838. One of these squatter occupations is particularly worth noting (SU 718, +8.09/+8.32 m) because of the reuse of wall SU 838 as a shelter, and for several indications of anthropic activities (Figure 8). They include two fireplaces, SU 723 = Fireplace #3 (+8.31 m) and SU 734 = Fireplace #8 (+8.30 m), which yielded faunal remains and seeds, many ceramic sherds, a broken globular pot reused as a brazier,⁴ and

4 Seeds have been collected after sieving and their identification is currently in progress.

561 (411 complete and 150 fragmentary) terracotta beads from SU 718 (BB.20.O.305; Figure 9).

The discovery of mud-bricks is not unusual in Banbhore, as evidenced from the previous seasons in Trenches 7, 8, and 9 (Felici et al. 2016, 2018), but never in the form of such a massive architectural structure. This confirmed the existence of a mixed building technique, combining dry stone masonry made of small- and medium-sized stones for the foundation and the lower courses, and the wall built with rectangular unfired bricks of different shapes and fabrics.



Figure 9. The most complete terracotta beads from SU 718 (BB.20.O.305; photo D. Redamante).



Figure 8. The sporadic occupation in the southwestern corner of Building 2 with the vessel-brazier marked with a red circle, from East (drone view, operator A. Tilia).

In the eastern part of the building, the collapsed mud-bricks SU 717 and stones SU 735, and SU 757 exposed a natural deposit (SU 710, +7.81 m) made of a compact greyish sandy clay, which in turn covered an earlier structural collapse (SU 754, SU 751) of the eastern and southern walls.

More precisely, another part of stones SU 754 belonging to SU 704 and a compact yellowish sandy clay layer with inclusion of fine gravel SU 751 (+7.33 m) are likely recognizable as the upper part of walls SU 704 and SU 836. A portion of SU 754 was also covered by a deposit (SU 758, +7.00/7.70m) made of a compact grey sandy-clayey soil, rich in large ceramic fragments and a high concentration of more than 50 almost intact sheep shoulder blades (Figure 10).

On the western side of Building 2, both inside and outside, two new exposed layers were covered by previous dumps, again characterized by sloping towards its center (West to East). The first is a colluvium (SU 713, +8.39/8.48 m) made of a compact sandy-clayey yellow soil that also covered the remains of SU 839, the western wall of Building 2 (1.72 m x 0.70 m; +7.98/8.05 m; continuing under the northern section). The second is a soft dark-brown sandy clay deposit (SU 748, +7.32/7.51 m) rich in charcoal and ivory fragments. The finding of a large portion of an elephant tusk (BB.20.O.728; Figure 11) and two decorated ivory items (BB.20.O.539, BB.20.O.724; Figures 12, 13) suggests that SU 748 was an intentional dump. In its western portion, SU 748 covered the collapsed stones (SU 769) and loose mud bricks (SU 768) of the western wall.⁵



Figure 12, 13 Ivory piece BB.20.O.724 from SU 748 (photo D. Redamante).

The removal of the abandonment layers unearthed a portion (ca 20 m²) of a very compact floor made of beaten and slightly baked soil (SU 778, West +7.35 m, center +7.19 m, East +7.00 m) (Figure 14). The floor presents the evidence of holes and pits pertaining to a second use of the building, such as: i) two installations for pottery vessels (filling SU 790, cut SU 791, diameter 50 cm, depth 23 cm; filling SU 794, cut SU 795) diameter 60, depth 8 cm); ii) three small fired spots (filling SU 786, cut SU 787; filling SU 788, cut SU 789; filling SU 792, cut SU 793), having the same size (diameter 18 cm, depth 7 cm) and likely connected with minor melting activities as suggested by the microscopic remains of metal on its surface; iii) wide ash-rich lenses (SU 777); iv) and, a large rubbish pit (filling SU 780, cut SU 781)⁶. The only evidence in phase with the early phase of the floor is an alignment of four holes along the southern wall (hole #1 = filling SU 782, cut SU 783; hole #2 = filling SU 784, cut SU 785; hole #3 = filling SU 796, cut SU 797; hole #4 = filling SU 798, cut SU 799). Their size (diameter 18 cm, depth 23 cm) and location (ca 20 cm from the southern wall) suggest they belonged to a shelf/furniture rather than a roof support.



Figure 10. The deposit of sheep shoulder blades in SU 758, from South (photo S. Mantellini).



Figure 11. The elephant tusk from SU 748 (BB.O.728.SU 748; photo D. Redamante).

⁵ This evidence continues under the section; so its certain attribution will be possible only after the future enlargement of excavation.

⁶ See note 5.

1.3 Outside Building 2 (S.M.)

Outside Building 2, the most significant discovery refers to the presence of three different areas related to ivory manufacture.

Ivory #1 is located outside the eastern wall SU 704, in the former South-North street (Figure 15). 4.686 kg of ivory fragments (SU 719, BB.20.O.471; +7.70/7.81 m) were found uniformly scattered on a flat floor of ca 4 x 2 m (SU 770, +7.66/7.72 m) delimited by a stone alignment to the West (SU 760, +7.80 m). Floor SU 770 was cut by three holes. Two of them (SU 825 filling, SU 826 cut at North; SU 827 filling, SU 828 cut at South) are very small and shallow (diameter ca 5 cm, depth 3-4 cm) and they possibly pertained to the equipment used in the ivory processing. A slightly larger hole (SU 829 filling, SU 830 cut; diameter ca 20 cm) cuts the floor SU 770 outside the surface covered by the ivories.

Ivory #2 was found on the former East-West street, outside wall SU 838, near the SW corner of Building 2 (Figure 16). If the Ivory workshop #1 was almost flat, this area is characterized by a mound-shaped accumulation of ivory offcuts formed by six different layers of wastes: SUs 771, 779, 820, 821, 831, and 832 (top SU 771 +7.67 m, bottom SU 832 +7.41 m), for a total amount of 6.393 Kg of ivory. Each layer has been documented and recorded individually (Figure 17).

Ivory #3 yielded 1.513 kg of ivory fragments (BB.20.O.843) from the cleaning of the western section of Trench 9, exposed after the 2015 season (Figure 18). This deposit (SU 761, top +7.72 m, bottom +7.64 m) was only partially investigated, and its full exposure is planned for the next season.

Such an impressive amount of ivory in this area must be associated with the discovery of the ivory wastes SU 119 (ca 4,000 fragments) brought to light in 2015 in front of the threshold SU 837 of Building 2, i.e. between and at a similar elevation (+7.39/7.57 m) of Ivory #1 and Ivory #2 (Felici et al. 2016: 151-152, 155, 160, fig. 29).

According to the evidence above described, Ivory #1 can be certainly interpreted as a small workshop, while Ivory #2 and Ivory #3 pertain to dumps: Ivory #2 is perhaps connected to the same workshop Ivory #1 given the proximity to it, Ivory #3 (excavation to



Figure 14. The floor SU 778 of Building 2 with post holes, pits and melting spots (zenithal drone view, operator A. Tilia).



Figure 15. The workshop #1, from East (photo S. Mantellini).



Figure 16. The dump Ivory #2, from East (photo S. Mantellini).



Figure 17. The dump Ivory #2, detail of SU 820 (photo S. Mantellini).

be completed) instead seems to be connected to a discard of material from West.

1.4 Backfilling, preservation and consolidation (S.M.)

Following the decision by the Antiquities & Archaeology Department, Government of Sindh, to leave the buildings of Trench 9 and Trench 11 partially visible to tourists, the top of the walls of Building 2 were protected by using the same technique and material employed for the restoration of Building 1 in the previous season: stones were therefore fixed together and voids between them filled and strengthened with mud.

The backfilling of Trench 9 has been done at the end of the season. Traditional mats made of woven palm leaves have been used to protect the floor inside Building 2, while textile bags filled with loosen soil were used to protect holes and pits (Figure 19).

Moreover, the perimeter of the excavation area has been delimited by stones and an earthen barrier 0.50 m high (see Figure 1). Later, the area including Trench 9 and Trench 11 was fenced to prevent the access of unauthorized people.

Ca 15 m North of the Trench 9 northern border, an earthen barrier of 26 x 2.5 m fixed with stones was also arranged in order to avoid the damages caused by the run-off from the North slopes. The loose soil resulted from the excavation, and not used in the final backfilling, as well as the pottery rejected after the preliminary collection were accumulated Southeast of Trench 9 and East of the tourist path. The pottery rejected after the preliminary collection was also gathered North of Trench 9 inside a 2 x 2 m space delimited by stones (see Figure 1).

Figure 18. Backfilling and conservation at the end of the season (photo S. Mantellini).



2. The pottery evidence and a first chronological hypothesis (A.F.)

During the 2020 campaign a total of 4,987 sherds and more complete items were classified and analysed. All the ceramic assemblages considered are typical of the uppermost layers of the citadel that were already characterised and described in detail after the previous seasons (Felici et al. 2016: 130-137, 143-147, 148-152; Fusaro 2019). The assemblages show a very strong similarity or identity in their composition, comprising almost always the same glazed and unglazed wares. Moreover, the preliminary stratigraphic analysis of the pottery confirms that there is a huge quantity of matching sherds belonging to the same objects that were found in different layers, distant from one another horizontally within the excavated area and/or collected at different depths. Indeed, a large number of ceramic items are highly fragmented or they can be ascribed to incomplete items with many missing fragments. Among the matching sherds belonging to the same vessel but recovered in different layers, there are also four items whose fragments come from dump SU 118 above the ivory layer SU 119, uncovered in the 2015 field campaign. The four items recovered from SU 118 (green monochrome carved bowl inv. no. 118.882, yellow monochrome carved bowls inv. nos. 118.863a and 118.863b, and a pot imported from the Indian subcontinent inv.no. 118.884) match with fragments brought to light in SUs 733, 738, 756, and 764 exposed South of Building 2 during the 2020 campaign,⁷ very close to SUs 118 and 119 excavated in the 2015 season.

The identification of a large amount of matching sherds within the stratigraphic sequence leads to a number of suggestions that partially confirm the archaeological hypothesis: i) the majority of the layers are dumps; ii) many layers labelled with

⁷ The only exception is SU 764 that was inside Building 2.

different SU numbers should be considered the result of a unique anthropic activity; iii) the soil and the associated mixed material generating the dumps possibly come from only one place, outside Trench 9, that can be considered the source of this massive material discharge.

Both the similarity of ceramic assemblages and the abundance of matching sherds within Trench 9 point to a very short time span for the phases identified in this campaign, that correspond to the latest occupation of the site of Banbhore. Its chronological attribution can be suggested especially by considering some unique items as reliable chronological markers. These are: three green and yellow monochrome glazed large deep bowls with carved and cut decoration (inv.nos. 118.882, 118.863a, 118.863b), whose production is usually attributed to Iran and dated to the 11th-13th or more probably 12th-13th century (Figure 20);⁸ and one green monochrome glazed

⁸ Specimens of the same type were found in other sites of the Indian Ocean, such as Sharma (Rougeulle 2015: 248, figs 197.1-3, dated to the end of the 11th-early 12th c.), Shanga (Horton 1996: 286-289, figs 209a-b), Kilwa (Chittick 1974: 305, pl. 115a, dated to the late 12th-late 13th c.), Manda (Chittick 1984: 81, pl. 34a-b, dated to the 12th-13th c.), and southern Iran (Priestman 2005: 253-254, pl. 106).

Figure 19. Green monochrome glazed bowl with carved and cut decoration, inv.no. 118.882 (drawing A.H. Ansari, photo A. Fusaro).



stoneware jar with a medium-high neck and short vertical handles (inv.no. 1144), that has been possibly identified as the so-called Martaban jar from southern China. The latter type replaced the more ancient Dusun jars as large containers circulating in the maritime trade of the Indian Ocean, from the 11th century onwards.⁹

Among the vessels useful for proposing a reliable dating, there is a good amount of specimens, both glazed and unglazed, that show traces indicating reuse or ancient restoration. In the first case they consist in single sherds of broken vessels showing well-smoothed fractures, that were reused for purposes other than its original one (such as game pieces, tools, etc.); in the latter case, they comprise glazed imported vessels that were evidently highly esteemed and, after their breakage, were repaired by making piercing holes for stitching the vessel pieces together, or specimens whose broken parts show well-smoothed fractures (especially in the case of broken rims) for extending the vessels life and use (Figure 21). These reused or restored items

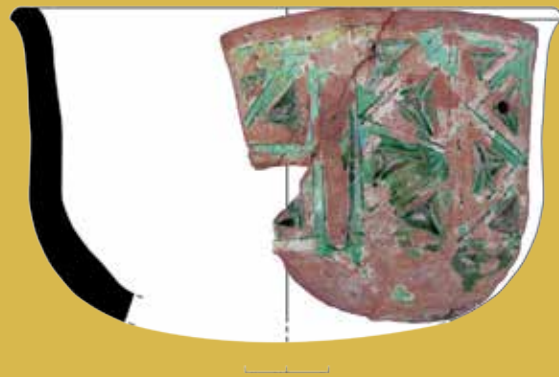


Figure 20. Fragment of an unglazed red conical bowl/lid from SU 726 and, above, detail of the well-smoothed broken rim (photo A. Fusaro).

clearly testify to a very late phase of occupation of the Banbhore's 'walled area', when the local production strongly decreased and the import of items from farther lands was no longer active.

Further indication of the late occupation comes from numerous fragments (153) related to the globular body or the convex bottom of unglazed local pots, mainly belonging to the red ware. Once the closed pots were already broken, these portions of the vessels were reused as hemispherical containers.

The presence of fire traces (40 specimens) and soot marks (113 sherds) on their inner surface (Figure 22) allows interpreting them as temporary fireplaces, portable heaters or more properly braziers installed occasionally. The most emblematic case is a convex base of a broken globular pot, full of soot marks on the inner surface, from SU 718 (see Figure 8). It was found still in place, lying



Figure 21. Fragments of unglazed red pots with soot marks on the inner surface from SU 705 (photo A. Fusaro).

⁹ Items identical to that found at Banbhore were recovered from other sites, especially Shanga (Horton 1996: 305, fig. 227-k); see also Pradines 2010: 225-226, and Zhao 2015: 286, figs. 215.9, dated to the 11th-14th c. and attributed to the Guangdong and/or Fujian kilns.

in the south-western corner of Building 2, located in a strategic position, well-protected from the wind. The embers or burning coals were collected inside the vessel and they were easily thrown away once the fire was extinguished. In some of the fragments recovered, the soot marks appear very thick and with reddish/brown tinges; we cannot exclude that they also contained food remains, thus suggesting that the braziers were also possibly used for cooking food on the embers.

All considered, the preliminary analysis of the pottery from the upper layers excavated in the 2020 season leads to date the latest occupation of this area to the late 12th-early 13th century. This chronology could be considered a *terminus ante-quem* for the activity of the workshops. The ivory workshop #1 (SU 719) only gave very small and badly preserved fragments that could not be classified. The ceramic material recovered from the layers related to the ivory spots #2 and #3 largely conforms to composition and features of the pottery assemblages from the dumps excavated in Trench 9, thus suggesting that the findings from these two areas are in a secondary deposition and also belong to a dump.

Finally, it is worth considering the remarkable difference in the ceramic assemblages between the upper layers from the eastern and the western parts of the excavation area. In the former the ceramic fragments from SU 710 and SU 712 above the ivory workshop #1 (SU 719) and the upper fillings of Building 2 in its eastern portion (SUs 708, 716, 717) are extremely small, very badly preserved, with surfaces and fractures shabby and damaged; some also have abundant calcareous and earthy-calcareous deposits covering the surfaces. All these features are probably the result of their prolonged exposure to atmospheric agents. The same characteristics were not detected in the ceramic assemblages recovered in the western part of the trench. This difference could further confirm that the eastern portion of the trench continued functioning as a street for long time, while the rest of the area inside and outside Building 2 was used as a dump for discarding large quantity of materials.

3. Preliminary study of the ivory (G.A.)

The following notes concern the study of the ivory assemblage from the excavation of Building 1 in the 2019 field season. However, in consideration of the unique discovery of the ivory workshop in primary

context exposed at the end of the present campaign, some preliminary observations on the ivory from the 2020 season are also presented here.

The assemblage of ivory objects recently uncovered in Trench 9 (campaigns 2015, 2017-2018, 2019, 2020) counts more than 30,000 pieces and small fragments for a weight of more than 50 kg. This is the most abundant recovery of ivory artefacts ever known from a certain archaeological context. Due to the great amount of production waste and the peculiar context of site dispersion it is sound to say that the area housed ivory manufacturing and its waste deposits.

The ivory offcuts discovered in Trench 9 have been processed through a fieldwork protocol (Affanni 2015) already successfully applied on the ivory assemblages from Arslan Tash in Syria (Fontan, Affanni 2018) and Old Nisa in Turkmenistan (Affanni 2018). This protocol was used in order to reconstruct the production cycle, as well as to identify ancient production techniques and tools used for carving and decorating the objects (Affanni 2019). If the 2019 season was dedicated to a general assessment of the ivory assemblage from Trench 9 aimed at identifying material, tools and techniques used by the ancient artisans (Affanni 2019), the present study focused on the selection of the most interesting pieces (107 in total) from the 2019 excavations.

Regarding the identification of the material, the peculiar conformation of the ivory assemblages hitherto discovered at Banbhore makes its identification with elephants unquestionable (Affanni 2019), although establishing the Indian or African origin of the raw material would be possible only through DNA analyses. However, the preliminary analysis of some alphabetical inscriptions on the ivory raises interesting observations on this matter. One piece (BB.17-18.O.921/2; Affanni 2019: 105, Figure 1) bears signs only on the outer surface of the tusks (the cement), and it has been cut in pieces during the carving operations. It means that the inscription was made and read before the work began, providing two options on the identity of the writer: the artisan himself, who wrote some notes after purchasing and before starting work on the tusk. Or, it refers to the person(s) who handled the tusk before the artisans acquired it, like merchants or palace officials, who needed to register information

directly on the tusks. As the characters used were not only Arabic but also Devanagari (Z. Quadri, personal communication), a local rather than an African origin of the raw material is therefore highly probable, as also suggested by the general small dimension of the pieces and the geographical position of Banbhore (Affanni 2019, 105).

The study of the material from 2019 also confirmed that the artisans made good use of the ivory. They used both the solid medium and upper part of the tusk, as well as its lower end. The latter is characterized by the presence of the pulp cavity and was probably considered a less expensive material. The first procedure to produce artefacts from elephant ivory is the preparation of segments of the tusk either in the form of cylinders, when obtained from the solid part, or hollow cylinders when obtained from the part with the pulp cavity. One hollow cylinder has been found in Building 2, SU 748, during the 2020 excavation (Figure 11). By dividing the cylinders into smaller pieces, the artisan would produce raw shaped objects that could be further worked to become complete artefacts. The tools used for the extraction of raw shaped objects were a saw, an ax and a carving knife (Affanni 2019, 106).

In the later stage, raw pieces were reduced in size. Material was removed by using lathe, knives, gouges, and chisels in order to carve the intended objects. This process results in a huge amount of waste and rejected chippings of different sizes, including very tiny shavings produced by the use of the lathe. The lathe was the most used tool for the purpose both to remove material or to engrave deeper lines with a decorative function. Waste production from lathe operations are consistent with a bow lathe, where a strip of material is attached to a curved stick to create a bow, which is then moved forwards and backwards to apply an alternating rotation movement to the object to be carved with a chisel. This tool required only one worker to operate it, however, holding and moving the bow meant that the turner only had one hand to support the chisels, and so would often use his feet/toes to control them. To work a piece on the lathe it has to be secured on two sides of the rotation axis, the headstock and the tailstock, each of them touching the piece with a metal point which would leave a tiny hole in the piece. The very last part of the pieces, the one holding onto the metal points was cut out and it became a waste (Affanni 2019).

The use of this kind of lathe may be confirmed by the exceptional discovery of the ivory work space during the last season, in particular the ivory workshop #1. The removal of the layer with ivory offcuts, chippings, and ivory powder (SU 719) exposed the floor SU 770 where the craftsman sat to work. Here two small holes (SUs 825-826 and SUs 827-828) likely indicate how the lathe was fixed onto the pavement, and the shallow depression into the floor SU 770 was the place where the artisan used to sit. A small mound of compact ivory shavings and powder may be the place where he used to put his right heel to hold the tailstock part of the lathe. This means that the bow was operated with the left hand and the chisel was used with the right hand and the left foot. With the right hand he also used to throw away offcuts. This could be guessed because the left side of the lathe was very close to the limit of the working space and the majority of the waste was found on the right side of the lathe, implying that offcuts were taken from the lathe and thrown away with the right hand in the direction of the right side of the artisan. It is therefore arguable that the artisan working in this place was probably right-handed as he used the right hand to hold the chisel, an operation that needs a strong and firm hand, and to discard pieces, while he used the left to operate the bow.

The decoration of the pieces was done through chisels, both hand-held or with the aid of lathe to make lines and hand drills. Polychromy was also employed to decorate the ivories, as a final treatment, using two kinds of pigments, black and red. Only in-depth analyses could confirm the chemical-mineralogical composition of the pigments, but arguably black was obtained from coal or charred wood and red was most probably obtained from iron oxides.

The material from the 2017-2018 and 2019 campaigns shows that a specific kind of waste was produced and discarded during the process meaning that some specific types of objects were made in the workshop. Complete and final objects are rare in Trench 9. Their shape could be inferred only on the basis of the wastes and incomplete pieces discarded during the production process. On this matter, two ivory pieces (BB.20.O.539 and BB.20.O.724, see Figures 12-13) found in 2020 inside Building 2 (SU 748) are worth noting because they are finished and possibly are game pawns.

The first procedure to obtain artefacts from elephant ivory is the preparation of tusk segments. By dividing those segments into smaller pieces the artisan would produce raw shaped objects that could be further worked to become the final objects. Here below is a brief description of the main classes of objects hitherto identified in the material from Trench 9. Plaques, either thin or thick, were obtained by cutting longitudinally a full or hollow ivory cylinder. Some thin plaques were discarded as rejects (BB.17-18.O.901/4, Figure 24) while some others were used as the starting point for the production of other objects; thick plaques haven't been found as rejects as they were most probably all transformed into different types of objects. The remains of those plaques are basically two kinds of wastes: the first looks like perforated strips (BB.19.O.100/10; Affanni 2019: 107, fig. 8) and the object removed from them could have been something like hemispherical pawns (BB.19.O.100/12, Figure 23). The second is the internally rounded corners (BB.17-18.O.910/1, Figure 25) or the internally rounded sides (BB.19.O.121/7, fig. 26) from which circular objects would have been carved out. Many broken rejects of annulus shaped items (BB.19.O.100/8; Affanni 2019: 106, Figure 2) that have been found during the excavations may probably fit as those circular objects coming from the inside of thin plaques. However, the objects fitting with the thicker plaques haven't been identified yet.

Using the hollow part of the tusk in proximity of the culmination of the pulp cavity, the artisans produced artefacts that could probably have been handles (BB.19.O.100/36, Figure 27) for different classes of items, such as fans, mirrors, knives, etc.



Figure 22. Ivory thin plaque, Inv. no. BB.17-18.O.901/4 (photo G. Affanni).



Figure 23. Ivory hemispherical pawn, Inv. no. BB.19.O.100/12 (photo G. Affanni).



Figure 24. Ivory offcut with internally rounded corners, Inv. no. BB.17-18.O.910/1 (photo G. Affanni).



Figure 25. Ivory offcut with internally rounded sides, Inv. no. BB.19.O.121-7 (photo G. Affanni).



Figure 26. Ivory handle, Inv. no. BB.19.O.100-36 (photo G. Affanni).

The last offcuts so abundantly found in the excavation are the lathe offcuts. They are produced on the two sides of an object worked at the lathe. Three kinds of lathe offcut have been found: i) lathe offcut from the tip of the tusk fixed with a nail (BB.17-18.O.906/1, Figure 28); ii) lathe offcut from the solid part of the tusk fixed with a nail (BB.17-18.O.894/1; Affanni 2019: 106, Figure 4); iii) lathe offcut from the solid part of the tusk fixed with a clamp (BB.19.O.100/4, Figure 29).



Figure 27. Ivory lathe offcut, Inv. no. BB.17-18.O.906/1 (photo G. Affanni).



Figure 28. Ivory lathe offcut, Inv. no. BB.19.O.100/4 (photo G. Affanni).



Figure 29. lathe offcut from the solid part of the tusk fixed with a clamp- BB.19.O.100/4,

Concluding remarks (S.M., A.F.)

The results from the 2020 season finally confirmed the presence in the central area of the fortified site of Banbhore of an important ivory manufacturing center during the Islamic period, which makes Banbhore the only ivory workshop known in the archaeological record worldwide. The preliminary study of the ivory made also possible general hypotheses on its production process, including the identification of the general typologies of waste/objects, the tool(s) used by the artisan(s), and also the provenance of a single tusk fragment.

The three ivory spots exposed during the last season, and the ivory layer SU 119 unearthed in 2015, formed a large manufacturing area in this part of the site, including further potential working areas nearby, as suggested by the ivories from the dump Ivory #3 and the upper deposits. By combining the data from the 2020 season with the information available from the stratigraphic sequence and material from the 2015 campaign (Felici et al. 2016: 151-152), it is possible to frame the functioning of the ivory workshop outside Building 2 to the early-middle 12th century. It is worth noting that this activity corresponds to the latest occupation of Banbhore, a time usually considered as a period of decay of the settlement (Piacentini Fiorani 2019b: 13-14). This decline is well testified by the reuse of the earlier streets in this important urban crossroad for the installation of the ivory workshop.

The sporadic occupation of this area is even more evident in the episodic anthropic activities unearthed outside and inside Building 2, where the reuse of stone walls and the presence of many fireplaces indicate the presence of a sporadic occupation. It occurred in a very short time span probably between the end of the 12th and the early 13th centuries CE.

Building 2 itself revealed four significant phases, two of them referring to an anthropic occupation, and two of abandonment. The earliest phase, only partially exposed, is characterized by a beaten floor cut by four small circular holes along the southern wall. The same floor was later cut by bigger holes and pits, before the abandonment of the building witnessed by the collapse of its perimeter walls. The building was filled by both natural accumulations due to atmospheric agents and anthropic fillings.

The marked slope East-West and South-North and the dark color of the stratigraphy in the western part of the trench, either inside and outside Building 2, well indicates the presence of intentional discharge of material from a higher place located to the North/North-West of the excavated area. Contrary to the upper fillings in the eastern part of the excavation, which have a rather horizontal distribution and a sandy soil fabric with few materials, the layers on the eastern side are also characterized by many finds, such as pottery, charcoal, animal bones, and ivory. A second squatting frequentation of this building is attested in its western portion, as testified by the refurbishment of the south-western corner, along with the finding of numerous broken vessels reused as braziers and fireplace #3.

As a future perspective, the discovery of the ivory manufacture suggests opening entirely the area around Building 2 in order to understand the size of such a unique craft quarter. Activities scheduled for the next campaign are therefore: i) to completely expose Building 2; ii) to complete the excavation of the ivory # 3 in the western section; iii) to extend the excavation to the stone structures detected to the North-West of Building 2 (same building? a new building?) to validate the hypothesis of further workshops.

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Acknowledgments

We wish to express our gratitude to the Italian Embassy in Islamabad for the benevolence with which it always followed our research work. Our gratitude goes also to the Pakistani Embassy in Rome, the Pakistani General Consulate in Milan and the Italian Consulate in Karachi for supporting us with the bureaucratic iter of the visa. The Italian Consulate in Karachi has also sponsored the expedition with flight tickets of four team members, provided the Italian team with the possibility of storing a part of the equipment inside the Consulate in Karachi and much useful advice during the whole 2020 campaign. The General Directorate of Antiquities and Archaeology (Ministry of Culture, Tourism & Antiquities' Department, Government of Sindh) supplied the Italian team with logistics, accommodations at the guesthouse of Banbhore, and technical equipment for topographical survey. It also provided us with special assistance and precious collaboration from its staff during the excavations. Fieldwork and laboratory activities were conducted thanks to the priceless efforts of the workers from the villages near Banbhore and the 24h security from the policemen of the Dabeji station. Our deepest gratitude to all of them.

Surveys in Lower Sindh: Preliminary Results of the 2021 Season

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Abstract:

Surveys carried out in December 2021 around Gharo, Gujo, the Makli Hills, and the terraces of the Khadeji and Mol Rivers have yielded important knapped stone assemblages, which contribute to the study of the Late Pleistocene and Holocene prehistory of Lower Sindh. The surveys were conducted by three persons, and the finds were mapped with the help of a high-precision GPS. Moreover, marine and mangrove shell samples were collected for radiocarbon dating to build a detailed chronology of the prehistoric periods during which the coastal area was settled. Special attention has been paid to the limestone terraces around Gharo, just north of the historical centre of Bhambore, the Tharro Hill, Beri and part of the Makli Hill, close to the city of Kalan Kot. The lithic assemblages recovered during the surveys are not very rich. However, some of them show characteristic technological traits, which attribute them to the Chalcolithic Amri Culture, while others are undoubtedly older. This fact, and the absence of Bronze Age material culture remains, is very important. It shows that some of the terraces which rise from the alluvial plain of the Indus, were settled during the fourth millennium cal BC when the landscape was very different from that of the present, and the limestone outcrops were islands surrounded by Arabian Sea waters or mangrove environments.

Key words: Lower Sindh, Indus delta, Lithic assemblages, Radiocarbon dating, Mangroves, Sea-level rise.

Introduction

The geoarchaeological surveys carried out in Lower Sindh by Professor Abdul Rauf Khan of Karachi University during the 1970s, led to the discovery of an impressive number of archaeological sites of different ages. During those days, the first chronological definition of the knapped stone assemblages

of the end of the Pleistocene and the beginning of the Holocene found in the region was proposed (Khan, 1979). Thanks to results achieved by these discoveries, many aspects of the prehistory of Sindh greatly improved during those years. However, many of the important finds collected during the 1970s surveys remained unknown to most of the scientific community for decades and unreported by most authors working on the prehistory of Sindh, with very few exceptions (Allchin, 1976).

Thanks to the renewed interest shown by Professor A.R. Khan the surveys were partly resumed in the late 1990s, and some of the important assemblages at present stored in the Museum of Prehistory of the Department of Geography, Karachi University, were published (Biagi, 2003-2004; 2005). However, much work is still to be made to publish all Professor Khan's collections. Thanks to his renewed interest, some of the sites which still existed at the end of the 1990s were revisited. Unfortunately, many of them, the Mulri Hills and Rehri for example, disappeared in those years, while others were being destroyed by increasing urban and industrial development.

The scope of this paper is to describe and discuss the data achieved during the surveys carried out in December 2021 in some important territories of Lower Sindh, some of which, the Tharro Hill for example, had already been visited by one of the present authors (P.B.) more than 20 years ago together with Professor A.R. Khan.

Apart from the impressive work conducted by this author, we have to mention the seminal volume by W.T. Blanford who, already in the 1880s, wrote

the most important and comprehensive report on the geology of Sindh. The volume includes the description of the chert outcrops discovered in different parts of the country (the Rohri Hills, Ongar and Jhimpir, for example), and the first notes regarding the Gaj formation limestone terraces which rise from the alluvial plain of the Indus River, the Tharro Hill for example, and many others (Blanford, 1880). We have to remark that all these terraces have yielded archaeological finds. Their discovery, which is often associated with the presence of datable material (mangrove and marine shells) help us interpret some of the complex problems related with the early Holocene Arabian Sea level rise, the history of the Indus delta advance, and the way it developed at least from the beginning of the metal ages to the present (Wilhelmy, 1968).

Materials and methods

The December 2021 surveys were conducted on foot by three persons who walked in previously selected areas, systematically checking all the territory covered by the research, taking pictures of the different landscapes and their characteristic woodland cover whenever it was present. The material remains

were recorded thanks to the help of a precision Magellan GPS, positioned on Google Earth maps, marking the points from which lithic findspots were identified and shell samples for radiocarbon dating were collected. It is well known that the radiocarbon dating of the sites is fundamental for the definition of the chronology of the archaeological finds, and, in our case, the interpretation of the sea-level changes that took place from the beginning of the Holocene to the present (see Biagi *et al.*, 2018). We have to remark that the work made by Professor A.R. Khan in the 1970s is very important also from this point of view. This author was the first to report the presence of marine shells from a few locations discovered dozens of kilometres inland, well far from the present coastline, which he correctly attributed to some human activity and not to natural agents (Khan, 1979: 18).

As reported above, the December 2021 surveys covered, from west to east, the terraces around the village of Gharo (Fig. 1, n. 3), The Tharro Hill (Fig. 1, n. 4), Beri (Fig. 1, n. 5), part of the Makli Hill (Fig. 1, n. 6), Pir Pato, where we did not discover any prehistoric artefact, and part of the terraces of the Khadeji and Mol Rivers (Fig. 1, n. 2) (Biagi *et al.*, 2022).

Fig 1 Locations of surveyed sites in lower Sindh



Table 1 Summary of samples found from Gharo

Site name	Coordinates	Altitude (m)	Extension m ²	Lithic artefacts	Shells	¹⁴ C Date	Collection date	Figure
Gharo-1	24°45'36.3"N-67°33'17.4"E	25	Single point	None	<i>T. telescopium</i>	GrA-59844	13/08/2013	2, n. 1
Gharo-2	24°45'33.615"N-67°33'22.320"E	26	Single point	None	<i>T. telescopium</i> , bivalves	None	02/12/2021	2, n. 2
Gharo-3	24°45'35.595"N-67°33'18.626"E	25	Single point	None	<i>T. telescopium</i>	In progress	02/12/2021	2, n. 3
Gharo-4	24°45'27.149"N-67°33'04.901"E	20	Single point	None	<i>Turbo bruneus</i>	None	02/12/2021	2, n. 4
Gharo-5	24°45'39.300"N-67°33'52.300"E	33	Single point	None	<i>Anadara rhombea</i>	None	04/12/2021	2, n. 5
Gharo-6	24°45'42.774"N-67°33'52.284"E	33	Single point	None	<i>Turbo bruneus</i>	None	04/12/2021	2, n. 6
Gharo-7	24°45'40.056"N-67°33'53.580"E	33	30.07	1 flakelet	<i>Anadara rhombea</i> , bivalves, Olividae	None	04/12/2021	2, n. 7
Gharo-8	24°45'41.862"N-67°33'55.962"E	35	31.80	2 flakelets	<i>Anadara rhombea</i>	In progress	04/12/2021	2, n. 8
Gharo-9	24°45'41.508"N-67°33'55.734"E	35	29.79	1 borer, 1 retouched blade, 1 rejuvenation, 3 flakelets	<i>Ostreidae</i>	None	04/12/2021	2, n. 9; 4, nn. 8, 9

Table 2 Summary of samples found from Kalan Kot, Beri and the Tharro Hill

Site name	Coordinates	Altitude (m)	Site type	Lab. Number	¹⁴ C Date BP	Material	Lithic artefacts	Munsell Colour	Patina	Figure
KKT-2	24°42'17.3"N-67°52'23.5"E	24	Shell scatter	GrN-32464	6320±45	<i>T. palustris</i>	Unretouched flakelet	7.5YR8/1	Yes	No
KKT-3	24°45'54.8"N-67°52'40.4"E	18	Shell scatter	GrA-50234	5270±40	<i>T. telescopium</i>	None	No	No	No
KKT-4	24°42'15.283"N-67°52'15.429"E	22	Shell mid-den	GrA-59843	5460±60	<i>T. telescopium</i>	Retouched bladelet, flakelet	5YR5/3; 2.5Y7/4	Yes	4, nn. 6 and 7
KKT-5	24°42'11.410"N-67°52'15.233"E	22	Shell scatter	Unavailable	In progress	<i>T. telescopium</i>	Retouched bladelet	2.5Y7/4	Yes	4, n. 5
Beri-1	24°43'00.000"N-67°45'09.000"E	7	Shell scatter	GrN-32166	5960±50	<i>T. palustris</i>	Amri type lithics?	Many	Yes	4, nn. 1-4
Beri-2	24°42'59.880"N-67°45'08.700"E	7	Shell scatter	GrM-	In progress	<i>Scylla serrata</i>	Amri type lithics?	Many	Yes	4, nn. 1-4
THR-1	24°43'45.030"N-67°45'07.350"E	13	Shell layer	GrN-27063	5240±40	Ostreidae	Amri type lithics	Many	Yes	7, nn. 2-6
THR-3	24°43'45.040"N-67°45'07.040"E	13	Shell layer	GrA-47084	5555±35	<i>T. palustris</i>	Amri type lithics	Many	Yes	7, nn. 2-6
THR-2	24°43'27.130"N-67°44'44.780"E	11	Shell scatter	GrN-32119	6910±60	Ostreidae	Unretouched flakelet	7.5YR5/2	Yes	7, n. 1

Table 3 Summary of samples found from Tharro Hill

Tool n°	Coordinates	Altitude (m)	Tool type	Blade scars	Dimensions (mm: LxWxT)	Weight (gr)	Condition	Platform (mm: LxW)	Cor-tex %	Munsell Colour	Patina	Collection date	Figure
TH-1	24°43'45.180"N-67°45'08.160"E	13	Rejuvenation	Unifacial: 3	43x23x10	11.77	Complete	Écaillée (4x21)	0	7.5YR6/4	Yes	03/12/2021	7, n. 2
TH-2	24°43'45.720"N-67°45'04.200"E	15	Prismatic core	Unifacial: 6	(56) x43x21	61.58	Proximal fr.	Prepared, inclined (17x43)	20	7.5YR6/4	Yes	03/12/2021	7, n. 3
TH-3	24°43'45.180"N-67°45'08.160"E	13	Prismatic core	Unifacial: 8	74x29x20	61.05	Complete	Prepared, inclined (17x27)	30	7.5YR6/4	Yes	03/12/2021	7, n. 4
TH-4	24°43'44.400"N-67°45'08.760"E	12	Prismatic core	Unifacial: 5	(99) x49x31	121.12	Distal fr.	Missing	20	7.5YR6/4	Yes	03/12/2021	7, n. 6
TH-5	24°43'45.180"N-67°45'07.860"E	13	Prismatic core	Unifacial: 7	91x47x33	119.13	Complete	2 prepared, inclined (30x36; 14x26)	0	7.5YR6/4	Yes	03/12/2021	7, n. 5

1) Gharo

The limestone terraces that extend around the village of Gharo were visited for the first time in January 2014. On that occasion, a small spot of *Telescopium telescopium* mangrove gastropods was recorded on the top of one of the mesas. One shell sample from this findspot was radiocarbon dated to 6320±60 BP (GrA-59844: Gharo-1). Due to the importance of the result, which shows that some activity took place in the area during the Neolithic, despite the absence of material culture remains, the region was revisited and all the terraces which elongate north and south of the national road which from Karachi takes to Thatta were surveyed. The surveys led to the discovery of 8 more findspots from which lithic artefacts and/or mangrove or marine shells were recovered (Fig. 2; Table 1). The investigated area, which was extended to a surface of ca 500 m², is located ca 5 km east of the historical city of Bambhore, and one of the north-westernmost active branches of the River Indus.

recovered in 2021 is Gharo-9 (Fig. 3), which yielded evidence of a few knapped stone artefacts and one fragment of Oyster shell. The lithic assemblage from Gharo-9 consists of 6 artefacts obtained from slightly patinated chert of brown colour (7.5YR5/3). The presence of one corticated rejuvenation flakelet (Fig. 4, n. 9) shows that the artefacts were produced on the spot. The thick straight borer obtained from a corticated flakelet by abrupt, deep, direct, bilateral retouch (Fig. 4, n. 8) is worth mentioning as is the medium fragment of a bladelet with semi-abrupt, direct retouch along the left side, although it is difficult to attribute these artefacts to any precise period of prehistory. Though the chronological attribution of these finds is difficult because it is based only on their typological characteristics, we can exclude that they are to be referred to a period preceding the introduction of metal in the region.

Similar observations regard the knapped stone artefacts from Gharo-7 and Gharo-8. The lithic



Fig 2 Locations of findspots from which lithic artefacts and/or mangrove or marine shells were recovered.

Gharo is important because it shows evidence of Neolithic activity and the exploitation of a mangrove environment which flourished just after the middle of the seventh millennium uncal BP (GrA-59844), close to the radiocarbon-dated shell findspot. Other spots of *T. telescopium* shells were retrieved from the terraces that extend south of the national road, while those north of the same road show quite a different archaeological pattern. The most important findspot

assemblages from the two sites are too small to attribute them to a precise period and cultural aspect. However, we can observe that they have been obtained from chert nodules of brown colour (7.5YR5/3), which were extracted from a primary limestone source whose location is at present unknown, and not from river pebbles.



2) The Tharro Hill

The Tharro Hills are a limestone terrace that elongate in south-west/north-east direction in the western part of the Indus delta region close to the village of Gujo. The Chalcolithic Amri Culture settlement is located in the eastern part of the mesa ca 5 km south of the Gaj limestone formation that marks the ancient coastline (Fig. 5). The site is impressive because of the presence of unique, complex structures among which are two semi-circular, defensive stone-walls (Fig. 6). The site has been reported from many important papers and volumes on the prehistory of Sindh, though different opinions have been put forward regarding its chrono-cultural attribution, function, and the characteristics of its assemblages (Cousens, 1929; Majumdar, 1934; Gordon, 1950; Piggott, 1950; Fairservis, 1975; Allchin, 1985). The material culture remains consist mostly of knapped stone artefacts, which have been collected from the site's surface by several researchers throughout a

period of ca one century. Complete red-slipped pots have been found as well as ceramic potsherds with different types of geometric painted patterns, which closely recall the characteristic Amri fine ware motifs (Casal, 1964).



Fig 5 Location of surveyed sites in the Tharro Hill

Fig 6 Stone wall structure

Fig 3 The most important findspot recovered in 2021 is a site of Gharo-9 from the south

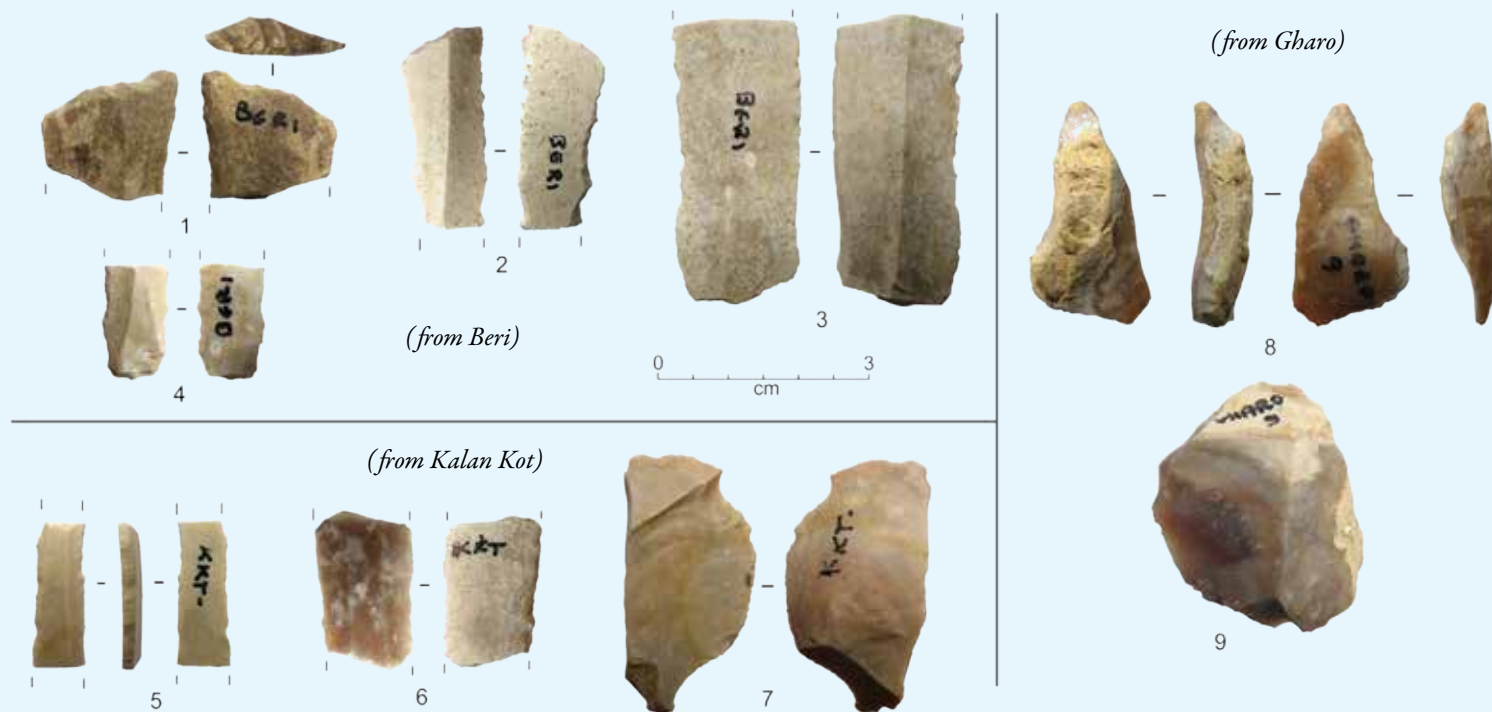


Fig 4 Artefacts found from the different sites including one corticated rejuvenation flakelet (n. 9)



The only collection of lithic finds so far analysed in detail is at present stored in the Museum of Prehistory of Karachi University (Biagi, 2005). The assemblage has been attributed to the Chalcolithic Amri Culture on the basis of the typological characteristics of the knapped stone artefacts, their techno-typological characteristics, which were almost exclusively oriented to the production of regular blades and bladelets with trapezoidal cross-section, and the recurrent presence of specific tools among which are so-called Amri triangles and other semi-abrupt retouched implements, truncations and bladelets for example. Two radiocarbon dates have been obtained from mangrove and marine shells sampled from a spot located just inside the inner stone wall (Fig. 5). They yielded slightly different results, both of which date the site to the Chalcolithic period (GrA-47084: 5555±35 BP on *T. palustris* (THR-3) and GrN-27063: 5240±40 BP on Oyster shells (THR-1).

The complexity of the fortified site, the presence of many small mounds inside and outside the stone walls, and the presence of different types of burials, have been widely discussed by N.C. Majumdar in his seminal volume on the Prehistory of Sindh (Majumdar, 1934). However, the occurrence of large spots of marine and mangrove shells, which cover some of the easternmost parts of the site, has never been taken into consideration by most archaeologists, and their archaeological and environmental significance underestimated or neglected (see Fig. 5).

The site was revisited in December 2021. The main scopes of this visit were to relocate the human bone remains of one individual, most probably a burial, which were well visible already 25 years ago on the site's surface, close to the inner stone wall, and to check the state of preservation of the settlement on which a group of nomads built their camp in 2009. During the 2021 visit, one animal bone sample was collected for radiocarbon dating from an open profile ca 30 cm thick rich in archaeological material culture remains, mainly ceramic potsherds, and five important lithic artefacts were precisely mapped, among which are four cores and one core rejuvenation flakelet.

We have to remark once more that our knowledge of the Chalcolithic Amri Culture knapped stone assemblages is very limited, and that the cores from sites of this cultural aspect are very rare, as they are, for example, from the Tharro Hill village under study (see Biagi, 2005). The location and detailed

description of the recorded cores is provided in Fig. 7 and Table 3. Their recovery locations show that they come from different areas of the site. This fact probably shows that the manufacture of the knapped stone tools took place in several zones, though at present we do not have any information regarding the absolute chronology of the different settlement areas. This fact is important for the study of the distribution of the findspots and the interpretation of the activities which took place within the site during the development of the Chalcolithic Amri Culture (Biagi and Franco, 2008).

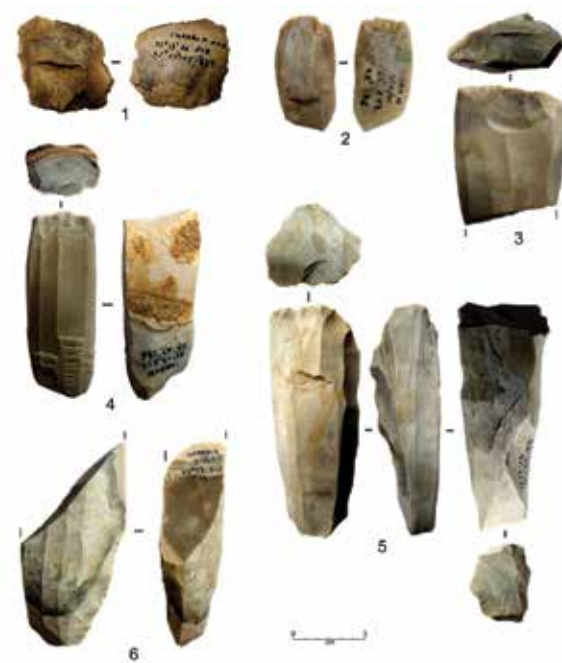


Fig 7 Cores/artefacts found from the Tharro Hill (see Table 3).

Apart from the important fortified settlement reported above, traces of an earlier Neolithic location are shown by the discovery a scatter of Oyster shells along the southern edge of the terrace, ca 700 m south-west of the Chalcolithic site, which was radiocarbon dated to 6910±60 BP (GrN-32119). The discovery of one marine shell findspot shows that the terrace was reached most probably by boat during a period predating the flourishing of a mangrove environment around the terrace, when the Tharro Hill were still an island surrounded by Arabian Sea waters. During the December 2021 surveys, one atypical, corticated, unretouched chert flakelet (Fig. 7, n. 1) was collected ca 25 m south-east of the aforementioned marine shell findspot (Fig. 8). This artefact is most probably to be associated with the Oyster shell scatter reported above.

3) Beri

The archaeological site of Beri ("boat" in Sindhi), is located ca 1.3 km south of the Tharro Hill Chalcolithic site. Beri is an elongated limestone terrace ca 100 m long and 40 wide. The prehistoric site was discovered in 2009 (Biagi, 2010), thanks to the kindness of the Tharro Hill villagers who showed us its location. An Islamic cemetery covers most of the central part of its surface (Fig. 9). All the prehistoric lithic artefacts are fragmented. They were found almost exclusively in the south-western part of the site, where a few marine (*Mytilidae* and *Neritidae*) and *T. palustris* mangrove shells were also collected. One mangrove shell sample was radiocarbon dated to 5960±50 BP (GrN-32166) (Biagi *et al.*, 2018: Table 1), while a chela fragment of *Scylla serrata* mangrove crab is currently being dated at Groningen University Radiocarbon Laboratory (CIO). According to the techno-typological characteristics of the knapped stone assemblage and the radiocarbon result, Beri was settled during the last centuries of the fifth millennium cal BC, that is during an advanced moment of the Neolithic, when the terrace was surrounded by Arabian Sea waters. The lithic artefacts consist of semi-abrupt retouched tools, among which are truncated and backed bladelets. They closely resemble those of the Amri Culture, though the Beri specimens were obtained from a few varieties of cherts whose sources are at present unknown (Fig. 4, nn. 1-4).

4) Kalan Kot

Mangrove shell findspots were recorded for the first time on the Makli Hills in 2009, during a brief visit around the ancient city of Kalan Kot (Fig. 10). During the following years three shell scatters and one shell midden were GPS-recorded and sampled for radiocarbon dating (Biagi, 2013). So far, three sites have been dated: KKT-2 (GrN-32464: 6320±45 BP on *T. palustris*), KKT-3 (GrA-50324: 5270±40 BP on *T. telescopium*), and KKT-4 (GrA-59843: 5460±60 BP on *T. telescopium*), while the dating of KKT-5 is currently in progress (Biagi *et al.*, 2018: Table 1). According to the available radiocarbon results the shell scatter KKT-2 belongs to the fifth millennium cal BC, while the other two are to be referred to the Chalcolithic fourth millennium cal BC (see Table 2).



Fig 8 Neolithic marine shell findspot in the Tharro Hill



Fig 9 The archaeological site of Beri ("boat" in Sindhi), an Islamic cemetery covers most of the central part of its surface



Fig 10 Shell findspots at Kalan Kot

Two characteristic lithic artefacts were collected on the surface of sites KKT-4 (Fig. 4, nn. 6 and 7) and KKT-5 (Fig. 4, n. 5) during the survey conducted in December 2021. Two bladelets show a semi-abrupt retouch along the sides, which is a characteristic trait of the Amri Culture tradition and, as far as we know, it occurs also in the preceding Neolithic aspects of the region, though this period is very badly known all over Lower Sindh. The presence of these artefacts confirms the attribution of the KKT-4 shell midden to the Chalcolithic Amri Culture, while KKT-5 is most probably a few centuries older. Regarding this part of the Makli Hills terrace, we have to remark the presence of both Neolithic and Chalcolithic shell findspots. Moreover, the characteristics of KKT-4 are unique. The site consists of a thin layer of very small fragments of only *T. telescopium* mangrove shells, which all together cover an elliptical surface of ca 100 sqm. We cannot exclude that, given the distribution of the shell spots, the site represents a few, subsequent occupations (Fig. 11).

Fig 11 Layer of very small fragments of only *T. telescopium* mangrove shells

5) The Mol and Khadeji Rivers terraces

Some of the terraces located close to the confluence of the Mol and Khadeji Rivers were systematically surveyed in December 2021, though a preliminary visit had already been paid to the area in January 2014 (Fig. 12). This led to the discovery of an important Mesolithic findspot, which was radiocarbon dated to 8275 ± 45 BP (KDJ-1: GrA-63862) from a fragment of large marine bivalve. The archaeological importance of the two river terraces was remarked already in the 1970s by the late Professor A.R. Khan in his paper on the archaeology of Karachi region (Khan, 1979; Biagi, 2019-2020). In this paper the author provided a first description of the most characteristic knapped stone artefacts the Upper Palaeolithic and Mesolithic periods, following the

discoveries made during those years in Lower Sindh (Fig. 13 and 14).

The research conducted in December 2021, confirmed many observations made by Professor Khan more than 40 years ago. The two river terraces yielded evidence of lithic scatters attributable to the Upper Palaeolithic, Mesolithic, Neolithic, and Chalcolithic periods, a few of which are being radiocarbon-dated thanks to the recovery of a few fragments of marine shells (Biagi *et al.*, 2022). This territory is very important because of the quantity and variety of archaeological finds, and its location along waterways which connect the regions of the interior to the Arabian Sea coast and the rich mangrove environments which flourish in the area.

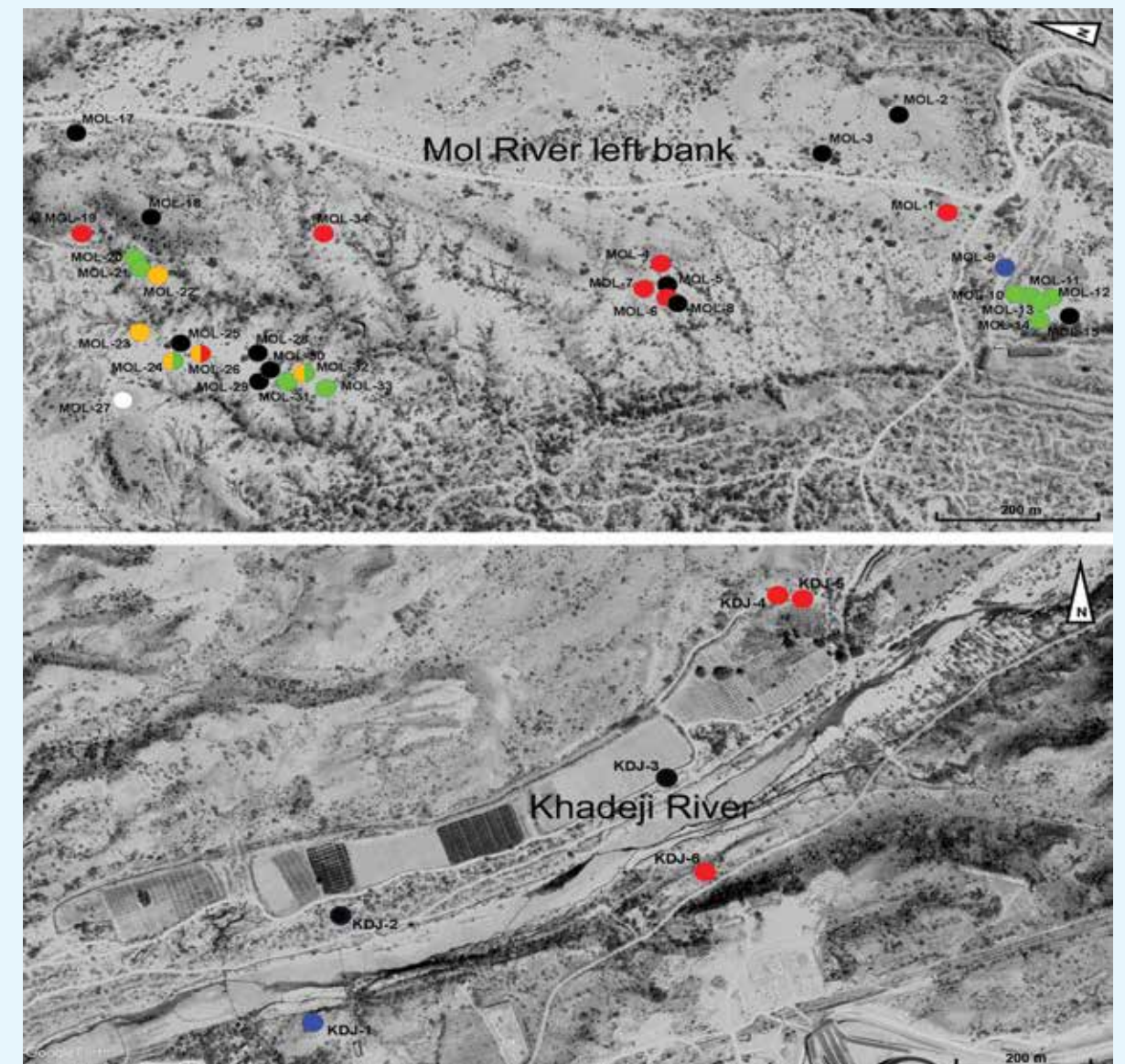


Fig 12 Findspots around the Mol and Khadeji Rivers, Karachi

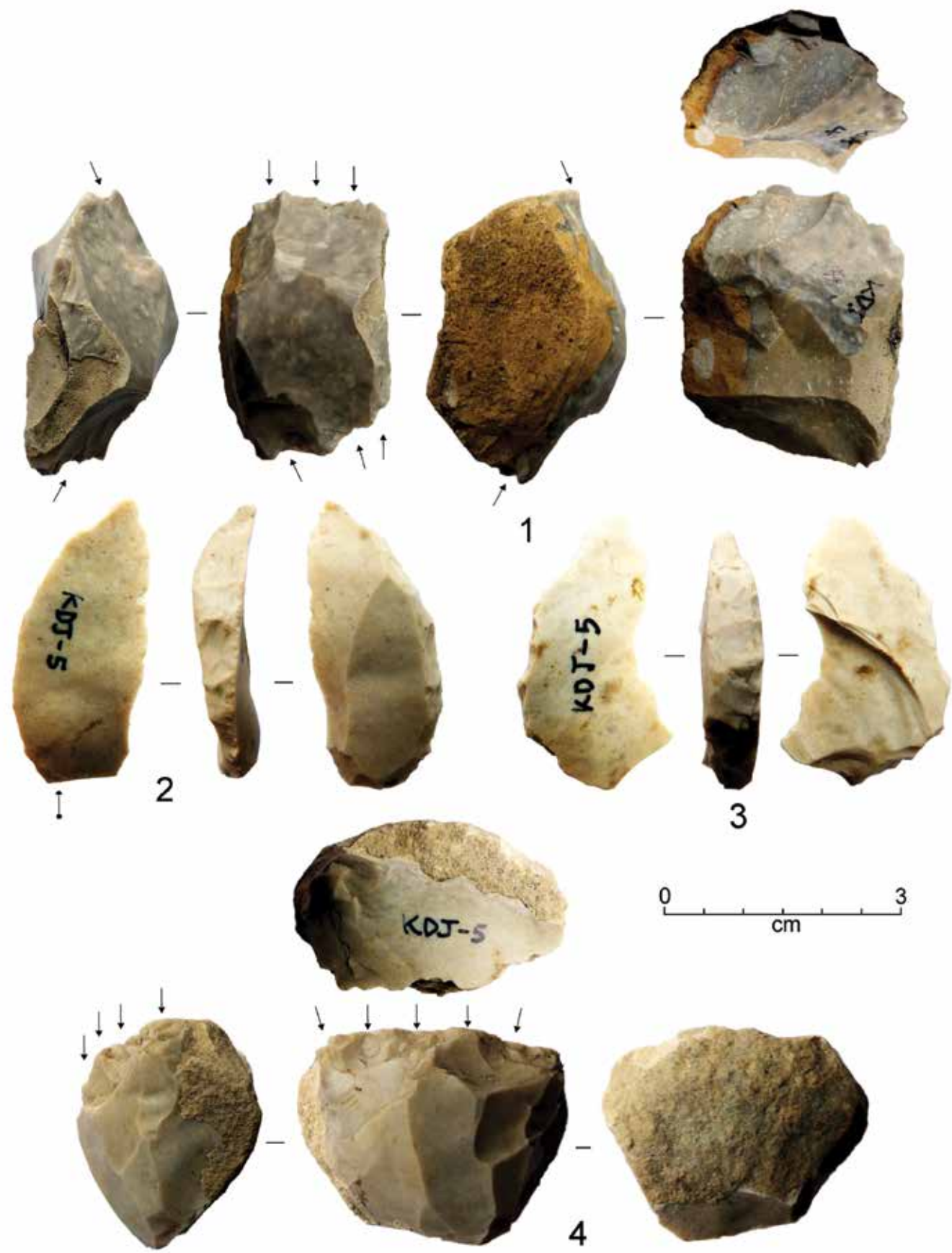


Fig 13 knapped stone artefacts of the Upper Palaeolithic and Mesolithic periods found from the Khadeji River, Karachi

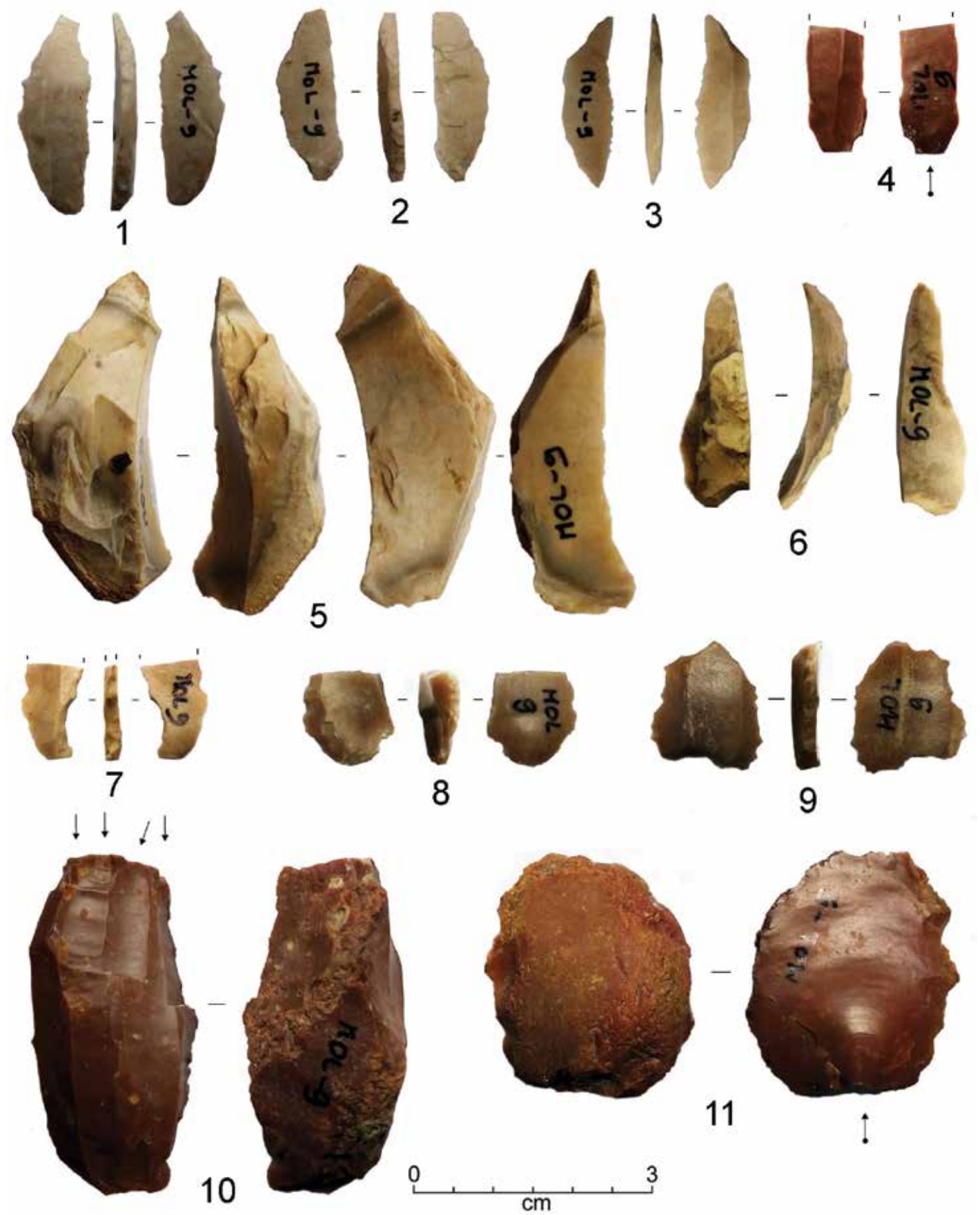


Fig 14 knapped stone artefacts of the Upper Palaeolithic and Mesolithic periods found from the Mol River, Karachi

Discussion:

Surveys are a fundamental component of every archaeological research (Navazo *et al.*, 2017). They contribute to the knowledge of the characteristics of the landscape where the archaeological sites are located and provide a reasonable view of the distribution pattern of the sites themselves. Moreover, they can lead to the interpretation of the reason why prehistoric communities choose some specific areas for settling and rejected others (Gargett and Hayden, 1991). This is the case for the territories of Lower Sindh, which were selected to conduct the December 2021 surveys. There are a few important points that are becoming more and more clear as the surveys intensify. The available general pattern shows that the lowermost regions of Sindh were exploited mainly during some periods of prehistory: more precisely the Upper Palaeolithic, Mesolithic, Neolithic and Chalcolithic, while Bronze age sites are almost absent. Moreover, the Neolithic and Chalcolithic sites, which in many cases are represented by shell scatters and shell middens, are closely related to the exploitation of marine and mangrove resources, following the establishment of sites on former small islands located rather close to the coastline, which could be easily reached by boat. Some of these sites consist of seasonal, ephemeral occupations. This is the case for the Kalan Kot middens, those of the Makli Hills in general, and Shah Hussein, on which many *T. telescopium* shell scatters were found and radiocarbon-dated during the surveys conducted between 2009 and 2013 (Biagi *et al.*, 2018: Table 1). For sure other settlements represent much more important centres, the Tharro Hill for example.

Another point relates to the role played by the watercourses which flow into the Arabian Sea from the interior. It regards the relationships between these two territories and the interpretation of the seasonal movements of groups of Late Pleistocene and Early Holocene hunter-gatherers, their exploitation of very different environments, following their mobile subsistence economy (see Garcia-Moreno, 2013). The surveys conducted along some of the watercourses, the most important of which is the Malir River, which originates from the confluence of the Mol and Khadeji Rivers, show that the riverbanks of the latter were settled also during the fifth and the fourth millennia cal BC, although so far we do not have any evidence for third millennium cal BC Bronze Age material culture remains.

The analysis of the sites distribution pattern is very important for the interpretation of the relationships that eventually took place between the Chalcolithic Amri Culture and the following Early Bronze Age Kot Diji aspect (Khan, 2002). The evidence so far retrieved from the Lower Sindh coastal area and the lithic findspots of the riverine interior, up to ca 30 km from the present coastline, does not show any interference or relationship between the fourth and the third millennium cal BC sites simply because so far the latter are not represented in the study area. This is one of the important topics that needs to be analysed in detail, because it is strictly related with the origin and early development of the Indus Civilisation, of which at present we know very little all over the territory on which it later developed and spread (Shaffer, 1992; Biagi and Starnini, 2021: 3-6).

To sum up: detailed surface surveys can provide an impressive quantity of archaeological data that cannot be retrieved in any other way. From this point of view, Lower Sindh presents many microenvironments and a variety of different landscapes that were ideal for settling during different periods of prehistory. Unfortunately, many coastal areas have been destroyed mainly during the last fifty years due to industrial and urban development, and many important archaeological areas have been lost forever, the Mulri Hills, for example. Despite this fact, we know very well that the number and variety of archaeological sites discovered from the 1970s onward, mainly thanks to the geoarchaeological investigations made by Professor A.R. Khan, are of invaluable importance. The coastal area and its immediate interior, which is incised by important (seasonal) watercourses, is the only region of Sindh from which groups of archaeological sites of many prehistoric periods have been discovered within restricted areas, and one of the few of the northern Arabian Sea coast from which a systematic radiocarbon chronology has been set up from mangrove and marine shell samples. The presence of all these sites, some of which look ephemeral to us, is to be interpreted in the wider perspective of the problems related with the sea-level changes and coastal variations which took place from the beginning of the Holocene onward, and the establishment of the present arid conditions around the end of the Bronze Age, when the Indus Civilisation had already begun to decline (Giosan *et al.*, 2012).

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Acknowledgements

The December 2021 survey was carried out thanks to the financial support of the Italian Ministry of Foreign Affairs and International Cooperation (MAECI) and the Society of Antiquaries of London (UK). Particular thanks are due to Syed Sardar Ali Shab, Minister for Culture, Tourism, Antiquities & Archives, Government of Sindh, and Manzoor Ahmed Kansro, Director General of Antiquities, Government of Sindh, for promoting the December 2021 surveys in Lower Sindh and patronizing the research. This paper is dedicated to the memory of the late Professor Michael Jansen for all his work to preserve and improve the cultural heritage of Sindh

The coin moulds: what are they for? Preliminary Study Report of Coin Moulds

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Abstract:

On the surface of the ruins of the fortified city of Banbhore, Sindh, a visitor can see lots of fragments of terracotta moulds. Currently it is thought that the moulds were used to produce copper coins of little value. In the present paper we present preliminary analyses performed on several fragments of moulds. By studying their shapes, their paste for understanding their heating procedures, the metals that wetted the inside surface of the depressions, we think that only a small fraction of moulds was used to produce low-value copper coins. The largest number of moulds was used to produce copper alloy pellets by melting directly inside the cavities small fragments of metal for different purposes.

Key words: Banbhore, coin moulds, archaeometry, thick sections, X-ray fluorescence,

1. Introduction

On the surface of the ruins of the fortified city of Banbhore, Sindh, a visitor can see lots of fragments of terracotta moulds. According to F. A. Khan, the moulds were made by preparing clay "pizzas" about 12 mm thick, of different diameters and shapes, with an ordered grid of cavities impressed on one face [1]. The cavities found on numerous fragments have a great variety of shapes and sizes. The cavities of some fragments have a cylindrical shape, with a flat bottom; conversely, the cavities of most fragments have a concave shape. Sometimes small copper pellets were found inside a cavity.

The moulds with cylindrical cavities and with flat bottoms have a fired clay-like paste similar to that of the bricks; probably these moulds were used for manufacturing copper discs pouring the molten metal into the cavities. These discs could have been

used as coins of small value. The other moulds, on the other hand, have a very different appearance: their colour is more grey and their lower face is partially or totally vitrified. Their appearance suggests that they have been subjected to a strong heat source from below and the presence of small copper spheres in the cavities suggests a different use than that of the first type of moulds. According to some scholars, they were used to melt metal fragments in order to obtain pellets. Then the pellets were placed on a die and, by a strong blow from a sledge hammer, reduced to discs to be used as coins of little value. [1]

An extensive literature [2] deals with the use of the moulds with cylindrical flat bottomed cavities for the manufacture of coins. Instead, the second type of moulds gives more to think about their use: many of them were made with little care; the variety of shapes and sizes does not fit with the idea of a roughly uniform coinage. Furthermore, a simple test showed that, by squeezing a small sphere of the size of those found in Banbhore (about 5 mm in diameter), an 8-9 mm diameter disc can be obtained, thick only tenths of a millimetre, much less than that of the actual coins. It may also be that several discs were joined together with further sledge hammer strikes, but then the labour required to obtain the small value coins was greater than the value of the coins themselves. A final observation concerns the fact that the findings of the moulds are superficial; we noticed that they were very abundant only in few, small areas on the surface of the site. During the excavation field seasons, a large number of mould fragments have been found in the mostly in the stratigraphic units near the surface, the ones most disturbed by the atmospheric agents. All this suggests an activity associated with

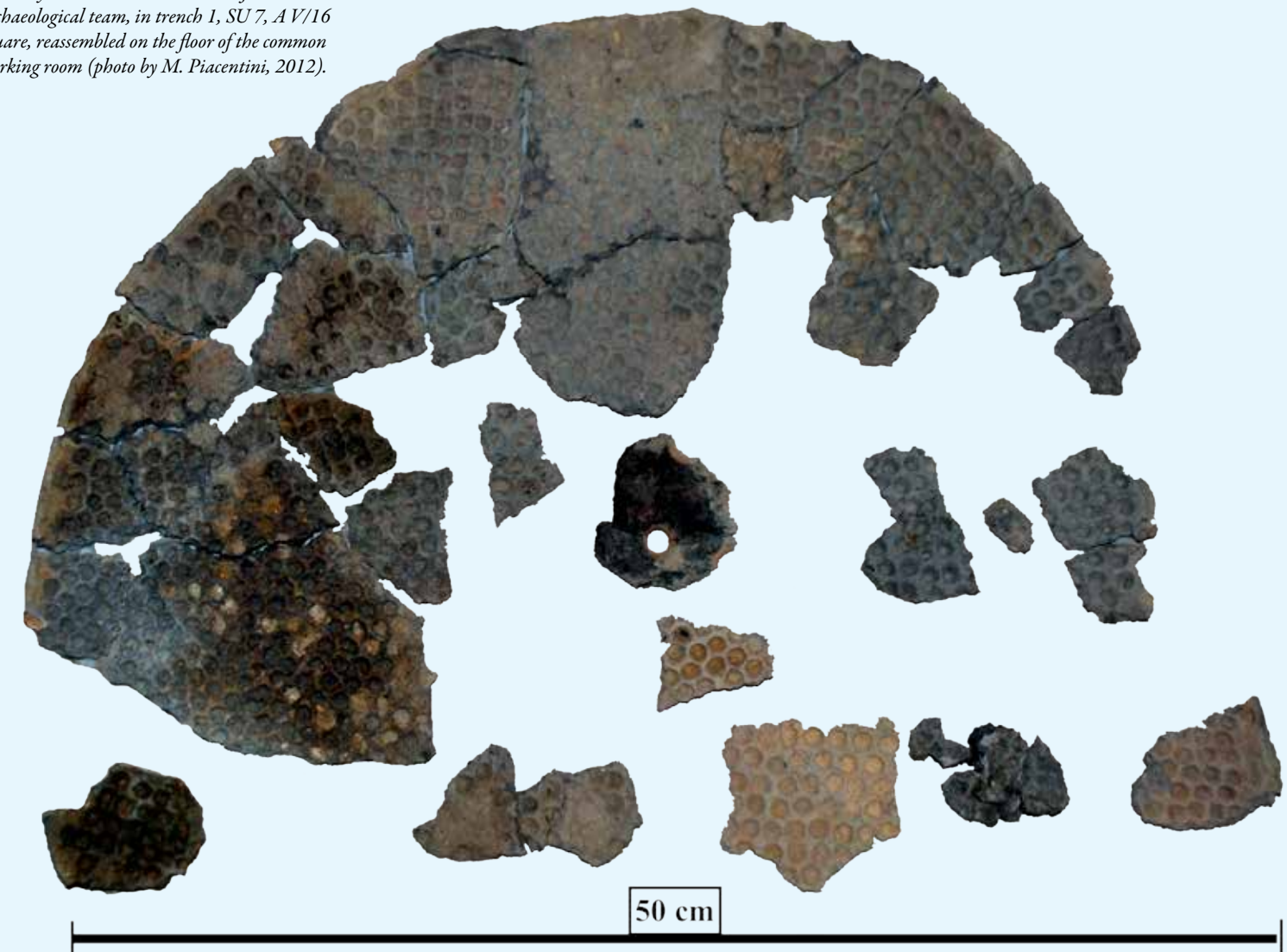
the last period of life of Banbhore or, perhaps, even with periods following the abandonment of the city, which might be different from the production of low-value coins.

An accurate and deep study of the moulds was undertaken since the 2012 field season, after the recovery from the Pakistani team, led by Dr Asma Ibrahim, of several mould fragments in the SU 7 of the trench 1, A V/16 square. The fragments, after assembling, formed almost half "pizza", approximately 15 mm thick, of an elliptical shape with the maximum diameter of about 50 cm. The cavities were partly round, partly squared (see figure 1) with a round, flat bottom. This mould corresponds to the first type of moulds used to produce directly hundreds of copper discs of the same size. We made non destructive analyses of one of the fragments

inside and outside the cavities. Inside the cavities we found traces of a copper, zinc and lead, suggesting that brass alloyed with lead has been melted inside the cavities or poured into the cavity from a crucible.

In the following field seasons we continued studying the moulds. At the end of the 2018 field season we brought 21 mould fragments, and two brick fragments for reference, to Rome with the authorisation of the Directorate General of Antiquities & Archeology of the Culture, Tourism and Antiquities Department, Government of Sindh, for accurate and sophisticated analyses, some of which destructive. Below we will refer to these fragments as "sample1" to "sample23". The analyses are being performed both in the Laboratorio di Analisi Non Distruttive ed Archeometria "Sebastiano Sciuti", Sapienza University of Rome, and in private laboratories.

Figure 1 - The large mould found in the 2012 field season by dr. Asma Ibrahim, head of the Pakistani archaeological team, in trench 1, SU 7, A V/16 square, reassembled on the floor of the common working room (photo by M. Piacentini, 2012).



We made polished thick sections of several moulds for studying the morphology of the fragments along their sections and to determine their mineralogical compositions by observation under an optical microscope; using X-ray fluorescence spectroscopy we obtained the elemental compositions of the ceramic/vitreous bodies and of the interior of the cavities. This last information has its relevance, because the metals that have been melted inside the cavities have wet the cavity walls, thus leaving traces of their composition. This work is still in progress. However, it has already been possible to obtain some results, as will be seen below.

2. The moulds aspect and the thick sections

The moulds found in Banbhore have many different aspects, from their colour that could be ochre or many shades of grey up to almost black. The cavities have a variety of shapes and dimensions: several of them have a square or round top, with a flat, circular bottom; probably they were used to produce small round coins, as suggested by A. F. Khan [1]. Others have an elongated ellipsoidal shape, probably to produce small spherical pellets; in a few cases we found the small pellets still inside the cavities; in many other cases we found tiny metal remnants embedded in the clay. Figure 2 exemplifies two types of mould fragments; figure 3 shows the presence of metal remnants inside a cavity.

We compared the dimensions of the cavities with those of the coins and of the pellets [3]. We measured the diameter of 29 pellets, obtaining a full range of values between 2.5 mm and 7.5 mm, Counting the number of pellets with a diameter included in a small range, we found three maxima at 2.7 mm, 4.0 mm and 4.7 mm. As said above, the pellets with such diameters do not correspond to the coins found in Banbhore, the diameter of which averages between 6 mm and 9 mm. We squeezed a piece of dough of 5 mm diameter and we obtained a very thin (tenths of a millimetre) 9 mm diameter disc.

A simple optical examination of the moulds shows that, after firing, the clay assumes a layered aspect, see figure 4. In addition, we noticed that a thin crust has formed on the surface of the cavities. In order to go deeper in these aspects, we performed thick sections of several moulds.

Many mould fragments were incorporated into an epoxy resin, then cut and finally polished, in order to observe them under a microscope. Figure 5 shows some examples relating to (from left to right and from top to bottom) a brick fragment and the mould fragments *sample14*, *sample13* and *sample23*. The brick mixture, of an ochre red colour, is fine, homogeneous, with few small inclusions. There are several small cavities, left over from the clay processing before firing or produced by the vapours during firing. The mixtures of the mould fragments are much coarser, rich in inclusions even of considerable size, with layers oriented horizontally; this derives from the fact that the clay was flattened exactly like the dough of a pizza. This flattening is also reflected in the “layered” appearance found in many fragments. All three fragments show a vitrified bottom, which, as already mentioned, indicates firing from below by means of a very calorific flame. The *sample14* fragment has a colour that from the dark bottom fades towards the ochre colour of the upper surface where the cavities are present. It can be seen that the cavities have been pressed into the clay when still soft: the layers of clay around the cavities are strongly curved following the profile of each cavity; going down, however, the layer curvature decreases until the layers become flat like the bottom. The colour variation of the mixture may be due either to the different temperatures reached during firing or to a greater oxidation of the upper layers. Similar considerations can also be made for the other two fragments, with minimal differences. In particular, the vitrification of the ceramic body has reached more or less internal layers and many moulds have a dark grey colour, such as the *sample13* and *sample23* fragments of figure 5, indicating that they have been heated to high temperatures in a reducing atmosphere. The use of the reducing atmosphere is a practice certainly associated with the metal alloys melted inside the cavities, which still needs to be clarified.

2. X-ray fluorescence analyses.

The X-ray fluorescence analyses were carried out with the XRF spectrometer of the Laboratorio di Analisi Non Distruttive ed Archeometria “Sebastiano Sciuti”, Sapienza University of Rome. In 2012 the

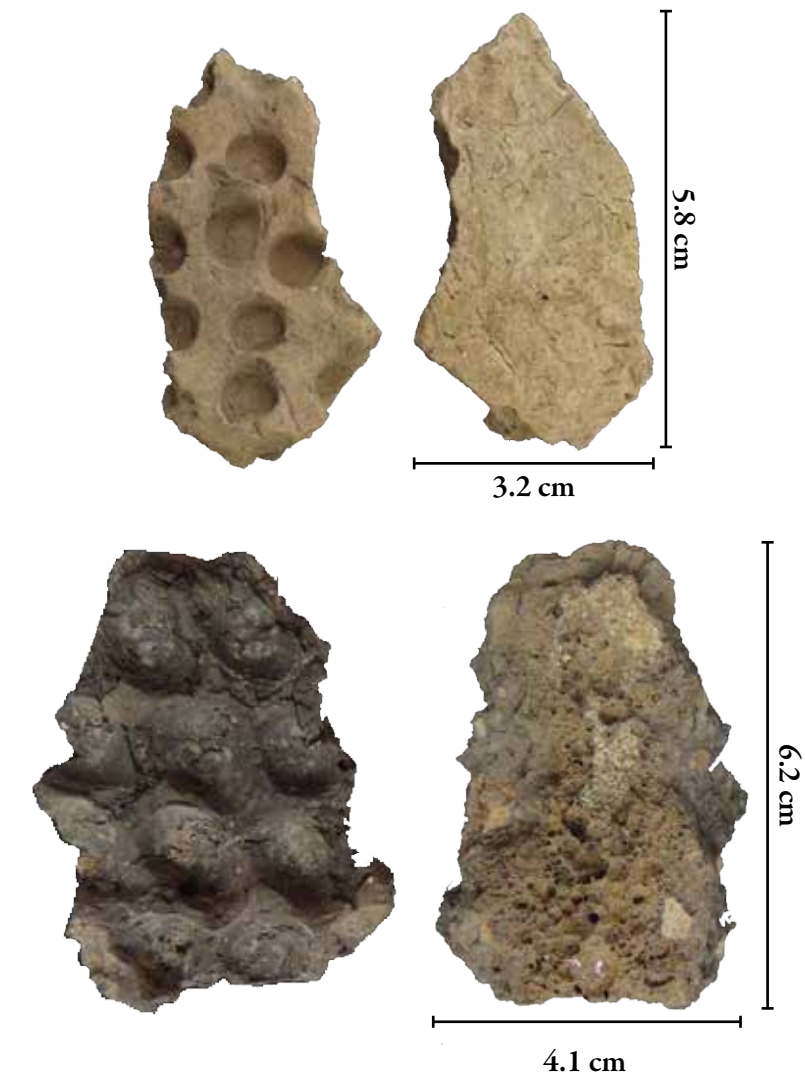


Figure 2 - Two examples of mould. In the left panel a mould with flat-bottomed cylindrical cavities is shown (*sample15*). The cavities diameter is 6.5 ± 0.1 mm; their depth is 3.5 ± 0.6 mm. In the right panel a mould with ellipsoidal cavities and vitrified paste is shown (photos by M. Piacentini, 2019).

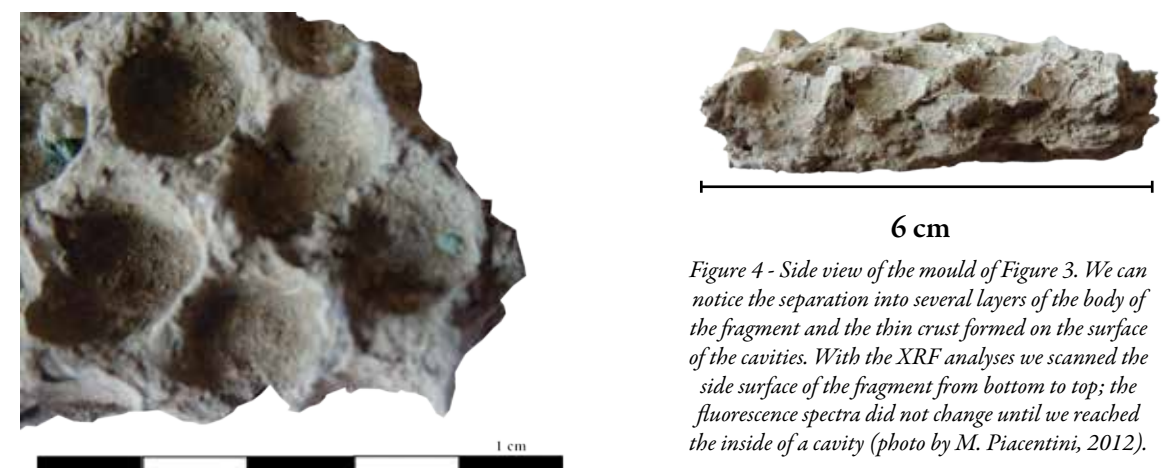


Figure 3 - Example of a mould with small metal particles left inside a cavity (photo by M. Piacentini, 2012).

Figure 4 - Side view of the mould of Figure 3. We can notice the separation into several layers of the body of the fragment and the thin crust formed on the surface of the cavities. With the XRF analyses we scanned the side surface of the fragment from bottom to top; the fluorescence spectra did not change until we reached the inside of a cavity (photo by M. Piacentini, 2012).

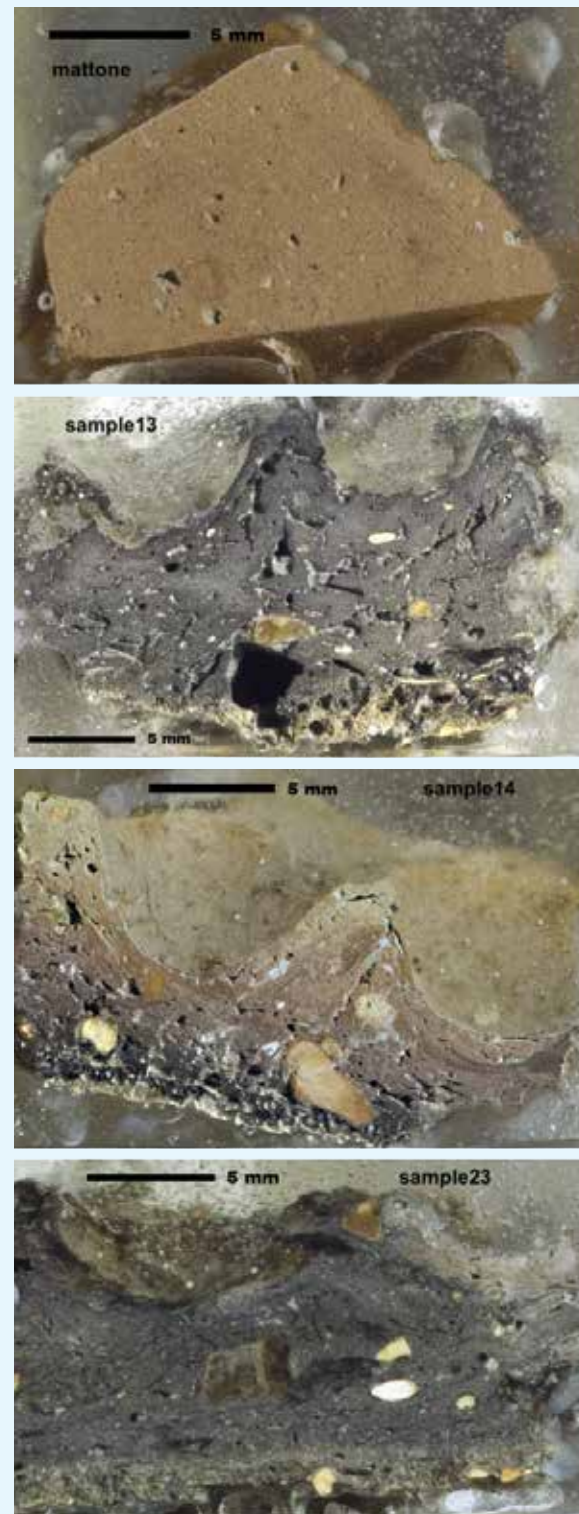


Figure 5 - Magnified images of polished thick sections of selected mould fragments taken to Rome for analysing them with more precise instruments. From left to right and from top to bottom) a brick fragment and the mould fragments sample14, sample13 and sample23. (photo by L. Pronti, 2019).

XRF spectrometer was brought to Pakistan and was used in the Archaeometry Laboratory realised in Banbhore¹. The X ray generator was produced by E.I.S. (Italy). The X-ray tube with a Pd anode was inside a well shielded box, from which the emitted X-ray beam was taken out through a 2 mm diameter collimator. The power supply was in a separated case and has been designed so that both the voltage and the current could be varied continuously up to 40 kV and 0.5 mA, respectively. The fluorescence beam was detected with the Amptek 1-2-3 SDD (Silicon Drift Detector) device, equipped with a 0.5 mil Be window and a 500 μm Si detector (25 mm² active area). The detector was positioned at 3 cm from the sample surface, so that the detected X-ray photons ranged approximately from 1.6 keV up to 30 keV with an energy resolution of 140 eV at the $K\alpha$ line of iron (6.4 keV).

In 2014 we changed the E.I.S. X-ray generator with a new, more compact one: the Amptek Mini X-ray generator. A small case accommodated the X-ray tube, with a Rh anode, the power supply with the control electronics, and the USB ports for communicating with the control PC. The voltage and the current of the X-ray tube could be varied to the maximum values of 40 kV and 200 μA , respectively. The exit beam was collimated to 2 mm diameter.

For both instruments the detection limit for the elements was about 0.3% in the region of the highest sensitivity of the spectrometer (6-14 keV). The trace elements below that limit could not be detected.

Since 2012 we performed the X-ray fluorescence analyses of mould fragments. We concentrated on the bottom surface, the clay mixture observable in a newly broken side, the top surface, the inside of several cavities, including those with small metal remnants.

The bottom and the newly broken side measurements were necessary for having the elemental compositions of the mould fragment mixtures. The compositions resulted similar to that of the clay of the Gharu Creek, presenting the same principal elements

¹ We are strongly indebted to Dr. Kaleemullah Lashari, Coordinator of the 2012-2015 French - Italian - Pakistan Cooperation for Historical-Archaeological researches at Banbhore, Sindh, for cutting out the space for the laboratory inside the large conference/working room in a new building at the archaeological site of Banbhore, using teak wood panels.

(silicon (Si), potassium (K), calcium (Ca), iron (Fe) and strontium (Sr)), the minority elements (titanium (Ti), manganese (Mn) and Zirconium (Zr)) and several trace elements (copper (Cu), zinc (Zn), rubidium (Rb)). We observed also the presence of chlorine (Cl) and bromine (Br), probably due to the contamination of the fragments that have been buried for hundreds of years in a maritime environment. We noticed also small differences between the counts of the principal elements associated with the bottom and the side analyses, due to the presence of more sand on the bottom surface of the fragments.

These first results indicate that the craftsmen who manufactured the moulds were presumably local men-power utilising local materials, easy to be collected and worked.

The analyses performed inside the cavities and on the top surface were much more interesting: the counts associated to the fluorescence of some elements characteristic of the copper alloys (copper, zinc, lead, antimony and tin) boosted up. The fluorescence intensity of antimony correlates well with that of tin, indicating that the two elements come from the same deposit, that might be identifiable if a mineralogical-geological map of Pakistan and of other countries, from which tin was imported, were available. The fluorescence intensities of the single elements found inside the cavities depend not only on the type of metal alloy fused there, but also on the methods used to melt them and on the type of materials (for example the composition of the clays) used by the craftsmen during their work. Therefore, in Table 1 the results of the X-ray fluorescence analyses are reported with symbols indicating the relative intensities of the measured fluorescence lines², instead of providing their corresponding counts.

Looking at the Table 1, an important observation is immediate: different copper alloys have been melted inside the cavities of the moulds that we have analysed!

The *sample12* mould, a fragment composed of a single cavity, contained only copper; two moulds, *sample13B* and *sample20C* respectively, contained brass (a copper - zinc alloy); two moulds, *sample15*

² The initials of the words *weak*, *medium*, *strong* have been used. Empty boxes indicate that the element has been undetectable.

and *sample22A* respectively, contained a copper - lead alloy; the mould *sample16A* contained a bronze (copper and tin) with lead; in fourteen moulds copper, zinc and lead were found, and in two others also tin was present. The tiny metal pieces found in the mould cavities had the same elements as those that wetted the cavities.

4. Conclusions

The analyses and conclusions presented in this short report are only preliminary.

Mineralogical analyses are required for obtaining approximately the temperatures reached by the moulds and if this temperature was uniform or had a gradient. Such informations are important to understand how they were used. We can relate their firing with the kilns used to melt metals. Whereas during the numerous field seasons many iron items have been found as well as tens of iron kiln smelting bottoms, very few copper alloys bottoms were found, even in Trench 8, where a small furnace with its spacers and many moulds have been found, not to mention the heavy stone rolling pin for crushing the minerals. These considerations may suggest that the moulds were used to melt the copper alloys instead of being used to obtain the small pellets or the small discs pouring inside the cavities the already melted alloy.

The qualitative observations on the variety of types of alloys detected in the cavities will be related to the composition of the numerous fragments of copper-based metal objects that were found, to better understand the use that might have been made of the moulds. Of particular interest are the moulds *sample15* (shown in the left panel of figure 2) and *sample 22A*, consisting of a thin layer of fired clay with cylindrical flat-bottom cavities, wetted by copper and lead only. We discovered that most of the coins found and analysed during the field seasons from 2012 to 2019 are composed of the ternary alloy copper-lead-tin and that for only not-many coins the alloy was copper - lead only. This seems to confirm that the moulds with cylindrical flat - bottom cavities were used for the direct production of small copper - lead alloy discs, probably coins of minimum value [1].

Table 1

Results of the X-ray fluorescence analyses performed on several mould fragments, some of which have been brought to Rome after the 2018 field season, for deeper archaeometric analyses, with the authorisation of the Directorate General of Antiquities & Archeology of the Culture, Tourism and Antiquities Department, Government of Sindh. The fragments are indicated with a conventional name in the first column. The second column indicates the stratigraphic unit in which they were found. For each fragment, the relative intensities of the fluorescence lines of the metals that have wet the cavity walls are reported with symbols, i.e. the initials of the words weak, medium, strong; blank boxes correspond to undetectable elements.

Fragment	Stratigraphic Unit	Comments	Copper	Zinc	Tin	Lead
Sample 01	TR1 - SU 7 - AA V/16 square - 2012		<i>m</i>	<i>m</i>		<i>s</i>
Sample 01	idem	bottom of a cavity with a small metal fragment	<i>s</i>	<i>m</i>		<i>s</i>
Mould 01	TR 8 - SU 26 - AA VI/62-63 square - 2014	flat region of the upper surface		<i>m</i>		<i>m</i>
Mould 01	idem	small copper pellet	<i>s</i>	<i>m</i>		<i>s</i>
Mould 02	idem		<i>w</i>	<i>m</i>		<i>s</i>
Sample 04	idem	metal droplet filling a cavity	<i>s</i>	<i>w</i>		<i>s</i>
Sample 04	idem		<i>s</i>	<i>m</i>		<i>s</i>
Sample 11	TR 09 – SU 445		<i>w</i>	<i>s</i>		<i>m</i>
Sample 12	TR 09 – SU 443		<i>w</i>			<i>u</i>
Sample 13A	TR 09 – SU 428		<i>m</i>	<i>m</i>		<i>m</i>
Sample 13B	TR 09 – SU 428		<i>m</i>	<i>m</i>		
Sample 14	TR 09 – SU 463		<i>m</i>	<i>s</i>		<i>s</i>
Sample 15	TR 09 – SU 426		<i>m</i>			<i>s</i>
Sample 16A	TR 09 – SU 446		<i>s</i>		<i>w</i>	<i>s</i>
Sample 16B	TR 09 – SU 446		<i>w</i>	<i>s</i>		<i>s</i>
Sample 16C	TR 09 – SU 446		<i>s</i>	<i>w</i>	<i>m</i>	<i>s</i>
Sample 16C	TR 09 – SU 446	metal droplet in the paste	<i>s</i>	<i>w</i>	<i>m</i>	<i>s</i>
Sample 17	TR 09 – SU 414		<i>w</i>	<i>w</i>		<i>s</i>
Sample 18	TR 09 – SU 447		<i>w</i>	<i>m</i>		<i>s</i>
Sample 18	TR 09 – SU 447	metal droplet inside a cavity	<i>s</i>			<i>m</i>
Sample 19	TR 09 – SU 470		<i>m</i>	<i>m</i>		<i>m</i>
Sample 20A	TR 09 – SU 450		<i>m</i>	<i>m</i>		<i>s</i>
Sample 20B	TR 09 – SU 450		<i>m</i>	<i>m</i>		<i>m</i>
Sample 20C	TR 09 – SU 450		<i>w</i>	<i>w</i>		
Sample 22A	TR 09 – SU 434		<i>w</i>			<i>s</i>
Sample 22B	TR 09 – SU 434		<i>m</i>	<i>m</i>		<i>w</i>
Sample 23	TR 09 – northern section cleaning		<i>m</i>	<i>m</i>		<i>m</i>
Sample 25A	TR 09 – SU 458		<i>w</i>	<i>s</i>	<i>m</i>	<i>s</i>
Sample 25B	TR 09 – SU 458		<i>m</i>	<i>m</i>		<i>m</i>
Sample 25C	TR 09 – SU 458		<i>s</i>	<i>s</i>	<i>w</i>	<i>s</i>

A more in-depth discussion on the aspects related to the coinage and melting of metal fragments will be made after examining in detail the analyses performed on the coins and the copper alloy artefacts that have been found. Furthermore, their study cannot be separated from that of both the furnaces and the kiln bottoms of the smelting furnaces or from that of the metal finds and of the coins. A survey about the regional/local geological configuration and, eventually, ancient mines could be of great support.

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Acknowledgments

These studies were made possible thanks to the possibility of being present at Banbhore during the field seasons; for this we thank the Directorate General of Antiquities & Archeology of the Culture, Tourism and Antiquities Department, Government of Sindh, for his support and hospitality on the site.

History and Archaeology: The Site of Banbhore and Lower Sindh as an Example

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1. Landscapes from Banbhore

After five seasons (2011-2015) of hard field-work, after auxiliary research-work carried out in laboratories, after more research-work in libraries comparing literary data with archaeological evidence, after supplementary studying of the excavated material and comparative studies with evidence from other sites, Banbhore began to unveil its identity and some shapes:

- (i) *a sturdy towered fortress*, encasing within its bastions an urban centre. The accurate study of the rampart and its towers (square structures, U-shaped, circular/semi-circular), and comparisons with other fortifications allowed to outline a first broad historical framework of the occupational stages of the site: 1. Indo-Parthian/Indo-Kushān (c. 3rd Century b. CE–3rd-4th Century CE); 2. Sasanian/Indo-Sasanian (c. 3rd Century–early 8th Century CE);¹ 3. Islamic (8th Century – 12th/early 13th Century), each period re-built and/or restructured on the preceding one. These preliminary observations (beside the strategic location of the site and the might of its

¹ It is worth-while underlining that, when writing or talking here and elsewhere about the “Indo-Parthian” or “Indo-Kushān” or “Indo-Sasanian” cultures and/or civilisations, these definitions are used to identify a precise geographical and cultural region, that is the lands stretching along the great Indus river, a copious stream of waters running to the Ocean, that represented through the millennia a natural geographic frontier between the Orient and the Occident. Here, There, all along its course, met (and sometimes also clashed) peoples from the East and the West, from the Northern regions of Inner/Central Asia, and the Southern liquid spaces of the Indian Ocean, that mixed with the local traditions and gave life to fertile cultural developments of their own. In other words, the term “Indo-” does not refer to India/Hind, as it is called India proper as a geographical and political entity, but, in this article, it refers to the lower course and the vast deltaic region of the Indus river (the Mihrān river of the past), that is Sindh, as a ‘cultural’ region.

ramparts) formed the basis for a first accurate reappraisal of the available written texts, which confirmed the existence of a strongly fortified harbour-town and market on the Indus delta considered by the invaders as the key-access to Sindh...but still we had no confirmation about its name and identity;

- (ii) *a centre of pilgrimage and religious learning*: the Hindu temple – excavated by F.A. Khan and then investigated by M. Kervran; a Buddhist temple restructured, after the Arab conquest, into an Islamic Mosque with its *madrasah*. Not yet emerged or identified a Zoroastrian presence. Textual sources confirm a powerful presence of Hindu and Buddhist communities in Lower Sindh;
- (iii) *a positive market-town: shops and workshops* lining along the grid of roads inside the ‘citadel’, dug by the Pak-Italian and Pak-French teams in the central and western portions of the bastioned area – trenches 4, 8 and 9 – and area 1 all along a road carrying from a western access (?) to the Hindu temple. This was at least the picture facing us for the last period of the site’s occupation and settlement. The same evidence was brought to light in the quarter dug by the same F.A. Khan in the north-eastern part, the so called “palace” and the nearby “market street”. Textual sources are sparse in this respect. Chronicles of the time and geographies just report about ‘one’ renowned town and harbour on the Indus’ deltaic region named “Daybul”;
- (iv) at the same time, an *important centre of production, distribution and redistribution*: wastes of ivory and bones working (ivory workshops have been discovered in the 2020 in Building 2 – see

here below – and are under study by Giorgio Affanni), glass, metallurgic activities, mother-of-pearl’s little objects, vessels, porcelains from China et alia were unearthed in the latest stratigraphic layers of both the Pak-Italian and Pak-French quarters. Glass from Syria was unearthed by Monique Kervran in Trench n. 10. Most of them are ‘luxury goods’ much on request within the network of long distance trades based on the monsoon winds, which connect the rims of the western waters of the Indian Ocean with an articulated network of river and land-routes in lower Sindh. Written texts attest the presence of fluvial and land routes from Sindh to northern outlying territories since pre-Islamic times (for example, abarī’s chronicle à propos of the “Ardashīr’s descent to the Sea” and the kings of Kushān, Makrān and Tūrān – see below). These connections and interactions are also echoed in the Chinese Annals for the Parthian and Kushān epochs and in the *Periplus Maris Erythraei*. This latter, when dealing with Barbarikon, gives a list of precious and semiprecious stones, which definitely point to Central-Inner Asia;²

- (v) all-together, Banbhore must have also been the *seat of well-articulated administrative powers*. These are clearly attested by the powerful bastions, the religious Temples, the palatial buildings dug by F.A. Khan in the north-eastern portion of the walled site, the great East-West/North-South road-axes edged by other no less grandiose buildings dug out all along trench 9, and the *intra* and *extra-moenia* skilled organisation of territory and waters. “Imposing structures – states Manassero in his 2016 Report – that are a clear testimony of an architectonic plan smartly-conceived in past times and accurately organised by a powerful, central authority”, a powerful central authority – one might add – prepared to

² Piacentini Fiorani, V. “Ardashīr-i-Pāpakān and the Wars against the Arabs: Working Hypotheses on the Sasanian Hold of the Gulf”, in *Proceedings of the Seminar for Arabian Studies* 1985: pp. 57-77. For the Chinese Annals, see Paolo Daffinà, his learnt studies and Chinese Annals’ translations. For the *Periplus*, interesting study is that by Seland, E.H.: *Ports and Political Power in the Periplus: Complex Societies and Maritime Trade on the Indian Ocean in the First Century AD*. Society for Arabian Studies Monographs No. 9 - BAR International Series 2102, Oxford 2010. About trades, see also below § 5-7.

invest the rich profits from international trades in building or restoration activities when it was required following human and/or natural ravages, like floods and earthquakes. A smart plan that has ‘replicated’ itself in the following epochs up to the decline and end of the site, reusing the existing structures and rebuilding/reorganising them according to new political and institutional circumstances.³ Actually, for the Sasanian and pre-Islamic periods, chronicles and geographies in particular mention a dominant, fortified town and harbour on one of the “mouths” of the Indus (Mihrān) river; it is named Dib/Debor, for later periods, Daybul/Dibul/Debol, gate to Sindh and, at the same time, landing place and main outlet to the sea of a military-political centre ‘inland’. When they report about this harbour-town, their accounts mention the presence of one (only one) important “outlet to the sea” (*bandar*) of the ‘capital-city’ of the moment: Siwistān for the Kushān/Indo-Kushān period; Aror/Arūr, capital-city of the Brahman reign at the time of Muhammad ibn Qāsim’s expedition; Mansūrah, the magnificent capital-city of the Arab Province of Sindh and, from the second half of the 9th Century, of the Arab Emirate of Mansūrah. Specifically for the Sasanian or Indo-Sasanian period (3rd – early 8th Century CE) and the Islamic era (the Emirate of Mansūrah included), these same texts always refer – sometimes in details – to important administrative responsibilities of local officials and religious dignitaries who resided in that harbour-town. There, in this agreeable place, the various lords of pre-Islamic times and the Caliphal Governors had their palace and used to spend summer-time enjoying the fresh winds and bathing in the waters of a creek (sic).

Lovely images, which, following the architectonic and archaeological evidences brought to light ‘on

³ As a matter of facts, some earthquakes are punctually recorded by written sources, which specify how the Caliphs gave order to the Governors not to send tributes to Baghdad for three years or so, but to reinvest the local incomes in rebuilding or restoring the collapsed buildings. In this respect are also significant the inscriptions found in a corner of the Mosque, under its floor, unfortunately not in stratigraphic sequence, read and published by M uhammad Abdul Ghafur: Ghafur, M.A.: “Fourteen Kufic Inscriptions of Banbhore, the Site of Daybul”, in *Pakistan Archaeology* 3 (1966): pp. 65-90 + 38 pls.

stratigraphy, at last allowed a chronology and, when and once combined with textual sources, could also provide significant data for historical flashes about the site's life and its parts. But, so far, we were confronted only with 'images' and working hypotheses that did not however allow to enter the story of the site in detail. All in all, our trenches and F.A. Khan's archaeological campaigns essentially proved two major facts: first of all, the bastioned area was peopled since pre-Sasanian periods within the whole circle of its walls. Secondly, they allowed to shape three main occupational phases and, within these latter, the presence of a strong centralised military-political power that planned and invested in the site's life and role. Rising in a favourable location on the last slopes of the Kuhistan plateau, this powerful, towered site survived invasions and natural calamities for at least fifteen century. Re-building itself on its own pre-existing structures, it had also managed to preserve its traditional fluvial/maritime character.

The Licence granted by the Government of Sindh expired at the end of the 2015, and was not extended. In 2017, on official request by the Government of Sindh, a *Memorandum of Understanding* was signed between the General Directorate of Antiquities and Archaeology – Ministry of Culture, Tourism and Antiquities of the Government of Sindh and the Catholic University of the Sacred Heart. The 2017-2020 field-seasons have been planned and carried out within the institutional framework of the said *Memorandum*, in close collaboration with the GDA and other Sindhi Universities (Khairpur University, University of Sindh and the Bahria University – Karachi).

The "Modus Operandi" (or methodological approach) of this new research phase did not change: *Archaeology and History*, or, with the words of G. Widengren (herewith adopted), "non-textual sources and textual sources". Precisely, "when writing of history, sources can be divided in written sources and non-written sources; they combine their respective data, integrating and complementing each other".

At the end of the first stage of our historical and archaeological research-work (2010-2015), the available literary sources and archaeological/

architectonic evidence seemed to point to the identification of the site of Banbhore with the historic Sasanian/Indo-Sasanian fortified harbour-town named Daybul/Debul in the available literature. At the same time, the identification of the site of Banbhore with the fortified Parthian/Kushān outpost on one of the Indus' "mouths", as reported in other textual sources seemed also quite practicable, provided further archaeological investigation might be carried out. When we resumed our field-work in the 2017, we decided to go deeper in this direction, opening new trenches in the area investigated by Niccolò Manassero, at the junction of the two great North-South/East-West routes, starting with what we had called 'the Palace', that is Trench 9 - Building 1 (Image).

But this line could not be followed. Manassero 'retired' and married, opting for a different style of life and a different job. The new archaeologist that bravely joined our team was Simone Mantellini from the University of Bologna. He studied the evidences so far emerged from the excavations, and found that they were amazing and largely unexpected, as detailed just here below. All in all, the data on stratigraphy brought to light in the upper levels reopened ancient debates and flashed a new landscape of the site's urban organisation and model of peopling, which appeared completely different when compared with the upper levels in other portions of the site. Thus, after consultation with the Pakistani team-leader (Dr Qasim Ali Qasim) and in accordance with the DGA, it was decided to converge our joint efforts on these latest archaeological levels, and focus the final stage of the site's life and its peopling.

"What" had changed and "why"?

In 2018, the starting point was Trench 9. This had unearthed the northern wall of an imposing building (Building 1) running along the East-West road-axis, parallel to a second building (Building 2). The road – wide about 5 meters – must have been a major road, that had played a central role within the general architectonic urban asset of the site since pre-Islamic phases. The northern wall of Building 1 did not show any particular break between the pre-Islamic and Islamic period, just a slight 'rotation' which followed the Mosque's direction (N.

Manassero).⁴ The assemblages of ceramic evidence on stratigraphy with the levels pointed to a long-lasting "transitional" stage from pre-Islamic to Islamic (A. Fusaro). Building 1's interior was still to be dug. The lowest levels of Building 2 disclosed a sturdy palatial structure, its upper structures were disturbed and looked like having been heavily restructured and hurriedly reorganised according to completely new requirements. Its interior was set up in small modules replicating the typical feature of local houses: little modular roofed structures, base in rough stones, elevation in mud-bricks, comparable with what had emerged in the higher levels from Trench 8 in the 2014 (see Manassero's 2014 Report).

The excavations of Building 1, in its highest levels, produced fillings well flatted and an endless chronological procession of floors in row mud, likely the re-occupation of an important palace during the last phase of Banbhore's life (Mantellini). The material (pottery and other) associated with the various levels on stratigraphy (Fusaro) confirmed the dating of the dug portion from the end of the 10th-beginning of the 11th Century to the very early 13th Century CE. Historically speaking, it made sense: chronicles of the time report about harsh pressure and incursions by Turkish peoples lured by the wealth of Mansūrah and its Emirate (Oghuz, Ghūrids, Qarakhānids...) and, after the second half of the 11th Century, the invasion of Lower Sindh by the Seljuks. Chronicles indulge on the assaults against the walls of a great harbour-town named Daybul, its prolonged siege concluded with a peace-treaty that fixed the border with Makrān at Gwadar and gave to Daybul an autonomous status (*nābiya*) within the Seljuk dominion. More interesting was the copious filling of buildings and roads with ivory wastes and refusals. Along Building 2, were also found semi-worked shells, glass, iron and brass nails, metal instruments, alloys, coins and other. This induced to think to a late quarter of workshops outside the *Partition Wall*, built on preceding structures.

And this took back to the *Partition Wall* and its function (Manassero's 2014 campaign, Trenches 7 and 8; Manassero's 2015 campaign, Trench 9), that is *the final stage of the site's peopling and life* (Mantellini's 2017-2020 campaigns).

The so-called Partition Wall has a North-South direction; then, it bends Eastwards including the Mosque and the Eastern lagoon, but it cuts out the Southern Gate and the Hindu Temple. (IMAGE) In the past, it had been interpreted as a Wall that had a "religious" or "social-ethnic" function to separate – after the Islamic conquest – the Muslims from the non-Muslim peoples of the site. Manassero dedicated the 2014 Field-Season to investigate it: trench 7 and trench 8 were the trenches that gave a new profile to this structure and to the general occupational organisation of the citadel during its last period of life. The round-shaped tower (base in roughly squared stones, elevation in mud-bricks) and the walls on both sides (Trench 7) show that they had been hurriedly erected in a late phase of life of the citadel (around the end of the 10th-early 11th Century CE). They had been built on the top of pre-existing buildings either abandoned and collapsed or hastily flatted-down, likely to defend this eastern portion of the site, its Mosque and some Eastern access to the river by some human ravage that had succeeded to open a breach in the lower western bastion leaving the higher north-eastern area exposed to attacks (the skeleton found by Dr Kervran on her portion of the wall – 2013, Trench 10, and Khan's skeletons with arrow-heads in their skulls and chests).⁵ According to F.A. Khan's excavations and what he left us in his little booklet that so far – printed and re-printed – is the guide for visitors to Banbhore, in the eastern portion of the site during the latest stage of its life still stood beautiful palaces, the Friday Mosque, markets, and an eastern gate where a staircase (still in situ in the 2015) brought to a "lagoon" at the foot of the eastern bastions and, via

5 With regard to the "lagoon" and the ancient course of the Indus river or one of its secondary branches (present Gharu creek), more than one research has been carried out by eminent scholars. In the 2014, Prof H. Fouache came to Banbhore, kindly requested by Dr Kervran, purposely to study the site's mound and the Gharu's course (present and old). No report has been circulated. Still significant studies are those by H. Wilhelmy, "Verschollene Städte im Indus Delta", in *Geographisches Zeitschrift* 56 (1969): pp. 256-294; Idem, "Indusdelta und Rann of Kutch", in *Erkunde – Archiv für Wissenschaftliche Geographie* 22, Bonn 1968, pp. 177-191.

4 Manassero's thorough reports 2014 and 2015. See also: Felici, A.C., Fusaro, A., Ibrahim, A., Lashari, Kh., Manassero, N., Piacentini, M., Piacentini Fiorani, V., Tilia, A., "Archaeological Excavations at Banbhore (Sindh). Preliminary Report of the 2014 and 2015 Field-Seasons", in *Parthica – Incontri di Culture nel Mondo Antico* 18 (2016), pp. 125-173.

the river's canals, to the Ocean, well-known to local sailors and the Arab "people of the sea". The raiders before and, later on, the besieging Turkish peoples were essentially horsemen and infantrymen; they had no maritime skill and nautical experience, whilst the besieged 'acropolis' could receive from the sea supports in food and men. Finally, the besieged came to pacts with the Seljuk sultan. The agreement, as just said above, marked for Daybul a new boundary and a new institutional status, that of autonomous *nābiya* under a native ruler. Mansūrah was finished, flattened down, as finished was also its Emirate and the rich traffics along the land-routes of the North, once secured by the skilled diplomacy of the Emirs and their force of arms.

What is highly significant from these literary notes is that they inform us about the reorganisation of Lower Sindh under a 'native ruler' (*mālik*) and a new capital-city, Daybul. This can reasonably explain the survival of Daybul to Mansūrah and the resurgence of the former, though on a different balance. The local ruling class (landlords who had in the past also carried out trading activities thanks to their connections) came back with their wealth to Daybul, and settled in pre-existing palaces inside the 'acropolis' (properly restored); the pre-existing urban structures outside the Partition Wall were also restored, but restructured in artisanal quarters (*rub*), where the fumes of intensive craftsmanship could not affect the new lords and their entourage. Thus, they gave new life to the site in terms of craftsmen, craftsmanship and mercantile business ...and, according to travellers, one can also add 'in terms of piracy and pirates', too, these latter's flat boats nicely hosted in the lagoon and sheltered by a local *sultān* in the old harbour-structures of Daybul...provided the sharing of the booty. This is attested by Ya'qūbī and some Genoese archival documents, too.⁶ Then... what else? New Turkish and Turco-Mongol pressure and the abandonment of the site towards safer places (Lahiri Bandar, for example: 2018 survey, and Kervran 1999).⁷

6 Fiorani Piacentini 2019b in: *SAARIJ* vol. I, n. 1, pp. 1-53.

7 Kervran, M., "The multiple ports at the mouth of the river Indus: Barbariké, Deb, Daybul, Lahori Bandar, Diul Sindh", in Prabha Ray, H. (ed.), *Archaeology of Seafaring. The Indian Ocean in the Ancient Period*, Indian Council of Historical Research, Monograph series vol. I, Pragati Publications. New Delhi 1999, pp. 70-153.

This was the *intra-moenia* landscape as it emerged following the latest archaeological campaigns (2018-2020) and Laboratory analyses. They had provided architectonic and archaeological precious data, that had allowed to reread the available literature and, historically and chronologically, outline in detail a new picture about the closing occupational stage of the site. Fabulous was the discovery of artisanal ivory workshops in Building 2, along the ancient East-West road axis.⁸

But, what about *the extra-moenia territory? And which interactions with the intra-moenia space?* In the 2017-2020, some surveys in the surrounding and outlying area, like Lahiri Bandar and Mullah-ka Kot islands, have revealed a close connection and interaction between these spaces and the 'citadel'. As stated above, around the bastions stood the remains of a densely settled area and a well-planned organisation of waters and territory, rock quarries, urban quarters, dwellings, cairn-tombs (some of them re-used), an artificial lake of sweet water delimited to the south by a dam (or a bridge-barrage? Or, simply, a bridge? Still to be further investigated), wells, and a vast so called "industrial area" to the north-northwest of the rampart. Pottery kilns and other completed the image of an urban asset. Architectonic and archaeological evidences have been graphically, photographically and topographically documented (A. Tilia), but still there is a lot to investigate through comparisons of the external surface evidence with the internal data on stratigraphy and archaeometric analyses, that might give some precise dating on this *out-of-moenia* explosion of urban settling and activities.⁹ New surface-surveys, geomorphological studying and test trenches had already been planned, but presently they are waiting for better times due to the Covid-19 epidemic.¹⁰

8 2020 Jan-Feb. Campaign. Since 2019, Dr Giorgio Affanni is fully immersed on Banbhore's ivories. See Matellini, S., "The largest ivory workshop found in Banbhore, Sindh, Pakistan", in: archaeologynews.blogspot.com/2020/04/the-largest-ivory-workshop-found-in.html

9 See *Sindh Antiquities*, vol. 5 n. 2: Special Edition on Banbhore Excavations. See also Mantellini – Fusaro – Tilia Reports, and Archaeometric Notes by prof. Mario Piacentini.

10 It is worthwhile underlining that most of the "surrounding territory" pertains to the International SZABIST University, Karachi, which has graciously allowed us to explore and mark it as Archaeological Park of the site of Banbhore,

Satellite photo and scale

Be that as it may, at the beginning of the 2020 we were still confronted with evocative images...lovely tassels of a puzzle still largely to be found out. Features and elements without their history.

2. Archaeology and History. Non-Textual Sources and Textual Sources

The landscapes outlined in the previous paragraph have been the outcome of the 'archaeological data' provided by these first archaeological campaigns and the 'suggestions' they could inspire. By the end of the 2013, we had some starting points: ephemeral 'images' provided by the rampart and working hypotheses about the major historic stages of the site, which ranged from pre-Islamic times (c. 3rd Century b. CE, i.e. Indo-Parthian-Indo-Kushān epochs) up to the early 13th Century CE. Quite a long and silent span of time! By the end of the 2015, Kervran's and Manassero's deep trenches had allowed 'some' significant chronologies and no less significant archaeological and architectonic evidences...but these, rather than providing positive answers to the queries originated by the excavations, had added new uncertainties about the site's life, the beginning of its settlement, its peopling and identity. No less intriguing were the data acquired during the 2017-2020 campaigns. Non-textual sources could only shape new images that, however, did not allow to enter in detail the real story of the site. Without a thorough 'survey' through the available textual sources, and without a joint effort between archaeologist and historian, such images could not develop into a factual reality in all its essential parts.

Thence, Archaeology *and* History.

This is the methodological approach that we have followed since the very beginning of the "Banbhore Project", a "Archaeological and Historical Research-

to be studied and preserved. To the Vice Chancellor of the University Dr xxxxxx. I cannot recall her name...how stupid of me! Query to the Editor: when I was in Karachi on the February 2019, She was still fully immersed with the SZABIST and, at the same time, Vice-Minister (or Minister?) for Health ...if I am not wrong. A very nice Lady, passionate of archaeology and Banbhore. To the DGAA and its whole staff goes prof. Franco Anelli's and our warmest respect and gratitude.

Project at Banbhore (Sindh)", which has allowed to draw since 2013 precise pictures of some major historic phases of the site and the territory surrounding it.

Here and herewith I will not enter archaeology's new methodological approaches, just a few hints in §4 when talking about History and Historiography. Technologies are evolving every year, and the results are at the same time bewildering and appealing. I leave this issue to experts. Here, I will restrict my discourse to history and historiography, that is to "writing of history" and "historical research", and how "historicity" (or historical genuineness and evidences of alleged events) can complement and integrate archaeological data providing a thorough fresco of a site's life and its peopling.¹¹ The site of Banbhore and its backstage, Lower Sindh, will be maintained for example.

All in all, as also just said above, our trenches and F.A. Khan's archaeological campaigns – or what has so far been published by this great Scholar – essentially proved that the bastioned area was peopled since pre-Sasanian periods within the whole circle of its walls, and confirmed three main occupational stages. They also suggested some practical explanations of the reasons why the site, rising in a favourable position on the last slopes of the Kuhistan plateau, had survived invasions, human catastrophes and natural calamities.¹² Re-building itself on its own pre-existing structures, the site had also managed to preserve its traditional fluvial/maritime character, adapting its 'system' to the overcoming political-military realities. The 2011-2015 archaeological campaigns provided new archaeological evidences and chronologies 'on stratigraphy', which proved that, from the historical perspective, we were confronted with a multifaceted structure that, taking advantage of its location, had survived and overcome the dramatic political overturns of past epochs. At the

11 "Historiography *n.*: Writing of history; study of history writing; hence Historiographic(al) *adjs.*", in *The Concise Oxford Dictionary* – Clarendon Press, Oxford 1976, pg. 509 sub voce.

12 Query to the Editor: have You any significant study in this respect by a Scholar from Sindh Universities, like Khairpur and Bahria, or the University of Sindh? If positive, can You kindly cite? If it is in Sindh or Urdu language, it is fine – just translate the title into English and enclose the translation in brackets.

same time, this also implied that it should have been organised on a complex and local traditional society, a sort of backbone, necessarily structured in its turn on an administrative apparatus, the supporting framework of all its essential parts and guarantee for its survival in the course of the centuries, solid basis for any effective role.

All in all, these were appealing challenges and starting points for further archaeological and historical investigation.

Still, from the historical perspective various, important issues still stood out, unanswered. The architectonic evidences brought to light and the archaeological data associated with the urban structures had offered chronologies and significant information. But some spaces were still blank and unanswered. For example: which exactly were the main stages of the site's life, its origin *and* developments? What was in the past the site's name? Was it possible to identify this majestic fortified *ensamble* with the Dib or the Daybul mentioned in textual sources? Was it possible to identify this bastioned powerful site with the well-fortified harbour-town built (or re-built?) by the Parthian king, Mithradates I, on one of the mouths of the Indus river? Was it possible to identify this harbour with Arrian's port of Alexander or the Barbarikon/Barbariké of the *Periplus Maris Erythraei*? Was it possible to identify this site with Mani's landing place when he moved to the southern regions of the Sasanian empire to preach his religion? Which had exactly been this site's function and role during its fifteen centuries circa of life? Within which regional backstage and within which global panorama could its life be read? Such queries required a patient, accurate investigation into a different sort of sources, like architectonic forms and relics of the past, inscriptions, coins, ostraca, vessels, little objects and so on, what we call "non-textual" sources, that is Archaeology, archaeological data sustained and confirmed by History, Non-Textual *and* Textual Sources.

Written sources can sort out tassels no less precious than the archaeological data. History can support and elucidate the archaeological investigation through its own methodological approach. It can put forward the 'why' 'when' and 'how' of the architectonic and archaeological 'technical' landscapes, positioning

them in a larger geographic and cultural context (as in the previous paragraph and here with, Part Three). Archaeology *and* History, both working together, both complementing and integrating each other, well aware that history, without the support of positive data emerging 'from the ground' still is a theoretical story of what 'presumably' has taken place from a mere dynastic and political perspective. And, at the same time, archaeology and non-written sources are only small tassels of a mosaic, working hypotheses as well of what 'might' have happened and 'how' it might have evolved, a no less theoretical actuality and reconstruction of the investigated site and its regional or global backstage.

This discourse inevitably involves another discourse, a long and suffered debate on 'how' and 'in which circumstances' Historical Research and Writing of History arrived to be History and Archaeology, and, in some cases like the present, History 'through' Archaeology.

It has been a long way, a process that started in the 19th Century, when new stimuli entered the historiographic panorama of dynastic and political history, and, with them, other issues entered the sphere of "research" and "writing of history".

3. From History *and* Archaeology to History *through* Archaeology

Coming to "History" and its methodological approach, much has also changed during these last few decades. Once again, the site of Banbhore is an excellent example that can illustrate the new 'rules' of present historiographic research.

For example, at the end of the 2015, another major truth was then clear. When textual sources were silent or sparse or not available, then writing of history could become only 'intuition', it was limited to a 'feeling'...and much was left to the historian's imagination *or to his deduction from different sources*, like epigraphy, coinage, crafts-activities, the studying of the environment and how it affected human peopling or, in its turn, how was it conditioned by human skills and technologies, and so on. At this point, 'writing of history' was no longer a dynastic-political issue. It became also describing daily life,

costumes, traditions, social classes and/or casts, interactions at war and at peace, and so on. At this juncture, it was History that needed – for its historical reconstructions – the solid, pragmatic support of "non-textual sources" and other disciplines with their individual methodological approach (see specifically following paragraph).

This was the methodological approach firmly undertaken for the site of Banbhore and its backstage, Lower Sindh, in collaboration with Pakistani scholars, and formalised in the Licence issued in 2010 and in the MoU signed between the DGA and the Catholic University of the Sacred Heart of Milan in the 2017.

The site of Banbhore had represented a challenging problem for scholars at least since the end of the nineteenth century, giving life to animated debates. When in the 2010 Monique Kervran and the undersigned had the Licence to carry out research-work at Banbhore, we had already decided to follow a different pathway. That is to say: archaeological excavations had to be complemented with historical investigation. Namely, it was essential to carry out a new 'survey' of the available textual sources following step by step the information given by architectonic evidence and the archaeological chronologies 'on stratigraphy'. The available texts, accurately read and re-read, and no less accurately sifted about their reliability and stripped from legends and embellishments, might furnish the archaeologist with further data, with precious dynastic/cultural information, with facts and events as these had taken place 'in chronological sequence'; they could also provide palatable explanations about these latter's 'causes' and related 'effects'.

In other words: Archaeology, too, needed History to knit the various strands of evidence together into a coherent story. As, at the same time, History needed non-textual sources to fill in detail its picture. Unquestionably, such *modus operandi* required a strict collaboration between Archaeology and History and associated disciplines and sciences.

This position has been at the basis of our methodological approach to the point that, when the Licence was issued, the research had been named: "Pak-French-Italian Archaeological and Historical Research at Banbhore". Such 'title' did

not change with the MoU signed in 2017: the research still stood as "Archaeological and Historical Research at Banbhore". I wish to add just a little, personal anecdote: I recall my first official courtesy visit to the Minister for Culture, Tourism and Antiquities of Sindh, H.E. Syed Sardar Ali Shah. It was Autumn 2016, and I was 'escorted' by the Italian Consul to Karachi, H.E. Gianluca Rubagotti. I was very impressed by the Minister's personality, and even more impressed when, after the first friendly welcoming words, H.E. abruptly asked me: "But you are a Historian. What do you want to do at Banbhore?". Rubagotti invited me to answer. The only answer I could find was: "I wish to give voice to the stones and the relics of your Past, the silent proof of a wonderful story since at least twenty centuries". The aftermath is story, and we are deeply grateful to H.E. Syed Sardar Ali Shah for his precious support.¹³

Still a couple of words on Kervran's and the undersigned *modus operandi* with specific regard to Banbhore. One fact always stood at the core of our investigations: while reading textual sources and non-textual sources about the regions skirting the Indus river and its delta, we always bore in mind that Sindh is a natural/geographic frontier-region, watered by a majestic river, the Indus – or the

¹³ However, this was the reason why of the close collaboration between F.A. Khan and N. A. Baloch. This has been the case of the collaboration between the undersigned and Roland M. Besenval when surveying southern Makran (1987-2006): see Besenval, R. & Piacentini Fiorani, V., "International Indian Ocean Routes: Gwadar Kuh-e Batil Settlement in Makran, in Nuova Rivista Storica, 62 (1988), 3-4: pp.305-339 plus 4 plates (partial edition in: Pakistan Archaeology, 1989); Fiorani Piacentini, V. & Redaelli, R. (eds.), Baluchistan: Terra Incognita. When History meets Archaeology. New Methodological Approaches (with contributions by Fiorani Piacentini, V., Redaelli, R., Rizzi, G., Scholz, F., Titus, P., van Steenberg, F., Unwin, Sh.). British Archaeological Reports – International Series 1141, Archaeopress. Special series "Studies in the Archaeology and History of Baluchistan", n.1, Oxford 2003; Piacentini Fiorani, V., Beyond Ibn Hawqal's Bahr al-Fārs. 10th-13th Centuries AD. Sindh and the Kij-u-Makran region, hinge of an international network of religious, political, institutional and economic affairs. BAR International Series 2651– Oxford 2014. This has also been the spur that had brought Monique Kervran to collaborate with the undersigned in more than one historical-archaeological investigation (Suhar, the fortresses of the Gulf and other). This was the spur that, in the 2010, induced the two of us to accept the invitation by the Secretary of Antiquities of Sindh to officially apply and resume field-work in Pakistan, focus on Banbhore's site.

Mihrān of past times – streaming through its lands, sometimes flooding them, in other cases fertilising the region's soil, always representing a major South-North route. Here, cultures from different peoples met (and still meet) and merged within a solid local, multifarious tradition.¹⁴ Then, to write and debate about Sindh's history requires to go beyond political-dynastic history as recorded by chroniclers and historians of the past (what is conventionally also called "Court" or "Palatial" History). It follows that to debate and write of history requires, first of all, to know, to analyse and chronologically evaluate facts and events as they took place: cause and effects. The prime textual sources for this investigation are chronicles and annals-writings. After this first step, it is demanded to enter into the real forces that moved the political gears (the *de jure* and *de facto* powers), to grasp from the textual sources all little scraps of information that may elucidate the social components in their essential parts, their functions, interactions, balances and unbalances.

This is the methodological approach that has led us at Banbhore. This is the methodological approach that was welcomed with great generosity by Dr K. Lashari and Dr A. Ibrahim...and since the 2017, by the General Directorate for Antiquities and Archaeology, that endorsed it; we are very grateful to them, and those who have made this possible.

Then: History and Archaeology / History through Archaeology. Namely: when textual sources are sparse or centred on dynastic issues (chronicles, for example), then non-textual sources can provide significant data 'from the ground'. For example: architectonic structures and their shapes, statues or bass reliefs, inscriptions, ostraca, bullae and seals, pottery, little objects and coins on stratigraphy, data from some artisanal activity (locally crafted or imported – in this respect archaeometry and

14 It is worthwhile recalling again that, when writing or talking about the "Indo-Parthian" or "Indo-Kushan" or "Indo-Sasanian" culture and/or civilisation, these definitions are used to identify this precise geographical region, that is the lands stretching or gravitating on the course of the great river and its deltaic region, a frontier region where met and mixed different cultures from the Orient and the Occident, which have given life to their own great cultures and civilisations. In other words, the term "Indo-" does not refer to India/*Hind*, as it is called India proper as a geographical and political entity. In this article, this definition identifies the 'cultural' area of the lower course and the deltaic region of the Indus, that is Sindh.

laboratory analyses are precious), and all the material data that can point to a specific historical phase and its culture. Surface surveys and prospections can provide significant information on the territory surrounding the site, the lands gravitating on it from the administrative, economic and cultural aspect. Correlations and comparisons are precious tools to grasp new information on the ground, and perceive links and interlinks with adjoining and outlying regions. These evidences, when and whether properly read and positioned within a larger framework, may confirm the historical assumptions on chronologies, dynastic events, conquests and defeats, regional political and military developments. And, at the same time, when and whether properly read, analysed and positioned within a regional or global backdrop, they can allow to cast an eye on the site's specific role and the part it played in a given epoch. At the same time, a thorough collection, studying and analysis of the archaeological finds 'on stratigraphy' may easily allow to grasp precious data on the social/human components of the site, too, that is its daily life, the peoples who settled on the site and peopled it, their costumes, activities, social organisation, artistic, cultural and religious features and shapes...as many precious pieces of information often not recorded by chroniclers or geographers, that can however help to complete both, the archaeological and historical puzzle.

This is the patient and systematic methodological approach undertaken at the end of the previous century, a tempting, enterprising pathway that brought to the thorny debate on History and Historicism, which had a deep impact on Historiography, or 'writing of history'.¹⁵

In the previous parts, I have tried to flash some historical images as they have been inspired by the archaeological and architectonic evidence coming to light, 'once' historical information from textual sources had been made clear and could mould itself on archaeological data. In the following parts, it is tried to explicitly enter from the 'methodological' perspective this crucial topic, still referring as an example to Lower Sindh *and* a powerfully fortified

15 This movement gave life to various tendencies and fierce debates on "historicism", whether social and cultural phenomena are determined by history or vice versa, if historical events are determined by laws, if these laws are human or divine. See also below, note (16). I will not this debate in this article.

port on the Indus delta, repeatedly mentioned in the available written sources as landing place and market, 'the' Sindh's outlet to the Ocean, key and gateway to the region.

Unquestionably, Khan's little available information has been the basis of the first historical notes that, combined with Kervran's knowledge and experience, have allowed to write (and publish) a first historical image of this site.¹⁶ In the present article, the main non-textual sources of information still are Manassero's excavations, his comments, his Reports and publications.¹⁷ A second source of 'inspiration' has been M. Kervran's 2013 Report (see note here below) and our joint 'excavations' in textual sources and other investigations, such as those carried out together about architectonic features and fortresses (comparisons with other sites and archaeological "parks"), her vast experience about vessels, inscriptions, coins and other. Actually, lost in her Bretton sanctuary, she wanders in a different world and in a different dimension. I could not get in touch with her. However, her report has most

16 Piacentini Fiorani, V., *Beyond Ibn Hawqal's Babr al-Fārs. 10th-13th Centuries AD...*cit., 2014.

17 Ibrahim, A. & Kervran, M. & Piacentini Fiorani, V. (Eds.), *Pak-French-Italian Archaeological and Historical Research at Banbhore (Sindh). 2010-2012 Thorough Report* (in collab. with A. Fusaro, N. Manassero, M. Piacentini, A.C. Felici, A. Tilia) – delivered in the 2013 and lodged with the competent Pakistani Authority - copy to the Italian and French General Consulates in Karachi (and to the Italian and French Embassies in Islamabad). Piacentini Fiorani, V. (Ed.), *Pak-French-Italian Archaeological and Historical Research at Banbhore (Sindh). 2014-2015 Thorough Report of the Italian Team* (chapters by A. Fusaro, N. Manassero, V. Piacentini Fiorani, M. Piacentini & A.C. Felici, A. Tilia) - lodged with the competent Pakistani Authority and the Italian General Consulate in Karachi (copy to the Italian Embassy in Islamabad). See specifically also Manassero, N. & Piacentini Fiorani, V., "Scavi della Missione dell'Università Cattolica di Milano alla foce dell'Indo: archeologia e storia", in: *Atti dell'Accademia delle Scienze di Torino. Classe di Scienze Morali, Storiche e Filologiche*, vol. 149, Torino 2015, pp. 155-179; Felici, A.C., Fusaro, A., Ibrahim, A., Lashari, Kh., Manassero, N., Piacentini, M., Piacentini Fiorani, V., Tilia, A., "Archaeological Excavations at Banbhore (Sindh). Preliminary Report of the 2014 and 2015 Field-Seasons", in: *Parthica – Incontri di Culture nel Mondo Antico* 18 (2016), pp. 125-173. On this line of study and research has moved the special edition on Banbhore excavations, with the Technical Reports and the Historical Notes by V. Fiorani Piacentini, C. Bearzot and K. Lashari in: *Sindh Antiquities* - Vol. 5 n. 2. Link: <https://saj.sindhculture.gov.pk/index.php/11-latest-issue/19-sindh-antiquities-bi-annual-journal-vol-5-no-2-2019>

valuable information, as her publications on the surveys carried out on the Indus deltaic region in the eighties-nineties of the previous century, and her studies on the pottery and other items (like glass) all along the Gulf' and the Arabian Sea's coastal areas. I am deeply indebted to her comments, suggestions and 'constructive' criticism.

4. History through Archaeology: a Long Intellectual Historiographical Elaboration

"...Oggi le cose sono certamente cambiate: il nostro orizzonte storico si è allargato anche in virtù dell'integrazione crescente tra storiografia e scienze sociali: un'integrazione alla quale le *Annales* hanno dato, com'è noto, un contributo decisivo. La storiografia ha largamente acquisito concetti e teorie tratte da discipline come l'economia, la sociologia, l'antropologia culturale, la scienza politica e via dicendo; si è sempre più occupata anche degli aspetti "materiali" della vita umana..."¹⁸

Pietro Rossi

"History through Archaeology": it has been a going far back historiographical and intellectual process. At the end of the twentieth century, "writing of history" and "the study of history-writing" was again at the core of new lively debates and scholarly disputes. Therefore, it might be useful to open a short parenthesis about historiography, which here implies the methodological approach – or "modus operandi" – also followed for the site of Banbhore. A new, and perhaps 'non-conventional' methodological approach, that however mirrors a long and debated historiographic intellectual elaboration and evolution.

The assumption was "textual sources may dwell at length or may be silent about a site or a region; they can be unreliable, legendary or second hand when dealing

18 P. Rossi, "La lotta di specie", in *Mondoperaio* 2020, 3-4: 8 ["Today, the intellectual panorama is certainly changed: our historical horizon has widened thanks to an increasing integration between historiography and social sciences. An integration to which the *Annales* have largely contributed, as it is well-known. Historiography has largely drawn from conceptions and theories in disciplines like economics, sociology, cultural anthropology, political science and so on. And it has increasingly converged on the "material" aspects of human life, too."].

with given historical phases and related events and personages; they can also give dynastic information (though often contradictory or 'emotional') but very little news about minute occurrences or aspects referring to costumes and daily life". Then, the archaeological evidence with its non-textual sources may provide the historian with a solid backing for the historical reconstruction of the 'peopling' and 'life' of a site and its 'cultural landscapes'. With the words of the late C.E. Bosworth, it is also possible to add: "non-textual sources can cast precious side-views on what can be called 'history's para-historical aspects". With this sentence, Bosworth explicitly hints to specific subjects, like the agrarian and economic life; balances/unbalances between ruling peoples and their political-military powers on the one hand, and the conquered peoples on the other; social forces and their powers; local traditions, religious institutions and religious antitheses; demographic movements and little other.

Coming once again to the site of Banbhore, our *modus operandi* has been as exposed in the previous paragraphs. It follows that, from the methodological viewpoint, our research-work has been articulated as a multidisciplinary and interdisciplinary enquiry into the past, each discipline using its own *modus operandi*, the final outcome being a thorough image of the 'life' of the site, its characters and patterns of settlement, architectural and occupational models, waning and rebirth, a thorough image within a larger backstage, be it local, regional or global. And, being a historian forged at the school of political sciences and philosophy of history, where Bosworth's "para-historical aspects" with the school of the *Annales* and Pietro Rossi's philosophical education are at the basis of any historical project and historical investigation, well, the methodological approach of our research-work at Banbhore could not have been different.¹⁹

19 I have already dealt with this long-lasting process and its intellectual evolution in various international fora: Fiorani Piacentini, V., "The Contribution of Italian Historiography to Iranian Studies", in *The Iranian Journal of International Affairs*, 9(1997), 2: pp. 268-295; *Idem*, "Islamic Studies in Italy", in *Islamic Studies*, Islamic Research Institute, Islamabad: 36 (1997), 4: pp. 589-611; *Idem*, "Il contributo della storiografia italiana agli studi sull'Islam", in *Archivio di Storia della Cultura - Memorie - XII* (1999): pp. 33-68; *Idem*, "Storiografia islamica, filologia e linguistica. La dimensione storico-temporale di Giorgio Levi Della Vida", in: E.I. Rambaldi e G. Rota (eds.), *Giorgio Levi Della Vida Atti dell'incontro di studio tenutosi a Milano il 19 Maggio 2008*, Led Edizioni, Milano 2010: pp. 61-75.

Be that as it may, compared with the past this *modus operandi* undoubtedly brought to a new historiographic pathway.

Here, I will restrict my discourse to the 'Textual Sources', delegating the archaeologists to enter their own field and methodological approach. However, before examining the available textual sources on Lower Sindh (and, possibly, our site: see here below § 5 and followings), it seems necessary to make clear some terms and their conceptual content. This means to open a short 'parenthesis' about Historiography, outlining how 'writing of history' and 'the study of history-writing' evolved since 'classical times' up to the present practice.

The discourse is complex and the process goes through various passages, which can be traced back to the nineteenth century. Actually, the question arose in the first half of the nineteenth century in France, with the *Positivist school* of Comte and Saint Simon, and the *Politecnique*. Herbert Spencer, in England, followed this line of thought with his "Social Darwinism" in the second half of the century. With Positivism, social themes and economic conceptions began to filter into theoretical and pragmatic historical visions, inexorable gears of human behaviours and ambitions.

In the fifties of the same century, *Romantic ideologies* spread and had a strong emotional impact on historiography, forging the concepts of "Nation" and "Nation-State", an undeniable political-cultural effectual reality to be investigated. It was the epoch of the European revolutions in the name of a common cultural heritage, base and foundation of the 'national identity'. New intellectual stimuli pervaded historiography: writing of history meant to focus the 'cultural tradition' of a grouping, identifying the deep forces that had given life to its identity. Suggestive, impetuous stimuli based on an awareness (often visionary, too) of a new approach to history. Positivism was criticised for its abstract generalisations, for its attitude to favour collective action against individual aspirations, and the fact that it was apt to underestimate – if not totally to ignore – the religious and the evocative, cultural traditions in favour of social and economic pragmatic aspects. History and its writing had to open up to different subjects and different areas of investigation, which were considered, if not openly proclaimed, the

origins of any 'national identity'; they had to open up to new aspects of human existence often deeply rooted into the 'oral' tradition of peoples, intrinsic part of their essence, the very substance of their Cultural Heritage. Linguistics and philology became precious 'tools' for investigating and registering this 'shared cultural heritage' and its individual elements, like a shared language and common artistic visions; a literary inheritance (whether written or orally handed over), which included poems and legends about a common eponym and mythical ancestors; costumes; specific crafts and models of living...all these became new areas of research, significant, organic parts of a common cultural heritage, that had its roots in the deep humus of a Past remote from the pragmatic experience of the Present, a Past still to be historically investigated and projected into the historical vision of the "Nation-State". Romanticism irrupted on the historiographical stage like a thunderstorm: an emotional intellectual movement that gave life to irredentist insurrections. Ideologically and/or de facto, Romantic visions soon pervaded the colonial empires of the time, introducing a new element, that of a "common tradition" that, in its turn, represented the shared cultural heritage of a people closely tied together by the conscience of being "a Nation", a term-concept elaborated by historical researches and which validated the aspiration to fight and die for his independence.²⁰

Little later, a new 'actor' entered history and its stage, destined to strongly influence historiography, too: *Socialism*. Its theories and political practices revived the historiographical debate, introducing social ideologies, economic scientific models and technological aspects as intrinsic part of any theoretical and practical historical discourse, as they were at the core of any theoretical and practical conception referring to the policy-making of the time.

At the beginning of the twentieth century, *Neo-Positivist ideologies* gave new impulse to the debate. These opened it up also to "*Oriental Studies*", which would be involved in the discussion about sources, subjects and theoretical aspects of any historical research on non-European countries, privileging the Islamic world and Asia. In Italy, Leone Caetani

20 India was not immune to these suggestions, nor was present Pakistan, where Mazzini's thought and the ideals he advocated and fought for were widely circulating.

(1869-1935) and his 'fabric' of the *Annali dell'Islam* (Annals of Islam, Rome-Milan 1905-1926) opened the way to a fresh consideration of Islamic studies and Islamic history. Events and protagonists were considered to be parts of a new global dimension, that is a "geographical" and "cultural" dimension, no longer objects of a mere linguistic-philological analysis and investigation. On the European stage, Carlo Alfonso Nallino, Michelangelo Guidi, Giorgio Levi Della Vida stood up as energetic supporters of this school, where the study of Arabic, Persian, Turkish or Chinese and Sanskrit documents was associated with cultural interests in the concerned countries ('Oriental cultures and civilisations'). Soon, this new perception of Oriental Studies broke the Italian frontiers and pervaded the whole world of the time, British India included. It was the epoch of personages and officers trained in the imperial arenas of the time, who fancied to leave (or had to) their countries and their manors to explore old and desolate lands, to investigate their relics and record the wonders of still unknown 'exotic' countries (*terrae incognitae*), 'unveiling' their secrets and their often attractively usages and traditions; personages whose colourful memories today represent as many precious textual sources of the marvels of these lands.²¹ Leone Caetani was one of these passionate travellers (also for his passionate love for hunting). During the writing of the *Annali dell'Islam*, surrounded by a group of young Arabists working at translating and decoding manuscripts on the early years of Islam and the Caliphate, Caetani used to leave his studio in Rome (in Via delle Botteghe Oscure) and travel throughout the various lands that "had witnessed the rise of Islam", he aimed at visiting the battlefields that had signed the military and political advance of the Army of Islam, as described in the Arab annals-writings. He used to say that "only by smelling the dust of the ground and listening to the deep silence of the nights in the desert, or

21 An evocative panorama of the "luminous vapours that these lands had for travellers", is Sarah Searight's description of what she has rather to call "the subtleties of trade and the niceties of diplomacy". See Searight, S., *The British in the Middle East*, East-West Publications, London – The Hague 1979. About Leone Caetani a nice monographic study based on the archival records in the "The Fondazione Caetani" c/o the Accademia Nazionale dei Lincei - Palazzo Corsini (Rome) is that by Valentina Sagaria Rossi: Sagaria Rossi, V., "Leone Caetani *en voyage* da Oriente a Occidente", in *Oriente Moderno* 99(219), pp. 237-262. See also the Sindh's Archives and its publications.

joining the Bedouins crouching around their fires and singing their songs, then and only then he could sense and understand the substance of history and write of it". In other terms, for Caetani and the Italian scholarship knowledge and direct contact with the 'territory' was an inescapable passage to knowing and writing of history. This assumption had a new impact on historiography (not only in Italy) and changed the attitudes regarding antiquities and archaeology, too. Amongst the many participants to this 'phase' and its various moods, can be recalled the many adventurous travellers of the time, in particular the British 'travellers', politically and/or culturally interested to the vast 'imperial' ambitions and/or acquisitions in the Middle East and Asia. We can recall J. L. Burckhardt, Sir M.A. Stein, R. Curzon, H.L. Hoskins, J.M. Buckingham, W. Thesiger, Th. E. Lawrence and many other male and female adventurous personages, who have left us memorable pages on the visited countries and no less memorable historiographical pathways.

Among the scholars of the twentieth century, C.E. Bosworth, who followed the tracks of Arnold J. Toynbee, has been one of the most influential voices with Samuel Miklos Stern. The former's studies on the 'transition epoch from pre-Islamic to Islamic times and the Turkish invasions are still a milestone in the historiographical discourse; Stern's speculations on 'The Islamic City' have opened a new vision regarding the socio-political organisation of the tribal communities rooming in the steppes or settled in the oases, and their cultural features. Soon after, the 'Founder-Fathers' of the "Society for Arabian Studies" headed by Robert B. Serjeant (early eighties of the previous century), consolidated this methodological approach to history and historiography: direct contact and understanding of the "territory" or the "peoples" under study, a multidisciplinary approach where the knowledge of the languages proper to the local peoples (linguistics and ethno-linguistics) and their traditional costumes (anthropology and ethno-anthropology) represented two basic passages of historiography, aimed at a comprehensive historical visualisation of the historical process on a given territory or of a given grouping.²² It would be too long to name all the

²² The Society for Arabian Studies is still very active under the energetic direction of prof. Derek Kennet (Durham University); it organises yearly meetings attended by scholars

Institutions founded and structured in those crucial years not only in Europe, but thriving everywhere, Pakistan and Sindh included. Here, it is well-worth recalling Dr Prof Ahmad Hasan Dani (1920-2009) – Professor Emeritus, historian, archaeologist and linguist, one of the foremost authorities on Central Asian studies and South Asian archaeology – and Dr Nabi Bakhsh Khan Baloch (1917-2011) – sometimes also written as N.A. Baloch (d. 2011) - University of Sindh, historian and one of the foremost authorities on Sindh history, folklore and traditions, linguistics, close friends and collaborator with F.A. Khan.

The main objective of all these Institutes and Institutions was to "investigate history" and "write of history", confining the label of "Oriental Studies" to the past.

Certainly, it was an outburst of a pain-taking but intelligent and erudite interest in writing of history. Traditional "classical" history was criticised, and the young generation, seduced by social and socialist ideologies, then part of the intellectual 'equipment', gave life to brilliant controversies that animated the cultural world of the time.²³

Thus, during the seventies of the previous century, the concept of historiography once again regenerated itself, until its seal in France from the *Annales*. This latter was a Journal founded in the 1929 by M. Bloch and L. Febvre as "*Annales d'histoire économique et sociale*" (Annals of economic

from all corners of Oriental Studies, and its publications are widely circulating. Recently, it has given life to a new Association, the IASA or International Association for Studies of Arabia, whose 'territorial' interests range from the Red Sea to the western waters of the Indian Ocean and the monsoon routes.

²³ Such trend gave life to a still hot controversy, that about Historiography and Historicism. This latter refers to the theories that social and cultural phenomena are determined by history, the belief that historical events are governed by laws (Be these human and/or divine), tendencies to regard historical development as the most basic aspect of human existence, etc. I won't enter here this much debated subject. Very sketchily, according to Pietro Rossi, historicism as it was is an 'overcome' phase of thought, no longer 'syntonic' and 'synergic' with the developments in writing of history. Thus, he has cast considerable doubt on whether it deserves to survive or is still surviving as a historiographical methodological approach to writing of history. According to Tessoro, historicism is a still well alive 'platform' of thought, that is well surviving, renewing itself and moulding its new inputs on the new theories and practices of the Present Times and the writing of history.

and social history), later simply circulating as "*Annales d'histoire sociale*" (Annals of social history), conceived by Febvre as a Research Institute for studies in social and human sciences. It represented for all scholars aiming at 'writing of history' a *vernaculus*, a special forum and a place where persons and scholars used to meet for "historical and historiographical discussions". After Fernand Braudel's direction, in 1969 it was directed by a Board of Directors (amongst whom can be named M. Ferro, E. Le Roy Ladurie, J. Revel and L. Valensi) up to the 1975, when it became the *École des hautes études en sciences sociales*, or School for High Studies in Social Sciences. Amongst the objectives of the Journal and the historiographic School that it had inspired, there was (and still there is, though with regular updating to the 'technologies' of the present) the research of a close collaboration with the social sciences and the aim of arriving to "build" a sort of "global history" where history might distance the traditional *histoire événementielle* (or history as narrative of facts and events) and become – with the collaboration of the social sciences – a history focused on the causes that moved (and still move) the gears of events and policy making.

This intellectual line of thought soon had a strong impact on what was once called "Oriental Studies" and Archaeology, too.

In short, in Italy, two Scholars in particular stand out within the European (but not only 'the European') historiographic debate and its developments, both still well alive and authoritative voices: Pietro Rossi (Turin) and Fulvio Tessoro (Naples). They lucidly advocate the evolution of the ancient traditional concept of historiography and the necessity to update it according to the new times and their technological evolution, too. Both have been concentrating their scholarly attention on Max Weber (1864-1920), his thought and his *opus magnum* ("Economy and Society"), which, up to day and for modern-contemporary scholarship, represents the milestone and reference for any intellectual education and historiographic studying and research. Both Rossi and Tessoro are prominent in Philosophy of History

and related disciplines and studies. The former, in his lectures and publications, underlines the multifaceted significance of the philosophical concept of history and historiography, how it has been debated by different (and often diverging) schools of thought and its growth towards a conception of "history and human sciences", then evolved to a larger vision as "history and social sciences" with components from political science, economics, anthropology and cultural anthropology, ethno-linguistics, artistic and speculative disciplines and other, all of them participant to any historical conceptualisation and image. Fulvio Tessoro, a no less prominent scholar, tracing back his intellectual process to Leone Caetani and his school, has underlined the importance of a new historiographical elaboration *also* for "Oriental Studies", that is the "cultures" and the civilisations blossomed from China to the Mediterranean basin, that, throughout centuries and millennia, have animated the vast expanses of deserts and steppes, oases and steep mountains, and their kaleidoscopic landscapes, giving life to empires and evocative civilisations, which still are largely unknown to the European world. He advocates that "writing of history", even when referring to these distant worlds, does not mean to "enumerate" events and facts through erudite research in archives. These latter undoubtedly are essential part of writing of history, since historiography is based on the patient and often pain-taking search and analysis of textual primary sources. Yet, he adds, when writing of history and reading its textual sources, one must always bear in mind that facts and events are never isolated from their protagonists, that is the human beings; events must be read as a spiral of cause-effect where events are always connected one with the other in a 'causal' (and never 'casual') development. Events must always be considered within a larger vision, that of the 'human and physiognomic environment', so dear to the present historiographical trend.²⁴

²⁴ Actually, since the last decades of the nineteenth and at the start of the twentieth century, Benedetto Croce (1866-1952) and the intellectual groups of his historiographic school have been amongst the first and foremost in Europe to promote a reconsideration on historiography, its ambit and modus operandi. Possibly influenced by the Oriental Institute of Naples, Croce maintained the necessity to update it to the new times and open its traditional confines to "Oriental Studies" not as an autonomous, privileged field of research but as a major field of 'writing' and 'studying of history'. To Giuseppe Vincenzo Tucci (1894-1984), close friend of Prof Dani – we owe the foundation

And Archaeology? “When” did archaeology enter the historiographical panorama?

As just said above, in the eighties of the previous century, also Archaeology had evolved its modus operandi towards a larger vision of its research-work and final aims. Such process started with the introduction of the “subsidiary sciences” and the studying of the environment and paleo-environments through a topographical and geographical-geomorphological approach, preliminary step to excavations. In Italy, the IsMEO (Institute for Middle Eastern and Oriental Studies) has been a well-known and influential advocate of this new methodology. In France, the CNR (National Centre of Research) was its great promoter. Both started an important collaboration based on the formidable intuitions and practical applications of Jean-Claude Gardin (then C.N.R., in France) and Maurizio Tosi (then at the Oriental Institute of Naples, in Italy). It was in those years that History entered the archaeological sphere, as a “subsidiary science”, whose aim was to complement non-textual sources with its new historiographical approach. Textual sources could give voice and life to stones and archaeological data, they could provide a dynastic and political-chronological framework to the unearthed evidences, they could integrate the stage with precious scraps of information on the social and economic landscapes of precise epochs, which might also explain “how” and “why” crises broke out and events developed. Thence, history became a subsidiary science of any archaeological dissertation (D. Whitehouse and J.C. Wilkinson, for example, started a fruitful collaboration, as the undersigned started a fruitful collaboration with Gardin and, some later, with Beatrice De Cardi – where we represented “the subsidiary science”).

But it was also the reverse: non-textual sources had

and organisation in Rome of the IsMEO (Institute for Middle-Eastern and Oriental Studies); to Carlo Alfonso Nallino (1872-1938) we owe the promotion in Rome of the IsPO (Institute for Oriental Studies – which focused and still focuses the Muslim Countries and still carries out historical-political studies and research referring to the Muslim world). To these, one can also add the CRAST of Turin, and its archaeological and historical tradition, and, in Naples, the Oriental Institute – presently reorganised as University of Naples “l’Orientale”. And with these, many other significant poles in Venice, Milan, Florence, Rome, Bari and Palermo.

their privileged corner within the hard work of writing of history about ancient cultures and civilisations, archaeology’s “material data” complementing and integrating what might be evinced from textual sources, especially when for textual information was problematic to separate facts from fiction or to fill the gaps created by ‘silences’ and ‘omissions’. Thus it was ‘archaeology’ to become a subsidiary science for history, writing of history and any historical research; finally the ‘collaboration’ brought to an “inter-disciplinary” study and research.

To sum up, by the eighties of the 20th Century it had been possible to witness a growing integration between historiography and social/human sciences. Unlike the old traditional school of ‘dynastic history’ based on written texts, manuscripts and archival documentation, linguistics and philological research and analyses, this new school postulated a wider field for any historical research and writing of history. Following the *Annales’* school, this new intellectual trend postulated that, without neglecting written texts and manuscripts’ investigation, when textual sources are silent or contradictory or not available, then other disciplines like economics, sociology, cultural anthropology and ethno-anthropology, linguistics and ethno linguistics, statistics, political sciences, *archaeology and field-work* must come in, contributing to a realistic landscape of the history and cultural life of a given region beyond its mere chronological and political-dynastic context.

It also follows that, within this historiographic perspective, and as far as Banbhore and Sindh’s cultural contexts are concerned, archaeological data have become precious tassels of an unfinished historical picture.

For example, non-textual sources can give a unique insight into the various activities of the peoples and the various social groups or communities that run the affairs of the region...our site and its territory included. They can fill the gaps and omissions of chronicles and other literary genres (see §5), providing the historian with complementary information, which spaces out of legendary traditions or mere dynastic history. They can induce the historian to revisit and accurately analyse and filter his own textual sources in order to grasp the “para-historical information” that these may provide. Non-written sources undoubtedly have induced the historian to

go beyond the philological *diktat* of literary historical sources for any historical reconstruction, but they have not induced him to neglect manuscripts’ punctual editions and philological comments on annals-writing, geographies, travelogues and cultural-religious production.

As Giorgio Levi Della Vida used to say, the researcher must always bear in mind that “philology must never be neglected, because sooner or later it will take its own revenge”.

5. Lower Sindh. Textual Sources and Pre-Islamic Times

Following this methodological approach, the archaeological and historical research on Banbhore has endeavoured to outline a historical sketchy picture of the site, perceived not as an isolated monad but as a major player within the events that took place in Lower Sindh as they are delineated by textual sources, these latter complemented and confirmed by the archaeological data and architectonic features so far brought to light [To the Editor: it would be nice to add as “Addendum” or “Enclosure” to this article a list of the sites in Sindh referring to Parthian and Sasanian ages...if any].²⁵ Encasing Banbhore into this larger political and cultural framework, it has also been sought to give this site a cultural identity of its own, a name and a specific function. Obviously, names and historical role will not be the same throughout the circa fifteen centuries of the site’s life and occupation, but after hard and harsh research-work this aim has been partially achieved, especially when referring to the Sasanian and Islamic ages.

We are perfectly aware that, with specific regard to pre-Islamic times and in more than one case, it has only been possible to advance working hypotheses... and that much longer investigation is required about what virtually nothing was known beyond the evocative romantic story of Sassui and Punnu or

25 It is here worth noting again that chroniclers and Muslim geographers of the 8th- 10th Centuries in Arabic and Persian transliterate the place-name Sindh as “Sind” = sin – nun – dal (سند). They also make a clear distinction between Sind (sic) and Hind. Hind is India proper. “Sind” approximately identifies the lower regions of the Indus river (or Mihrān) up to Aror/Arūr, the capital-city of the Brahman reign of Chach ibn Silā’ij, including the Indus deltaic region. Pakistan has adopted the transliteration from classical Sindhi language = Sindh. See also above, note (1).

the legendary *gesta* of the last local *Rajput* Chach ibn Silā’ij, a vacuum possibly due to a still well alive oral tradition or a so far lost written patrimony (see below).²⁶

The focal events that took place in Sindh from the campaign that brought to the conquest of this region by the Army of Islam (early 8th Century CE) up to the 13th Century have already been outlined in a publication c/o BAR Archaeopress Oxford 2014, when we started our archaeological campaigns at Banbhore.²⁷ The story had been dealt with as a *histoire événementielle*, or narrative of events and their personages, essentially based on Islamic chronicles and travelogues; owing to the lack of other data, only limited attention had been paid to para-historical aspects. A historical outline essentially based on the information provided by textual sources. However, the outcome from the first archaeological campaigns (2010-2013) and the data provided by the trenches dug by the Pak-Italian and Pak-French Teams had allowed to capture some glimpses of new amazing evidences that seemed to confirm the scanty textual information about pre-Islamic times. In that book, also converged the archaeological intuitions of Monique Kervran, her suggestions, our debates and discussions and our exploration trips to other sites on the Indus Delta (like Lahori/Lahiri Bandar and Ratto Kot), to Sehwan Sharif – alias Siwistan, the old capital city of a Southern Kushān Empire – and Taxila, an archaeological ‘park’ with a lovely site-Museum extremely significant for comparisons between local architectural and building features with some structures at Banbhore (like the rampart with its towers and square structures, the Mosque and other. See below). These allowed to establish an archaeological/architectural sequence, which enabled to place Banbhore in a better historical context.

The situation drastically changed with the field-

26 About the lovely story of Sassui and Punnu, recently has been published a precious, punctual and erudite study by Ghazala Rahman Rafiq, “Shah Latif’s Sassui: the Geography and Poetry of her Path from *Bhambhore* in Sindh to *Kech* in Baluchistan”, in *SAARIJ*, vol.1 (2019) 1: pp. 54-156. About the legendary adventures of Chach ibn Silā’ij, see in the *Fat nāmāh-i-Sind*, ed. N.A. Baloch, Institute of Islamic History, Culture and Civilization, Islamabad 1982.

27 Piacentini Fiorani, V., *Beyond Ibn Hawqal’s Bahr al-Fārs...cit.*, pp. 35-82.

work carried out during the 2014-2015 campaigns. In both 'quarters' (Pak-French and Pak-Italian) the excavations were extended, and brought to light a wealth of new archaeological finds and architectonic evidence 'in stratigraphic sequence', which provided new chronologies and precious clues to the reappraisal of the available literature and related textual sources. Complementing historical textual information with archaeological evidence, these data allowed to draw a different picture of Banbhore, its built environment and landscapes.²⁸

Thus, it is possible to say that, in 2014, pre-Islamic history authoritatively came into the framework.

From the historiographical viewpoint, the situation was reversed: non-textual sources became the prime, major source of information and confirmation of textual sources.

All in all, for pre-Islamic times literary sources are much later than the reported events, like Arrian for the *res gesta* of Alexander the Macedonian or Theophylactos Simocatta (7th Century CE) when dealing with Sasanian administrative divisions and institutions or with "Barbariké". Equally late are the 'Islamic' chronicles by Balādhurī and Tabarī, and Ibn al-Athīr's annals, which however provide valuable information also on the earlier periods of the Sasanian epoch and the downfall of the Parthian empire. With regard to the site of Banbhore, little or nothing can be found as far as 'contemporary' textual sources might be concerned, apart from Nearcus' narrative, the *Periplus Maris Erythraei*, some scraps of information in the *Historici Graeci Minores* or accounts about the Seleucids and Alexander the Macedonian. Then, we have Greek, Byzantine, Latin, Armenian, Syriac, Aramaic texts. Basically, these latter are second-hand and late accounts. Yet, it is possible to find important material for the later Parthian period and Sasanian history; but their information must always be carefully evaluated especially when 'national feelings' are involved, as with Arminian sources, for example, or Latin and Greek texts when the Parthian and Sasanian wars with Rome are concerned.

²⁸ See Manassero's Reports and his publications cited in note (17). With regard to Kervran, unfortunately her 2015 report has never been circulated. I can only base my statements on our conversations regarding "Parthian evidence" in her trench n. 10, and Dr Hual's collaboration with the French team (Hual's communication at Lione Conference in the 2018?).

Controversial is the historical value of the rich Sindhi heritage of legends and evocative myths. No less controversial are some poems in Pahlavi (Middle Persian) and epic narratives on the first Sasanian emperors, generally dismissed by scholars as "evocative literary material but unreliable as historical sources". However, if we accept Marc Bloch's axiom that "beyond myths and legends there is always a kernel of historical truth", then also this literary material – if accurately sifted, evaluated within the regional or global political panorama of the time, and integrated with other sources...in our case especially non-written ones – it may allow to evince significant data. I will come on this issue here below in detail and more than once, since, following Marc Bloch's saying, beyond the veils of myths and legendary stories, it has been possible to read a solid nucleus of historical truth, which enabled to reconstruct factual events of a given political line pursued by both the Parthian and Sasanian emperors, and, at the same time, to find also a consistent explanation of military and political actions.

Coming to non-textual sources, at Banbhore these have definitely supplemented, sometimes corrected and confirmed, the information obtained from the texts, in particular when these latter refer to the higher classes, kings and rulers. They have also furnished valuable 'para-historical data' on the daily life and local activities, which, complemented by textual information, have allowed to cast significant side-views on the local power-structures and the part played by the site within some historical situations regarding Lower Sindh and this latter's power-system, that is the political-military organisation of the region and its social, administrative and religious configuration.

Just a short mention to Banbhore's 'non-textual sources', and how they have enabled us to evince from texts a better understanding of the pre-Islamic history of the site and, with it, of Lower Sindh as well.

First of all, a special mention deserve its remains, which comprise the countryside itself with its vast scatter of ruins, the sturdy fortified citadel surrounded by a powerful towered rampart (the tower's shapes, first of all, and other structures like the water outflows), a (barrage-)bridge and canals. No less significant are the archaeological finds

inside the fortified citadel and urban-architectonic structures. Still focusing pre-Islamic times, for the archaeological finds (special mention deserve also Khan's materials, unfortunately the levels are missing) can be recorded coins, glass, little objects (beads, a little mirror, and other) either locally manufactured or imported, 'diagnostic' shards, vessels significant for their shapes and decorative motifs, and other minor artisanal finds.²⁹ With regard to architectonic-urban structures, beyond general architecture, special mention deserves two imposing cult-centres: the Hindu temple and the Mosque, this latter rebuilt on a preceding Buddhist *ensemble*. All these remains are a most valuable evidence and, from the historiographical perspective, precious non-textual primary sources. Topographical studies combined with modern advanced technologies have also provided excellent information. Linguistics, especially when this discipline focuses on place-names, specific administrative offices, territorial districts (provinces, districts and minor units), which, if combined with texts (these can be found in various languages, but correspond), may prove an administrative continuity through the times probably due to a persistent tradition at least from the Seleucid to the Parthian and then Sasanian epochs (see also below §5.1). Last but not least, archaeometry and its non-destructive analyses, which nowadays are wonderfully integrating archaeological research, has allowed to confirm some chronologies and provide precious information on handicrafts and their manufacturing.

Then, we have numismatics and epigraphy. From the historiographical perspective, inscriptions and coins with their legends may represent the 'transition' from non-textual to textual sources. Be that as it may, at Banbhore they have provided a wealth of precious information. The same can be said about other no less valuable finds like the numerous ostraca in Trench n. 9, scripts on pottery (like that of the miniaturised basket – see Fig. in *Sindh Archaeology* vol. 5 n. 2, 2019), which, however, seem to pertain to the Islamic periods. The same can be said about the incised marks or scripts on the reverse of ivory's strips (actually found in the latest levels) and so on. They

²⁹ Once again, I refer to Manassero's reports and his two articles: Manassero, N. & Piacentini Fiorani, V., "The Site of Banbhore (Sindh – Pakistan) ..." cit., in *Atti dell'Accademia delle Scienze di Torino* 2015; AA.VV. "Archaeological Excavations at Banbhore (Sindh)..." cit., in *Mesopotamia* cit. 2016.

have been recorded just because – though pertaining to a later site's occupational phase – they might prove a long-lasting artisanal local tradition.

After this short premise, *for the sake of completeness* and before indulging on some historical notes, it seems functional of spending a few words on the available 'textual sources' on pre-Islamic Lower Sindh for the period ranging from (possibly) Alexander's times to the Islamic conquest of Sindh. These have just been flashed above, and their nucleus is basically in foreign languages and of various epochs; however, they 'also' include geographies and chronicles of later periods written in Persian and Arabic (chronicles in particular – when compiled following the annals-writing genre – often report of or talk about pre-Islamic times, too). Then, it seems no less useful to evaluate these written sources and examine how they fit with the non-written sources, and what they can tell us about Sindh's history and cultural life. Finally, it seems extremely useful, too, to explore in detail the rich patrimony of accounts and legends – the positive nucleus of a still alive local cultural heritage – and what can these latter add to historical knowledge.

Subsequently, it will be tried to visualise this material within the particular cultural atmosphere that had always animated the Sindh region, a frontier region between the Indian and the Iranian worlds, where the great river and the Ocean favoured the existence of a complex society and mobile social groupings. A land of frontier and commercial relations, where the borderline was marked by the Indus itself; beyond it stretched the vast expanses of Hind proper (India) with its ancient civilisations, immense deserts and epical mountains. A land of conquests from the East, the West and the North – peoples that brought with the force of their arms and their traditional powers also new cultural stimuli, that merged with the local realities without uprooting them, thus giving life to special symbiotic cultural features.

Etched Carnelian Beads from Gandi Umar Khan Settlement of Indus Civilization

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Abstract:

Amongst the metal (gold and bronze) and non-metal (stone, shell, terracotta, bones) beads from the mature Harappan Site of Gandi Umar Khan in the Gomal plain of Khyber Pakhtunkhwa Pakistan, are the fine collection of etched carnelian beads which are one of the artifact material, coming from 19 layers excavated at the site has contributed some new knowledge, enhancing the urban beads typology. Highlights included the etched carnelian beads in different patterns Such as with the white / black on red / white, suggesting Gandi Umar Khan's role in the growth of craft practices, trade networks and its strategic significance in the manufacture of a variety of beads.

Introduction

The ancient settlement of the Gandi Umar Khan situated in the Gomal Valley, along the Indus River in southern Khyber Pakhtunkhwa. Several thousand beads were found during archaeological excavations over an area of 270 x 250 x 8.5 m (7 ha). The exploration was carried out in conjunction with the University of Peshawar in 2003 and 2004, under the direction of the Directorate of Archaeology and Museums. The excavations at the site in 2003-2004 brought to light the most remarkable findings from the Mature Harappan phase. Inhabited by the urban elite, the Gandi Umar Khan Harappan site is the largest and most important settlement in the Gomal valley that generated material, artifacts and data from the four cultural phases such as (a) Tuchi-Gomal, (a) transitional, (c) Kot Dijian, and (d) Mature Harappan cultural phase (personal communication with Zakirullah Jan), this sequence of culture change and development significantly contributed to the cultural tradition of the Indus valley (Ali & Jan, 2009). As mentioned earlier that

a handsome assortment of etched carnelian beads has found from site among which at least 122 beads which is analyzed scientifically on microscope and visual and are discussed in the present paper.

Furthermore, this paper is an attempt to provide a detailed approach to the issues like (a) the type of beads, (b) decoration, (c) material source and (d) manufacturing process; along with the geographical context of 'etched' carnelian beads trade networks. The research on the carnelian beads have become increasingly useful in reconstructing developments in material culture (Obluska, 2013) (Waele & Haerinck, 2006) (Glover & Bellina, 2001) (Glover & Bellina, 2003) (Kenoyer & Frenez, 2018) (Prabhakar, 2018) (Kenoyer, Vidale, & Bhan, 1995) (Groman-Yaroslavski & Bar-Yosef, 2105) (Glover & Kenoyer, 2019) (Insoll, Polya, Bhan, Irving, & Jarvis, 2004) (Kelly, 2017) (Kenoyer J., 2008).

Material, Origins & Source of Carnelian beads:

Carnelian is a luminous semiprecious type of silica mineral chalcedony quartz that is red to yellowish-or orange-red in color whose physical features are those of quartz. The tiny concentrations of iron oxide (hematite) disseminated particles gives the red color to the carnelian (Aston, Harrel, & Shaw, 2000, pp. 26-27). Baking and dying with iron salts enhance these particles. Carnelian is a close relative to sard, which varies only in its lighter red hue and lower hardness (Moh scale 7.0). Its name comes from the Latin cornum (not carnis: flesh) and due to its reference of the color of fruit's flesh, it is said that it has been derived from the cornel tree's berry. The other trade names that Carnelian is sometimes

referred to are red chalcedony and red agate (Harrel, 2010, p. 73). The word 'agate' commonly applies to the carnelian-banded types, whereas 'chalcedony' usually applies to a stone that has been polished to attain its red color. Carnelian's red color was still known for the perception that it has the mystical property of being beneficial for the blood and thereby supporting fertility. (Arkell, 1935).

In the Indus Valley proper, India, Central Asia, Egypt and Near East; Carnelian was one of the most common semi-precious stones. In the Indo Pakistani region, the Gujarat district of northwest India was a major source of carnelian, but it is also found as pebbles in river beds, such as in the Hindu Kush. (Rapp, 2009, p. 97). It can be found elsewhere in Asia as well as on the Arabian Peninsula. Numerous small water-worn carnelian pebbles are found scattered between the Nile Valley and the Red Sea around the surface of the desert in Egypt, but larger stones appear at different geographic locations in both the Eastern and Western Deserts (Bloxam, 2006)(Aston, Harrel, & Shaw, 2000, p. 27). They occur primarily in the form of rounded, polished pebbles and cobbles in the Fourth Cataract region as they are transported from their possible sources in the south-eastern Bayuda Desert (Wadi Kurmit) and from the Blue Nile in the Sennar-Kasala region through flowing water (Harrel, 2010, pp. 72-73). Sudan in the gravels of the Atbara River and is popular in the region of Khasm-el-Girba (Whiteman, 1971, p. 258). For instance, material for bead production came from Gujarat in Pakistan at the beginning of the twentieth century A.D, but 'the fine red carnelian used to come from Yemen in Arabia, and it is considered to be the best quality (Mackay E., 1933, p. 145).

Production and Decoration Technique of Etched Carnelian Beads

Bead Production Process

The experimental archaeology has understood the carnelian bead making process very well (Francis, 2002, p. 148) (De Waele & Haerinck, 2006) (Insoll, Polya, Bhan, Irving, & Jarvis, 2004). The research showed that to intensify red color through oxidation, the pebbles were roasted for easier flaking the cortex from the core and /or raw material nodule.

Carnelians, however, differ in their heat tolerance and can lose their color, particularly if the heating has been extended. With a minimal color loss or clarity, certain stones of a deep red color can be heated red-hot. Others easily turn pink, or white and opaque, probably of the same grade. This tolerance may be proportionate to the amount of heat they were exposed to and may be intrinsic in some forms of carnelian (Mackay E., 1933, pp. 145-6). After chipping or taking off the cortex; the process of grinding on the coarse surface of metamorphic rocks is given which results a rough beads ready for the drilling. The reason to start drilling process to the rough beads is to avoid the chance and/or possibility of the cracking of bead under process. After successful drilling; final heat is given to the bead for the polishing process for final smoothness and shine (De Waele & Haerinck, 2006, p. 33).

Process of Etched Decoration

The experimental research on carnelian beads showed the expertise of bead worker(s) of Indus period as they were able to create exceptional natural stone designs. The operation of an etched/painting decoration was defined containing three styles of paint use (Beck, 1933) (During Caspers, 1972) (Reade, 1979). On the body of carnelian bead the black or white designs are usually colored (commonly red) and on fully white, etched bodies with red and black designs. In Pakistan, this etched bead decorating process was observed and explained in detail by Bellasis (1857), experimented with by Ernest Mackay (1933) and summarized by Peter Francis Jr. (1980) (Bellasis, 1857) (Francis, 1980) (Mackay E., 1933). According to the process; the bead was generally sent in a clay holder combined with a little cotton wool to keep it from breaking so that the bead could be shielded from the fire. The beads with their holders were put on the metal sheet after the pattern were drawn and set on a charcoal fire for approximately five minutes. The bead was then withdrawn and cooled and then the soot was washed off a bead.

The etching paint was prepared as a combination of washing soda, water and juice from branches of the Kirar plant (cappharis aphylla) for the design (Simpson, 2003, p. 65). The juice, however, was not really necessary; just seeing the soda during application was beneficial as it made the mixture

opaque. The whitening was availed by the alkali in the soda. Therefore, the word etched in a text is a bit misleading since there is no acid or engraving involved in the process. Important findings on this point are given by laboratory analysis (Tite, 1989) (Glover & Bellina, 2003). Just before beads were fired, an alkali solution (sodium borate, sodium carbonate, lead salt and potash) in water, combined with or without plant juices and other additives, was painted on the bead in the desired shapes. The alkali entered and spread out beneath the surface. The alkali acted as a flux to create low melting sodium silicate glass evident as white lines by interacting with the microcrystalline quartz (silica) of the material (Glover & Bellina, 2001). In recent years, the etching process has been revived and seems to be a very complicated one (Glover & Bellina, 2003, p. 95). The etching is all influenced by the high quality raw materials, surface smoothness, alkaline processing mastery, as well as the heating process, and require skills (Glover & Bellina, 2003, p. 95).

The ancient custom of Carnelian etched beads:

Most archaeologist believe that the art of carnelian painting originated in the Indus Valley with the Harappan Civilization around 2500 BC. (Beck, 1933) (Mackay E. , 1933) (Dikshit, 1949). Horace Beck 1933 has explained at least three chronological stages in which various patterns and styles were in use. However, the definition/explanation needs to be revised and explicitly modified in light of recent studies from India and Pakistan. According to the Beck 1933; following three stages are recommended.

- Early stage: Harappan dated as from the 3rd to the beginning of the 2nd millennium BC.
- Middle stage: Early Historic dated as the 3rd century BC through/to the 2nd century AD.
- Late stage: Early Islamic Period dated as the 6th to 10th centuries AD (Beck, 1933).

Circles on both profile of beads, concentric circles, the eye pattern and encircling lines defined the stylistic characteristics of beads developed in the early period in the Indus valley and most probably Mesopotamia. Major export records have been found in Iran, Central Asia and Mesopotamia, suggesting early trade (Simpson, 2003). They may have been generated locally in the latter case (Reade, 1979).

The spherical, barrel, tablet and faceted red beads represent the middle period group, decorated with lines around their edges and single dots. They were manufactured in Thailand, Iran and Northern and Southern India ((Simpson, 2003) (Francis, 2002, p. 148) (Francis, 1980). At least since Sasanian times, they have been developed in Iran. In pre-Islamic tombs, whose artifacts comprised a wide variety of Roman and Parthian materials, at Dibba Al Hisn in Oman, several etched carnelian beads, dated to the 1st century AD, with patterns of lines and dots were discovered (Jasim, 2006). Except at a few United Arab Emirates locations (De Waele & Haerincx, 2006) (Jasim, 2006, p. 229).

Scroll designs, equal armed crosses or devices were painted on the late group beads of approximately tablet or spherical shapes in early Islamic contexts and in the Sasanian Empire, these patterns have also been found (Simpson, 2003, pp. 65-66).

In East Africa, the etched carnelian beads that appear so often in the Indus Valley, India and the Middle East have not been identified yet (van der Sleen, 1958, p. 210) and from the evidences presented here they are now known from Mature Harappan site of Gandhi Umar Khan. Nevertheless, in Egypt (Shiah, 1944) (Francis, 1980) and early Makurian Nubia (Obluska, 2013) they are found in Ptolemaic and Roman contexts as well.

The artistic characteristics of its decorative pattern of white circles, concentric circles, encircling lines and eye style place the etched carnelian beads by Gandhi Umar Khan within the early period, and some examples reflect the middle modern group decorated with lines around their edges (Early Historic: 3rd century BC through / to 2nd century AD).

Beads from other Harappan sites that have the early period variety are, such as Banawali (Bisht, 1993), Baror (Sant, et al., 2004-05), Binjor, Chanhudaro (Mackay E. , 1943), Amri(1964), Chiridamb, Dholavira (Bisht, 2017), Farmana (Konasukawa, Endo, & Uesugi, 2011), Gola Dhoro (Sonawane, 2005), Gumla (Dani, 1970-71), Harappa (Vats, 1940) (Kenoyer J. , 1991), Junjira (Pramanik, 2003-04), Kalibangan (Ghosh, 1961), Kanmer (Endo, Uesugi, & Meena, 2012), Karanpura (Prabhakar, 2013) ; (Prabhakar & Majid, 2014), Lothal (Rao, 1979) , Mohenjodaro (Mackay E. , 1931) (Mackay E. , 1938), Nagwada, Nausharo, Rakhigarhi (Nath, 1999-2000), Surkotada (Joshi,

1990) . The other sites include Mundigak in Afghanistan (Casal, 1961).

Gandhi Umar Khan's etched carnelian beads analysis

In this area, etched carnelian beads from the mature Harappan phase have been reported. Among the 122 carnelian beads, 77 beads are etched here at Gandhi Umar Khan, while the remaining 45 beads are plain / non-etched, occurring in the mature Harappan phase of the region. All pictures and plans are collected by myself that are represented in figures 2 to 5 ordered first by cultural periods as well as by the archaeological layers and by the styles of etching, the beads are listed.

Table 1. Number of carnelian beads finds, whole and fragmentary, by decorated and non-decorated with respect to layers/cultural phases at Gandhi Umar Khan

Phase	Abbreviation	Layer	Etched	Non Etched
Tuchi Gomal	GUK I	19	0	0
Transitional	GUK II	18 & 17	0	0
Kot Diji	GUK III	13, 14, 15 & 16	0	0
Mature Harappan	GUK IV	01 - 11	77	45

Evaluation of Gandhi Umar Khan Beads

A total of 122 Carnelian beads are documented from Gandhi Umar Khan among which 8.13% of all stones used in bead processing. , carnelian beads usually varied in color from light orange to deep red as well as incomplete beads, there are assembled beads. Many of the carnelian beads are etched with distinctive patterns. On the basis of photographic inspection and the use of digital microscopy, the distinguishing features of each bead were documented. Like other Indus beads, the carnelian beads recovered here are also homogeneous with a red orange hue and usually translucent. Some carnelians are banded or mottled

with darker shades of red or reddish brown while some carnelians are very opaque and have various impurities but most of the carnelian beads are semi translucent and somewhat uniform in appearance. The perforation of beads was done using methods such as stone drills and pecking methods.

Etched carnelian and classical Harappan beads are rightly known as cultural hallmarks of the Indus Civilization during the Bronze Period and therefore the Harappan civilization was distinguished by its large development of carnelian beads. (Brunet, 2009). Carnelian beads with white patterns, usually referred to as etched carnelian beads (Beck, 1933). Typically, these beads are decorated / bleached on both sides with a white pattern that has been carried out using a bleaching or alkali solution on the stone that is then heated, commonly called etched beads (Mackay E. , 1933). At Gandhi Umar Khan, the most typical type of design is with a white line cut across the bead, while the other and some of the distinctive decorations consist of at least four different types as:

- Type 1: completely coated with white paint (bead no Guk628) (fig 2)(whole surface of the stone whitened), and most of the beads that are weathered, and the etched surface is visible in traces in most of the beads.
- Type 2: Decoration of the ring design (white on red) (bead no Guk223) (fig 3a), (white colored lines on the context of the stone's natural color). While there is another pattern, including attached two circle patterns on both profiles (bead no Guk588) (fig 3b).
- Type 3: Entire stone surface whitened, which serves as the backdrop, and the red ring pattern made on that as well (red on white)(bead no Guk221) (fig4a). Red banded lines (bead no Guk590)(fig 4b), concentric circles (bead no Guk613) (fig 4c), concentric lines (bead no Guk619) (fig 4d) are among the other patterns that are analytically uncommon by comparison.
- Type 4: many other beads are white etched, but it is unusual to have one bleached carnelian bead etched black on red, decorated on both profiles with a black ring pattern (bead no Guk621) (fig 5). (Black colored lines with the natural color of the stone on the background).

Table 2. Period-wise distribution of decorated carnelian beads from Gandhi Umar Khan.

Layer	Type 1	Type 2 (white on red)	Type 3 (red on white)	Type 4 (black on red)
01	11	0	0	0
02	26	22	06	01
03	02	03	01	0
04	0	0	0	0
05	1	0	0	0
06	0	0	0	0
07	0	0	0	0
08	01	01	0	0
09	0	0	0	0
10	0	0	0	0
11	0	0	0	0
Surface	01	01	0	0

There is a much higher technological standard for the decoration of the carnelian beads, the consistency of the raw materials, as well as the techniques used on most beads here at Gandhi Umar Khan. The forms of

etched carnelian beads present in the Gandhi Umar Khan are also known from the Persian Gulf's early Bronze Age period and from major sites in southern Mesopotamia (Eshnunna, Kish, Nippur, Ur) and Iran (Shah Tepe, Susa, Tepe Hissar) (Waele & Haerinck, 2006, p. 33). From the Mesopotamian region dated to the early Dynastic III period, the earliest context of 'etched' carnelian beads was reported and continued further throughout the second half of the 3rd millennium BC. They have been recorded from many places in western Asia since the first recording of etched carnelian beads from Kish, including Hissar, Shah Tepe, Kalleh Nisar, Susa, Jalalabad, Marlik (Chakrabarti & Moghadam, 1977), Tepe Yahya, Tepe Hissar (most of Iran), (Possehl, 1996); Ur, Kish, Tell Asmar (Possehl, 1996) (Mackay E., 1937), Tell Abu Salabikh, Nippur (all from Iraq) (Possehl, 1996), Kolonna (Greece) (Rahmstorf, 2015). The etched beads of sar el Jisr (both from Bahrain), Medinat Hamad/ Hamad town, sar el Jisr (both from Bahrain), Al Sufouh (Dubai), Mowaihat (Ajman), Tell Abraq (Sharjah/ Umm al-Qaiwain), Umm an-Nar Island, Hili, Hili North (all from Abu Dhabi), Shimal (Ras al-Khaimah) are recorded in the Persian Gulf area (De Waele & Haerinck, 2006)

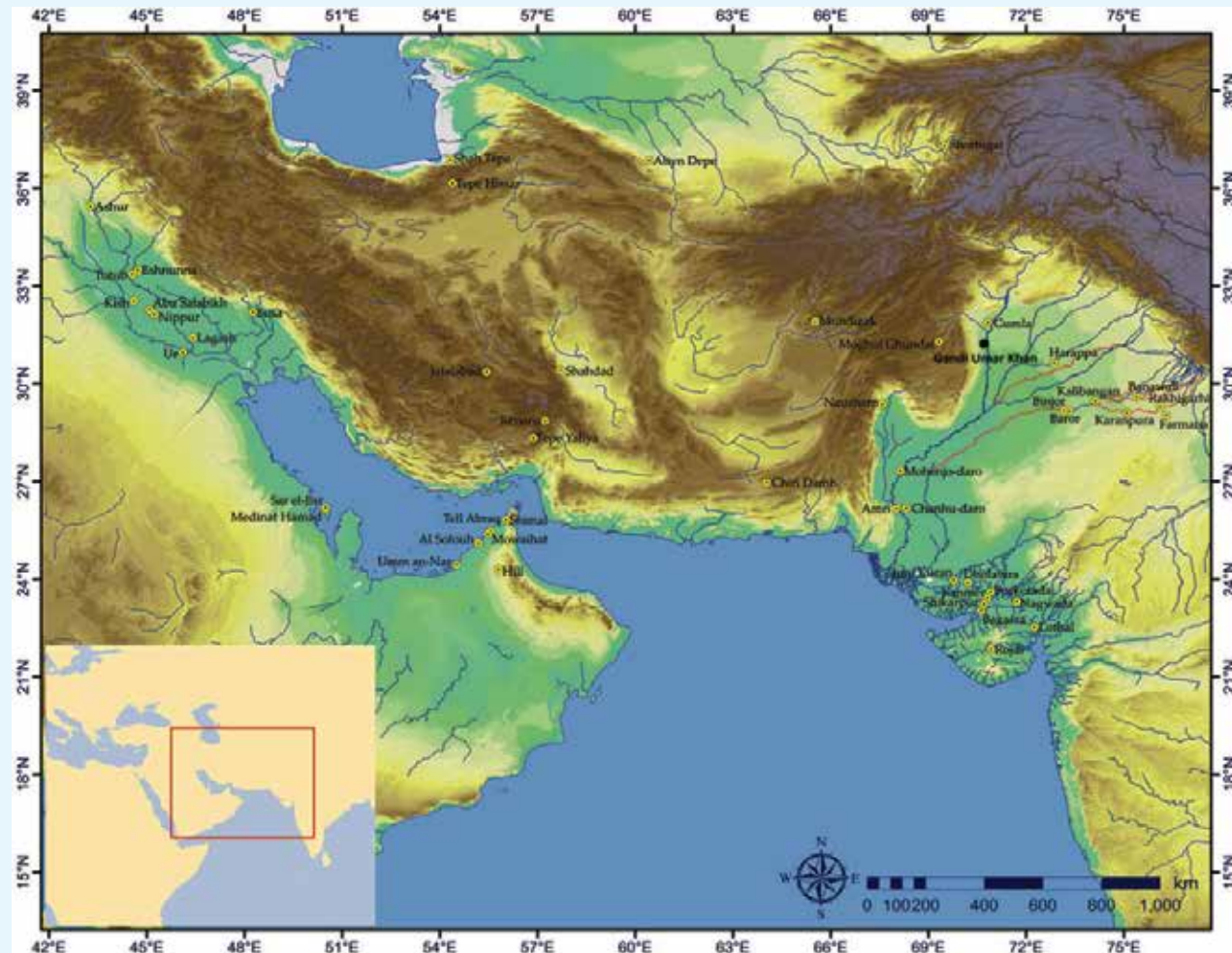


Figure 1. Map showing the find spots of 'etched' / bleached / decorated carnelian beads including Gandhi Umar Khan site (map by Prabhakar (Prabhakar, 2018) modified by the author).

Plenty of the carnelian beads, the great quality of the raw materials and the particular surface patterns used, as well as the methods used on most beads, are of a much higher technological level. The local development of these beads would be indicated by the bulk of the carnelian beads, the traces of heat treatment on the beads, unfinished beads as well as the abundance of the raw material. So far, the extent of technological and skills confirms that the origin of these beads on the subcontinent need not be pursued, and local development of carnelian beads seems highly probable.

Although the vast alluvial plains of the Indus River and its tributaries comprised of all the major urban centers of the Indus Valley, the most important raw materials for the manufacture of beads and luxury goods must have been exchanged from neighboring resource areas, The principal alluvial plains of the Piedmont regions of Baluchistan is included in the internal commerce or contact domain of the Indus, based on existing facts.



Guk 628: very short barrel, White etched carnelian bead, fully covered with white paint

Fig. 2. Type 1: completely coated with white paint.



Guk 223: etched lenticular short barrel carnelian bead with ring decoration on both profile (white on red)

Guk 588: lenticular short cylinder, etched white on red, decorated in attached two circles design on both profile.

Fig. 3. Type 2. Decoration of the ring design (white on red) (3a: Guk223, 3b: Guk588).



Guk 221: traces of white slip and ring decoration done with red slip (red on white), chipped surface with vertical grinding

4a. Ring decoration.



Guk 590: very short cylinder, red on white etched carnelian bead, fully covered with white paint and parallel banded lined all around the bead with red slip.

4b. Banded lines.



Guk 613: short barrel, etched surface decorated with white on orange in concentric circles and lines.

4c. Concentric circles



Guk 619: long barrel, etched red on white, bleached surface which is decorated with red concentric lines and circles all around the profile

4d. Concentric lines

Fig. 4. Type 3: red on white, (3a: Guk221, 4b: Guk590, 4c: Guk613, 4d: Guk619)



Guk 621: etched lenticular short barrel carnelian bead with ring decoration on both profile (black on red)

Figure 5. Type 4: carnelian bead etched black on red.

Conclusion

During the 2003 and 2004 excavation seasons the new types and forms of carnelian beads were found in Gandi Umar Khan which suggest the extensive occurrence of beadwork at this settlement of the Gomal plain. The documentation of huge number of beads mark the Gandi Umar Khan as the major manufacturing city in the valley. When studying patterns of etched carnelian beads in the third millennium BC, the beads are similar to those of the Accadian, Mesopotamian, Egyptian, and Chinese Neolithic periods (Possehl & Creek, 2006). And some examples represent the Middle Ages group, painted with lines around its edges (early historical: 3rd century BC to / to 2nd century AD). Archeological and literary records offer evidence that beads were brought in the ancient territories of Iran, India and Afghanistan during this period from their place of manufacture. Whereas several beads from this series are similar to beads from Mesopotamia, the region of Indus, Afghanistan, Baluchistan, Iran, Egypt and Oman (Kenoyer & Frenez, 2018) and further away from the regions of Anatolia and the Mediterranean. Comparative bead analyses from those other areas can assist in evaluating the trade networks between the country and these remote regions.

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Development of trade and Commerce in Karachi under the Talpurs (1784 C.E-1843 CE): A Critical Study

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Abstract

This article intends to explore the commercial and economic development of Karachi during the Talpur era (1784-1843). As in the beginning of the eighteenth century, Karachi was just a small fishing village however, due to its favorable geographic location; it became a commercial municipality and port. In this aspect, this research reveals the administrative measures taken by the Talpur rulers for the development and advancement of Karachi. This study further examines the revenue system and provides a comparative analysis of the Karachi port with the Sonmееanee port including the taxation system, trade activities in town, transportation, trade routes and running industries in town. Moreover, the Article also highlights the currency, weight and measurement units which were used during the Talpur era in Sindh. For this historical research, data collected is mainly through primary sources and from official reports of Bombay Government, Gazetteers of Sindh. Therein, this article analyses the historical development of the mega city Karachi.

Keywords: Karachi port, Talpur era, Trade, transportation, administration

Introduction

The trade and commerce of Sindh have always been of immense significance since ancient times because of its key geographical position between the East and West (Zahid, 1980, p. xxiv). It has served as a trade bridge between Central Asia and the Northern countries of Sindh. Since ancient times, it has been engaged in diverse trade and commerce activities with several nations, including Mesopotamia, Persia, Arabia, and the Indian states via coastal and land routes.¹

¹ T. Postan, Personal Observations on Sindh, London, 1st, ed, 1843, reprint, Lahore, Sang-e-Meel publication, 2005, p. 22-24. See also Ansar Zahid Khan, History and culture of Sindh, Karachi, Royal Book, 1st, ed, 1980, p. xxiv.

At present, Sindh is one of the provinces of Pakistan and Karachi is its capital city, which is the largest city of Pakistan. It is located in the South of its country and bordered by the Arabian Sea. It has two main seaports, Karachi Port and Bin Qasim Port, which make it the commercial hub of the country. The largest foreign trade of the country is handled by Karachi. (*Bettina Robotka Political Turmoil in a Megacity: The Role of Karachi for the Stability of Pakistan and South Asia*)

Many rulers and their governance left a significant impact on the region, especially Karachi. Different rulers drew different strategies for their economic development. The purpose of this research paper is to assess trade and commerce policies during the era of the Talpur rulers (1784-1843 C.E) for Karachi and its Port. Particularly, their period of rule between 1837-1838 gave a remarkable boost to Karachi. The paper started with discussing shortly the seaports of Sindh, apart from Karachi port. Then it has proceeded to describe administrative policies of the Talpur chiefs for Karachi port.

Historical Background of Ports of Sindh

i) Lahri Bunder

Apart from Karachi and its seaport, Sindh had other coastal cities and seaports. Like, in the past, Thatta was the capital city of Sindh, which had served as the trade hub of its continent. The trade was carried through the port, Lahri Bunder, which was forty miles away from Thatta. It was considered the busiest seaport of Sindh. The largest trade activities were carried out through it which was located near Indus Delta (60 miles away from Karachi). The trade activities were mostly carried out from Far

East Yemen and the Fars through vessels and ships weighing two to three hundred tones or more.²

Alexander Hamilton, one of the British East India Company's³ (established in 1600CE) officer in his book "*New Accounts of East Indies*" mentioned the details about the beauty of Thatta and its port.

ii) Auranga Bunder

Auranga Bunder was another significant seaport of Sindh, which was named after one of the Mughal emperors, Aurangzeb Alamgir (d. 1707 CE). Auranga Bunder mainly existed as a river port and it was called Rambagh by the Hindu inhabitants of the town. It was situated on the westward of the present Karachi port about eighty years ago (Carless 1838, p.195).

iii) Shah Bunder

Shah Bunder another important river port of Sindh on the eastern bank of the river Indus also served as a trade port till the Eighteenth century. These ports have been decayed gradually due to changes in the routes of the river Indus.⁴

Historical Accounts of Karachi Port

Karachi and its port have historical significance. Its history has been traced out from the official records of the British East India Company, accounts of the merchants, travelers, and reports of the naval commanders who frequently visited Sindh in the Eighteenth and Nineteenth Centuries. Lieutenant John Porter a British Surveyor compiled his report in 1774 in his official report revealed the considerable trade activities at the Karachi port. The official records compiled by the Bombay government in 1775 also disclosed that the trade of Indus carried from Shikarpur towards the interior provinces through the Indus river was reduced due to mismanagement of the rulers. Consequently, much of the trade transit was taken place either through the land or the sea route from Karachi towards the northern areas and interior Sindh which were found to be more valuable and remarkable.⁵

2 Alexander .F. Baillie, *Kuraachi past present and future*, Karachi, Oxford University press, 1975, p. 36.

3 East India Company ; It was a trade company which was also known as English East India company .It was founded in 1600 under the royal charter of England .

4 Hamida Khorro , *Karachi Mega city of our times*, Karachi , Oxford university press,1997, reprint, 2010, p.11.

5 Commander. T. G. Carless, *Memoir on the Bay, Harbor*,

Short Administrative history of Karachi before Talpurs

Karachi had been inhabited by the fishing community since ancient times and presented the look of a small village consisted of fishermen. A Hindu Seth Bhujamal of 'Karak bunder'⁶ settled in Karachi due to its significant decrease in trade activities in his region and he founded 'Kulachi Jo Kot'. The Kot or Fort had two gates called 'Methadar'⁷ and 'Kharadar'⁸. This area was more commodious and suitable for trade. For the protection of the fort, the cannons were erected on the corners of it. The rich Hindu community started living inside the fort while the native inhabitants lived outside of it.⁹

His eldest son Dharyanomol later controlled the administration of the town along with the trade-related activities of the port. During that time, the Kalhora¹⁰ rulers ruled over Sindh, and, politically Sindh had been passed on from hand to hand since the sixteenth century. As a separate province, it remained under the control of the Mughal administration from 1592 to 1738.C.E¹¹ The Kalhora rulers became semi-independent under the Mughal administration.

During the reign of the Mughal emperor Aurangzeb, the Kalhora rulers fought a battle with the Khan of Qallat during which Mir Mehtab Khan of Qallat was killed. To compensate for the loss, Karachi harbor was given under Kalhora's control in 1697.¹²

and Trade of Kurrachi, submitted, 1838, p. 191 -192.

6 Alexander. F. Baillie, op. cit., p. 36.

7 Karak bunder: The port was located near Hab river, about a few miles away from Karachi jo Kun.

8 Methader: The gate towards Layari River was called Methader or Methderwasa. Kharader: The gate towards sea side was Kharader or Kharaderwasa.

9 Naomal Hotchand, *Yadgeeryun*, Sindhi translation, M. Hanif Siddique, Haderabad, Sindhi adabi board ,1st ed, 1968, re print , 1978, 1996, p. 52.

10 Kalhora: The Kalhora dynasty ruled over Sindh about 84 years. The early rulers of the dynasty were an orthodox Muslims. The first Kalhora chief Mian Adam Shah Kalhora was also a famous saint and scholar. The Kalhora rulers remained semi-independent under the Mughal ruler.

11 Usman Damohi, *Karachi in the Mirror of history*, Karachi, Royal book company, 2016, p. 24.

12 Gul Hassan Kalamti, *Karachi sindh je Marvi*, sindhi, Karachi, Naon Niapo Academy, 2014, p. 76.

Karachi under Talpurs

In 1757, Mian Ghulam Shah Kalhora took control of Karachi again from the Khan of Qallat. Then after seventeen years, again Karachi was handed over to the Khan of Qallat Nasir Khan as compensation for the blood of his brother-in-law, Zark Khan, who had been killed in the battle fought between the last Kalhora ruler and the Talpur chiefs in 1774 AD. Later, in a battle, troops of Qallat, allied with the Kalhora rulers and fought against the Talpurs.¹³ Meanwhile, the Kalhora rulers were replaced by Talpurs in 1783 A.D. The Talpur chief, Mir Fateh Ali Khan, defeated Mian Abdul Nabi, Kalhora ruler, in a battle and took over the political charge of Sindh

"The government of Sind now became a confederacy of chiefs ruling each his own share independently .Fateh Ali Khan, taking into partnership his three brothers, Ghulam Ali, Karam Ali and Murad Ali ("*char yar*" or four friends) ruling at Hyderabad ; Mir Soharab , head of *the Sohrabani* branch, ruling at Khairpur ; and Tharah Khan , with his uncle and the sons of the murdered Mi Abdulla, comprising the *Mankani* branch, at Mirpur." (Aitken 1907 :118)

Talpur Ameer made three attempts to invade Karachi from 1792 to 1795, due to the weak-armed position of Qallat, Karachi was eventually captured by Talpurs.¹⁴

Karachi Port

Since then, Karachi port has become the most significant and valuable port for trade and commerce during the third and fourth decades of Nineteenth century. The harbor was situated between the cap Monze or RasMoore and Pitte, the western mouth of the Indus river. At the entrance of the harbor, there was a long bar or large lagoon, which extended towards the Eastern side of Manhora point. It was the only point near the harbor, where boats and vessels of all sizes anchored. The harbor had some natural benefits that sheltered them from worse weather. Even during monsoon seasons, the boats experienced the advantage to move easily due to the influence of northern winds, therefore the vessels could approach the port and return without much difficulty.¹⁵

13 Azemushaan Haider , *Hsstory of Karachi* , PhD thesis ,University of Karachi, Karachi ,Ferozsons , 1974, p. 2.

14 Naomal Hotchand , op. cit., p. 62- 64.

15 T.G.Carless, op. cit., p. 198.

Talpurs' Administrative Measures

After the conquest of Karachi in 1795, the Talpur '*Ameer*, (chief) of Hyderabad state emphasized increasing the volume of trade in Karachi. To achieve this goal, they established new administration and revenue systems in Karachi. Significant measures were taken for the improvement of trade at the Karachi port. Before Talpur's rule, the traders of Sindh had imported the trade through Sonmiani port and the goods transits had been taken place from Kalat (Qalat) to Kandhar via the Lesbella route. The rulers of Lesbella had taken all the revenue. The '*Ameers*' (chief) of Hyderabad imposed heavy penalties to control this practice. As a result, the '*Ameers*'(chief) made considerable profit from Karachi port.¹⁶

Comparison between Karachi port and Sonmiani port

Although Karachi town and the port occupied a significant position in South Asia in the 19th century, it did not hold a monopoly because of Sonmiani port. It was situated on the coast of Makran in the province of Lus and North West of Karachi port. It was served as an important port under the Khan of Kalat (Qalat).¹⁷

The traders of Balochistan, upper Sindh, Afghanistan, and Central Asia preferred to transit their trade via Sonmiani port. The Sonmiani harbor was situated on the Northern side of the bay.¹⁸ The entrance of the harbor was narrow, lies between two sandy edges. There was some natural vegetation on its western side and tamarisk trees lie on its eastern side. The distance between the two points was 5,400 yards.¹⁹

The native vessels exchange at the Northern end of the harbor about one mile and three-quarters of the West side of the town. The town

16 S.V.W.Hart, *Brief Notes of a visit to the Port of Sonmeeanee, and the country lying between Karachi and Hanglaj in the Lus Territory*, Bombay Record Selections, part I, pp. 324-326.

17 T.G.Carless, *Memoir on the Province of Lus ; and Narrative of a Journy of Beyla*, submitted,1838,Bombay Records, Vol. I, p. 301.

18 C. W.Montriuie, *Brief Report on the Harbour and Town of Son meeanee*, Submitted , 1842, Bombay Records ,vol I, p. 365.

19 Meeanee, Majority of the inhabitants were fishermen, it was locally known as Meeanee. *Ibid.*, p. 221.

was called 'Meeanee'²⁰ by natives. Its population was about 2000 inhabitants. There were just about 200 houses built of mud and reeds. The majority of the people were Muslims, mostly were fishermen, boatmen, small merchants, and transporters. While there were around 300 Hindu inhabitants who were relatively wealthier than Muslim traders and merchants.²¹ Some Hindus were the agents of the traders of Karachi and other ports.²²

About forty to fifty vessels brought huge trade from Muscat, Karachi, Bombay, Calcutta, and other ports. The value of the trade from September 1840 to 2 May 1841 mentioned by Lieutenant M.F. Gordon was Rs.9, 91,773.²³ The custom duty levied at the Sonmiani port was about four percent on all import and export articles. The transit duty at Beyla was taken one percent on each camel load. Later, the Khan of Kalat (Qalat) reduced all duties to half percent at the port Sonmiani.²⁴ The reduction in duties charges led to an increase considerably trade in the first half of the century. On the other hand, the Ameer of Hyderabad taking measures to promote trade of Karachi port offered cheap passage to the traders passing from Karachi and Sehwan route. The measure greatly helped enhanced the volume of the trade at Karachi port. The trade value of a month was estimated at Rs. 2,18,098 -15-0 .in 1841 from April to May.²⁵

Setting up of Customer House

A customer house, entitled 'Mahal Chabootra' (Custom house) was established by the Ameer near the harbor where goods were brought by merchants and the customs duties were levied on each article which was either imported or exported. For this purpose, 'Munshees' (rank of a government employee) and 'Amils' (government officer or revenue collector) were appointed and, different 'Amils' were responsible for collecting customs duties and transferring the amount to the treasurer. After

20 M.F. Gordon, Report on the Trade, the sea port of the province of Lus, Bombay Records ,Part I, p. 343.

21 S.V.W. Hart, Brief Notes of A Visit to the Port Sonmianee, Bombay Records ,part ,I, P, 327.

22 Gordon , op. cit., p. 353.

23 Ibid., p. 344.

24 Ibid., p. 354.

25 Ibid., p. 217.

the deduction of the monthly expenses of the town, the remaining amount was sent to Hyderabad court through Hundee (money transfer). Some extra taxes were also levied at *the Mahal Chabootra*.²⁶

Taxation System under Talpurs

During that time, the various taxes which were imposed on import and export activities included; *Sheerani*, *Chungi*, and *Luwazimu Moondeean*. *The Sheerani* (income tax) was paid to the weighing man for the measurement of the article. *The Chungi* (sale tax) was applicable on wholesale dealers at the market rate, 2 *Kasa* per *kurwar* (measurement units). *Lawazimu Moondeean* (tax on whole sale dealer) a half rupees were taken on grains for private consumption. Besides these taxes, some local taxes were also imposed, like taxes on Gur-spirit or liquor dealers, like Rs. 5 per beer.

Taxes on gambling houses and other

Apart from these goods, the Talpur government also issued licenses and permitted gambling houses. The contractors appointed at the gambling areas mostly included the Hindu 'Amils' (government officer) and a tax of three *Dokra* (coin of Sindh) per rupee was made applicable. However, such gamblers were dealt with quite strictly if they were found gambling at any other areas except the government-designated gambling sites.²⁷ Taxes were also imposed on people who kept cattle as a source of their income. The camels, bullock, and donkey carriers were levied one-eighth 1/8 on daily earnings.

Chout Shurafee tax (Incom Tax)

Another tax called 'Chout Shurafee' ¼ levied in exchange for coins in town the foreign merchants had to pay some tax which was one *Tunga* per hundred rupees.²⁸ Nevertheless, the citizens were not bound to pay the taxes regularly. On special occasions, such as *Dewali*, when valuable gifts were exchanged, taxes were levied on the residents.

Other taxes

Taxes were also levied on goldsmiths, butchers, and

26 S.V.W . Hart. Report on the Town and Port of Kurrachee in Bombay Records Selections, part I, p. 219.

27 Ibid., p. 221.

28 Ibid., p., 222.

ivory-bangle turners, cotton cleaners, dying animal hides, utensil makers, brokers, and weavers. The tax on the fabric industry was approximately three *Dokra* on each loom paid monthly. The oil mills paid 1 ½ Seer of the profit monthly. Though residents were exempted from house tax, the tax levied on the rent of two houses belonging to the state. Cap makers, flour mills ground by camels, potters, and dyers were exempted from the taxes.²⁹

Revenue System under Talpurs' rule

During the Talpur rule, various rulers adopted strategies to enhance the revenue in Karachi such that, previously, the Jam of Lus (chief of Lusbela) collected the revenue. In this regard, during his visit in 1809 AD, British officer Henry Pottinger also observed significant trade-related activities within Karachi. He described that the Talpur administrators had collected Rs. 99,000 in the form of revenue from Karachi in 1809. (Pottinger 1810 : 344)

"The total annual revenue drawn from the town and port of Karachi by the Mirs (chiefs) of Sind is not known for the series of the years, but in 1837 it was entered at 1,73,893 rupees ,and in 1839 at 1,07,115 rupees, the charges of collection and expenses of the military force employed costing in the latter year but 6839 rupees." (Hughes 1874: 393)

According to a contemporary report compiled by commander Carless, (British navel officer) The Talpur ruler collected a huge amount of revenue from Karachi in 1837-38 which was about Rs 1,50,000 on average custom duties during the financial year 1837-38 from Karachi port. A considerable trade was reported during that period. (.Carless 1838,p, 198)

The total of the export was over Rs. 21,46,625 in which Rs. 16,00,000 was the value of opium and the remaining articles were worth Rs. 15,99,625. The total value of the whole trade was recorded around Rs. 37,46,625. However, amongst the export articles, opium was a highly valuable item than any other article. For this purpose, opium was brought on camels in leather bags, such that, 8-maunds per camel loads were managed. During the fiscal year 1837-38, over 500 maunds of opium were around Rs. 16,00,000. Nevertheless, the average quantity of opium had been reported as 500 camels loaded along with the customs duty applicable per load was

29 Ibid. ,p. 223.

Rs 130 which was fixed by the State. This opium was brought from Rajistan, Marwar and supplied to Daman. Indigo was yet another largest export object that was brought to Karachi from Khiarpur and Bahawalpur districts. In 1837-38, over 1600 maunds of Indigo were exported to Bombay and the Persian Gulf.³⁰

Exports under Talpurs' Administration (1837-38)

During 1837-38, the average value of some commodities exported to Karachi port was given as follow:

Article	Value (Rs)
Ghee	1,70,000
Wool	35,000
Indigo	1,20,000
Wheat	67,500
Shaokfin, saltfish & Cod sounds	30,000
Raisins	12,000
Gogur (Gum)	12,000
Mungeet (Madder)	45,000
Lungees	5,000

The principal commodities exported from Karachi were brought from numerous places. One of the purest products in Sindh was ghee, which was brought to Karachi from Lus and the mountainous districts to the northern side of the city. The ghee was exported to Bombay, in addition, locally manufactured fabric, mashru, Lungees, hides, shark fins, and dried fish which were exported to Gujrat, Kucch, and Muscat. Mungeet (a kind of dye) was cultivated in Sindh and was supplied to Bombay and Calcutta.

Imports under Talpurs' Administration

The following chief commodities were imported during 1837-38 :

30 T.G.Carless, op,cit,198.

Artciles	Values (Rs)
Sugar	50,000
Sugar (Raw or Coarse)	35,000
Copper	54,000
Pepper	48,000
Raw silk, dyed (1 st kind)	1,20,000
Raw silk, dyed (2 nd kind)	1,28,000
Ivory	64,000
Coconut	25,000
Tin	17,000
Cotton	37,000
Dates	30,000
Dates (Priced)	70,000
Pearls	75,000
Slaves	1,20,000

The largest part of the commodities was bought from Bombay at Karachi port during 1837-38 were the following; sugar, coarse sugar, and various groceries like; spices and metal including ivory, copper and tin, steel and quicksilver, cotton, coarse cloths, raw silk, and English cotton. In the early months of the financial years, cotton was brought from Gujrat. Later, Sindh became self-sufficient in the production of coarse cotton, which was fine quality cotton, largely utilized by the textile industry of the town. The articles imported from Muscat and the Persian Gulf included; almonds, dates (dry and wet both), pearls, roses (dry), raisins, dried limes, and slaves. The articles imported from upper Sindh were Tobacco and cotton. Mostly the imported articles were largely consumed in Sindh.³¹

Connecting Land Trade Routes with Karachi

Karachi was linked by land routes with several cities. The caravans proceeded towards upper Sindh, North East, North West, and other areas by these routes. Although a concrete road was not built on that route yet, the caravans used the routes throughout the year.

- i) The main route connected with Thatta was perceived as convenient for the traders and passengers. The route passed through Landi, Dhabeji, Gharo, and Gujjo towards Thatta. From Thatta,

31 Alexander .Baillie , op. cit., p. 39; see also Carless op. cit., pp. 202-203.

the route further extended towards the Northern areas to Kotri and from Kotri to the western bank of the river Indus in the direction of Sehwan. From Sehwan, the route led to Dadu and Larkana further towards Sukkur. The similar route extended to Multan and other regions of Punjab as well.³²

- ii) Karachi was also connected with Shikarpur by the way of Larkana such that the distance was 294 miles from Karachi to Shikarpur moreover, the route further extended towards Afghanistan.
- iii) Another route existed during that period, which connected Karachi to Hyderabad and vice versa towards the opposite side of the western bank of river Indus, extending from Kotri to Sehwan leading to the northern regions.
- iv) From the Eastern side, the same road was also connected to the Indian cities like Tali in Malwar through the Jasyulmir route. Karachi had access to a broad spectrum of locations, it also connected with Qandhar by a new route through Qallat. Several caravans passed upwards and downwards throughout the year.
- v) Bulan pass also served for communication from Karachi to Shawl (Quetta) and then continued towards the interior side of Sindh. These caravans then progressed towards Karachi.³³

During the same period, the British government appointed Captian E.P. Delhouste for the inspection of the routes that led from Karachi to upward regions of the country. The Captain described three routes from Karachi to Jerruk or Jharak.

- i) The route from Karachi led towards Jerruk through the way of Gharra, Thatta, and Soonda covering a distance of 96 miles. Through this route, the passengers and merchants reached their destination in twenty-four hours.
- ii) The second route that connected Karachi with Jarruk via Gharra, Hallaji, and Khoodie with the distance of 89 miles two furlongs. From six miles of Hallaji, the route was very smooth as the road was wide and spacious. In contrast, the road from Khoodie also known as Khoodia village was rough and bumpy, was mostly used by carts.

32 P. Delhoste, Report on the Routes leading from Kurrachi to Jerruk, in Bombay Record Selections Part I, p. 249. See also Baillie, op. cit., p. 39.

33 Carless, op. cit., pp. 203-204.

iii) The third route from Karachi leading to Jerruk connected through Run Pittaeancee, Jim, and Khoodie such that the distance covered was approximately 84 miles and one furlong. These routes from Karachi to Jerruk had much better roads and the distance was covered on land by the means of camels within five days and from Garrah, in six days³⁴

iv) Various others routes were also being operated from Karachi to distant places for communication. A route led towards western India on the way of Gharo and Kateswara was present as well. Furthermore, due to the unique geography of Karachi, it was also connected with Balochistan through several routes. A road from Karachi continued to Gawadar while the distance between the two cities was measured as 431 miles.

v) A separate route from Karachi continued to Shah Bilawal which covered 70 miles to be specific. Commander Carless mentioned the time duration to reach various places, like from Karachi to Thatta took three days, Hyderabad in six days, Sehwan in thirteen days, Khairpur in twenty days, and Shikarpur twenty-five days.³⁵

Alexander F. Baillie, one of the travelers covered the journey from Karachi to Kalat or Qalat within twenty-six days from Kalat or Qalat and twenty days from Qandhar to Kaboot in eighteen days. The journey from Qalat to Kabul was unsafe for the caravans. Afghan and the Pathan tribes used to plunder and loot the travelers and caravans. Considerable numbers of goods were sent from Kabul through that route. The merchants asserted that the trade carried huge benefits with big risks from that route.³⁶

The sea route, through river Indus, was time-consuming and costly, while the land route was much more economical. The overall distance being covered from Karachi to Sehwan was about 146 miles.

On the journey from Karachi to Jerruk, via the coastal route, a boat was hired at 48 rupees and then, a camel was hired at Rs. 4 from Gharra to Jerruk, the cost made Rs. 52. For the land route journey, a camel

34 Baillie, op. cit., p. 39.

35 J.F.Heddle, Memoir on the River Indus, submitted to Bombay Government, 1838, pp. 423,424; Delhoste, op. cit., p., 255.

36 Azimushan Haider, op. cit., p. 39; See also T. Postan, op. cit., pp. 37-38.

was hired at Rs 6 ½ and Rs.7 and the caravans took twelve days and mostly to reach Sehwan. This land route was preferred by Karachi merchants.³⁷

Alexander Burnes (British military officer) mentioned in his report that Thatta was the nearest point to Karachi on the way to the Indus river by the land route. The goods were transported from Thatta to Karachi on boats by Pitti creek, the western angle of the delta, and six miles away from Karachi on the eastern side which was prolonged and dangerous. The overall distance between Thatta and Karachi through the Indus river was about 99 miles, while the distance by land route was about 60 miles. The traders preferred to travel through the land route.

Heavy cargo transit from Karachi through Ghizree creek to Ghara by boat and then from Gharra it was carried towards Jerruk through camels. From Jerruk, goods were sent towards upper regions of the country, by the coastal route of river Indus.³⁸

Currency

During the early period of the Talpur era, Afghan currency Kashani rupee and Taimuri rupee were widely used in Sindh until after the death of Taimur Shah and his successor Zaman Shah. Later on, the weak Afghan rulers were unable to maintain their power and status. The Talpur rulers established the mint house in 1828 after which, the Talpur's coin Kora rupee was widely circulated in Sindh. The 'Ameers' of Khairpur issued 'Sohrab Rupia' while the Afghan ruler Shujaul Malik issued 'Shujawali rupee' in Sindh. During the nineteenth century, these currencies were used in several states such as the upper Sindh, Kashmir, Kora, Shujawali, Kuldara rupee, and Sohrab rupee. At that time, foreign currencies were also being used in Karachi³⁹.

Local currencies used in Sindh

During Talpur rule the following units of commodities were applicable in Sindh:

37 Ibid, p. 40. See also Delhoste ,op,cit,p, 255

38 Carless, op. cit., pp. 203-204.

39 Hart , op. cit., p. 217.

S.No	Currency	Total
1	4 Kasiras	1 Dokra
2	2 Dokras	1 Tanga
3	26 Tangas	1 Kashani rupee
4	21 Tangas	1 Kora rupee
5	5.4 Kashani rupees	1 Venetian (1 putli)
6	2.5 Kashani rupees	1 Dollar
7	1 Bombay ruppees	11 ¾ Massas
8	1 Kashani rupee	11 Massas

40

Weight and Measurement units

The Bombay government's report illustrated that the following units for weight were used in Sindh during the Talpur era.

S.no		
1	4 Chautais	1 Patis
2	4 Patis	1 Toya or Toee
3	4 Toyas	1 Kasi
4	5 Kasis	1 Mundia
5	12 Mundias	1 Khrwar or Kharar (90 Bombay Maunds)
6	60 Kassas	1 Khrwar or Kharar (90 Bombay Maunds)

41

According to Captain Hart, the following units were applicable at Karachi.

Weights:

S.no		
1	4 Kasiras	1 Dokra
2	4 ½ Dokra	1 Anna
3	72 Dokra	1 seer, Pakka
4	18 Annas	1 seer, Pakka
5	40 Seer, Pakka	1 Maund
6	3 Maunds	1 Pottea
7	1 Bombay maund	14 Karachi seers

40 Ibid., p. 242.

41 Carless, op. cit., pp. 199-200. See also Hart, op. cit., pp. 218-219.

8	100 Bombay maund	35 Karachi seers
9	1 Surat maund	18 Karachi seers
10	100 Surat maunds	45 Karachi seers
11	1 Bombay candy	7 Karachi Maund
12	1 Poreetee maund	18 seers and 6 Annas
13	1 Hoonurwut	13 ½ seers

42

The seers was subdivided into the following:

1	Dukra	1 Tola
2	Chatang	5 Tola
3	Adh Pa'u	5 Tola
4	Pa'u	20 Tola
5	Adh-seer	40 Tola (Kacha seer)

Bombay Candy or Kandy (equal to seven Karachi mounds) was also used as a unit of weight equal to 8 maunds. The units of gold and silver were Tola, ma'sa's, and ratis:

S.no		
1	1 Tola	12 ma'sa's
2	1 masa	8 ratis
3	1 ratis	4 mung

Milk was sold in the seer. Pa'u ¼. The vessels contain units of seers and pa'u. Similarly, other liquid articles were sold in the same unit. 1 seer = 27 oz water.

The unit of cloth measurement

1 Gaz = 1 yard 36 inches

Hath = 18 to 27 inches (depends upon local use)

Rates of articles

The rates of commodity exported from Karachi port between the period of 1837-1838 were following:

Article	Rates	Weight
Ghee	Rs. 17	1 maundas
Wool	Rs. 10	1 maund
Mungeet (Maddar)	Rs. 15	1 maund

42 T. Posta, op. cit., p. 106; Read Hart, op. cit., p. 223.

Raisins	Rs. 8	1 maund
Indigo	Rs. 75	1 maund
Wheat	Rs. 45 (about Rs. 3.75 per maund)	Per Karwar

The rates of imported commodities during the Tulpur period between 1837-1838 were as follow:

S.no	Articles	Rates	Weight
1	Sugar	Rs. 12 ½	1 maund
2	Sugar candy	Rs. 18	1 maund
3	Pepper	Rs. 15	1 maund
4	Iron	Rs. 6	1 maund
5	Copper	Rs. 54	1 maund
6	Ivory	Rs. 6	1 maund
7	Coarse Sugar	Rs. 7	1 maund
8	English cotton yarn	Rs. 40	1 maund
9	Tin	Rs. 35	1 maund
10	Dates	Rs. 1 ½	1 maund
11	Dates (Dried)	Rs. 3 ½	1 maund

43

All the commercial activities within the entire state were conducted by Hindu traders and merchants. The Hindu "Banias" (broker) and "Lobanas" (Hindu cast) were present all across the country. The upper-class Hindus of Shikarpur and Karachi were very wealthy and influential. They were commonly known as 'Seth', (rich person) 'Saucars', (wealthy people) 'Banias' (dealer or broker) and 'Mahajans' (merchants). The Hindus in Karachi had complete control over trade as compared to the other regions of Sindh. Since they were active, smart, and efficiently extended their trade to many other countries including, Muscat, Bahrain, Kabul, Qandhar, and Khurasan. Their Bookers were the agents, which were widespread in the countries. The 'Ameers' of Sindh, were heavily dependent on the Hindu merchants and their agents. Even the official agreements and other dealings were conducted with the support of Hindus. (Postan 1843:64)

Although, the governor (Sayed Ghulam Shah) of Karachi at that time had unlimited powers but he had no control over the trade and harbor. In 1832, an unpleasant event occurred in Karachi. The traders

43 Hart, op. cit., p. 227.

had closed their activities at harbor and town, as the government had to misconduct with a Hindu *Lohana (Hindu cast)*. Their protests continued for several days until the governor was removed from his post. (Hart 1838: 213) The Hindu mercantile community was powerful in town therefore, every active dealing, and enterprising was conducted in their presence. However, some Muslims, Like *Memon* and *Khawaja* tribes also engaged in trade activities in town⁴⁴. The trade activities remained in progress and continued throughout the year during that time. Therefore, different caravans of the traders proceeded from October to March towards upcountry and Shikarpur in particular. The Karachi port remained operational from February 1839 to January 1840.⁴⁵

Transportation

For land routes, usually camels and for coastal routes boats were used for the transportation of trade. The land of Indus Delta was marshy and uneven therefore the cargo was easily transported on camels in these areas. The best kind of camels brought from Makran, which were speedily running on the rough surface. The saddles were fastened on camels for riding.

However, the Baloch tribes also used Horses for riding. The best breeds of horses were brought from Khurasan. The people of Sindh also used mules for riding and transportation of goods, because mules were capable to carry heavy burdens. The lower-class people used donkeys for traveling in Sindh. The bull carts and oxen carts were also used. For this purpose, the best kind of two-wheel carts are manufactured at Thatta. The cargo carts were also strongly built. About two hundred cargo carts proceeded in a caravan. Each cart was secured by four guards.⁴⁶

The *palkis* (palanquin) were also built in Thatta which were of the highest quality than the *palkis* of other Indian states. The caravans stayed at night in 'Carvaan Saries' (Guest houses)⁴⁷ during the long route journey. The perfect systems of *Saries* or guest

44 Ibid., p. 212.

45 Ibid., p. 227.

46 Mubarak Ali, A social and Cultural History of Sindh, Lahore, Fiction House, 2005, p. 26. See T. Postan, op. cit., pp. 106-107.

47 Sarai; A covered compound used as guest house during previous times in Sindh for visitors and traders. A huge caravans stayed at night in these sarais.

houses were conducted in large cities for travelers and merchants.⁴⁸

During the Talpur era, a '*Kafila Serai*' (guest house) was established near the Lyari side. A road Rah-i-Bunder connected from caravan 'Sarie' to the port. The '*Saries*' were also established in other cities of Sindh. Alexander Hamilton stayed in a *Saries* near Thatta in 1699. He described that a *Saria* was a huge fort about eight hundred to one thousand travelers accommodated in *Saries* along with their animals i.e. horses, camels, etc. The *Sarie* was guarded by men who were present outside them.⁴⁹

Meanwhile, the speedy boats were utilized for transportation in the river Indus. These boats were used for the transition of goods from Karachi port to the upper regions of the country. The '*Doondhi*' was the most suitable boat for navigation in Indus. It was a flat bottomed boat perfectly fit for transferring heavy cargo.⁵⁰ The *Zohrak* boat was commonly used in the Punjab region.⁵¹ The *Jumtis* was commonly used by the Ameer of Sindh.⁵² Another boat '*Kotail or Kauntal*' was faster than '*Dhoondi*'. It was also used for shifting heavy cargo, cattle, camels as well as horses.⁵³ It may be observed that 30 vessels, 100 'canoes', '*batelos*' (cargo boat) and '*Dungis or Dhoondis*' (local sea boat) were the property of the Karachi port till the end of 1839-54. The traders of Karachi port were transported their cargo from Karachi port to Muscat, Malabar coast large vessels. These boats carried forty to fifty tonnages. Some boats were hired by other traders to send their trade to far countries.⁵⁵

Industries:

During the Talpur era, sound measures were taken to boost the industrial sector in Karachi as well. The documents revealed that the following industries were set up:

48 H.T.Sorely, Shah Latif Bhattai, trans. Riaz Siddique, Lahore, Fiction House, 2003, p. 156.

49 Ibid., p. 156.

50 T. Postan, op. cit., p. 124.

51 Ibid., p. 126.

52 Ibid., p. 128; see J.F.Huddle, op. cit., p. 489; Delhoste, op. cit., p. 255.

53 T. Postan, op. cit., p. 125.

54 F. Baillie, op. cit., p. 43.

55 Carless, Memior on the Delta of the Indus, op. cit., p. 469.

i) Lather Industry was the oldest industry in the town. The Muslims and Makrani in Sindh were mostly engaged with the industry. During the reign, leather tanners and dyers lived in Chakiwara and Rangiwara.⁵⁶ The locally manufactured leather had a value of great importance. A large quantity of leather is exported to the Arab countries and the Persian Gulf.⁵⁷

Captain E.P. Delhouste mentioned that the hides of the animals raw and tanned exported to Arabia and Bombay.⁵⁸

ii) The fabric or Textile Industry was another important industry of the town. All kinds of silk, raw and satin, flowered and colorful fabrics were brought from Surat and coarse cotton from upper Sindh. The artesian manufactured two cloths 'Mashroo' and 'Gulbadan'. The 'Mashroo' was made by mixing silk and cotton. It was colorful and bright. The cloth was decorated with beautiful floral patterns. By the end of 1839, 30 units were working in the fabric industry in town. These were exported to Bombay and Muscat. Also, it was in great use in the upper regions of the country. The raw silk dealers were called 'Patholi'. The silk cloth makers were called 'Abro' or 'Ubroah'. Women were also connected to the industry. The female weavers had a great sense of color and fabric combination. Later, the fabric was sent to dyers, who were mostly Muslims. Muslim women worked in the dyeing industry. The traders and dealers paid three Dokra as a monthly tax.⁵⁹

iii) Loongi or Lungi was another traditional industry. The Muslims and Hindus both were associated with the industry. The fine quantity lungi was made with the combination of twenty-four colorful threads of cotton and silk fabrics. The average production of the industry was about 7,000 to 8,000 per year. The quality of Lungi of Karachi was inferior to that of manufactured in Thatta. About two-third percent Lungis were exported to Arab countries and the Persian Gulf region. The manufacturing of caps was another traditional work of Sindh. 'Sodme' families in Karachi fabulously designed various patterns of caps. It was a profitable profession that was exempted from tax.⁶⁰

56 Gul Hassan Kalamti, op. cit., p. 485

57 Azimusshan Haider, op. cit., p. 42.

58 Delhouste, op. cit., p. 264.

59 Hart, op. cit., p. 223; See A.F.Baille, op. cit., p. 41.

60 Azimusshan Haider, op. cit., p. 43.

Flour mills

During the era of Talpurs, approximately 80 flour mills were operational in the town. The mills were operated with the help of grindstones which were hooked in a center of the shed. A camel was forced to move for over 11 hours continuously to attain the daily requirements. A mill grinds six maunds in a single day. A total of 480 maunds were obtained from the entire mills of the town.⁶¹

Besides these industries, another small industrial set up were regularly functional in the town, such as ivory bangle turners, cotton-cleaners, goldsmith, butchers, carpenters, navigators, retailers, brokers, dyers, etc.⁶²

Agriculture

During the Talpur era, grain crops were not being cultivated because the land was a mixture of sand and clay and imperfect for cultivation. However, mostly Hindu landowners cultivated fruits and vegetables on their lands. There were many fields in Layari outside the wells and in Malir. The fields were irrigated through wells. The government had imposed a heavy tax on crop production. The tax was three fourth ($\frac{3}{4}$) on the production and $\frac{1}{4}$ or one-fourth of a part was taken by the peasant.⁶³

The 'Ameers' of the Hyderabad appointed their agents in Karachi to collect their share from Karachi port. The names of the 'Ameers' and their agents are stated below.

Name of Ameers	Name of the Agents
Mir Subdar Khan	Dewan Khan Chand
Mir Muhammad Khan	Dewan Tak Chand
Mir Noor Muhammad Khan	Abbas Ali
Mir Naseer Khan	Haji Ali Rakha

64

The *Nawab* (Incharge) of Karachi was selected by the mutual agreement with the 'Ameers' of Hyderabad except for Mir Subdar Khan who had nominated *Dewan (revenue officer)* Mol Chand.

61 A.F.Baillie, op. cit., p. 172.

62 Carless, Bay, Harbor and Trade of Karachi, op. cit., p. 201.

63 Hart, op. cit., p. 222; Gul Hassan Kalamti, op. cit., p. 487.

64 Hart, op. cit., p. 215; Azimusshan Haider, op. cit., p. 44.

He was a tax collector in Karachi. The '*Ameers*' (chiefs) of Hyderabad regularly sent their officers to check the revenue records in Karachi. After careful examination, the biannual records were closed. The custom duties had been taken from several points in town.

The *Mahal Chabotra* or custom house was a central place in the harbor. The '*Munshis*' (government account officer) was appointed by the '*Ameers*' (chiefs) They maintained records on the daily basis. The '*Amil*' keep monthly records and the monthly amount was submitted to the treasurer who also maintained monthly records. Monthly expenses of the town, including salaries of the government employees, were deducted. The remaining balance amount was sent to Hyderabad through '*bundee*'. (money transfer)⁶⁵

Conclusion

At the beginning of the nineteenth century, Karachi port emerged as a leading hinterland of Sindh. Its considerable trade activities were observed by the patronage. Under the reign of the Talpur administration, many significant measures were taken to boost commerce and trade activities in Karachi, particularly at its port. The administration introduced new taxation and revenue systems; revolutionized import and export policies. More importantly, they introduced their currency and took measures to strengthen its value. Moreover, the Talpurs introduced their measurement system of different commodities as well, which made them different from the rest of their successors. The quantity of trade i.e. both, import and export activities were accounted for the highest during that time. After the occupation of Karachi, the Talpur rulers consistently applied several administrative measures intending to improve the prior trade activities within the port. The trade within Sindh, Punjab, Afghanistan, and Central Asia was also brought to the port. Due to extensive trade, the region gained economical benefits which provided new opportunities for the incoming immigrants as well as natives of the state. In this aspect, the trade articles were transported through both, the land and sea route to the northwest country and beyond. As a result, the local industries and merchants became economically flourished during that time. Nonetheless, the Karachi harbor was not fully
65 Hart, op. cit., p. 217.

developed during that time, and simultaneously, the Sonmiani harbor was also partially developed which posed a competitive threat to the Karachi Port. However, the trade-related activities within the Sonmiani could not be effectively operational due to a lack of law and order within the trade route. Thus, the Karachi port emerged as a central hub of the entire region because of the most secure and appropriate arrangements enforced by the Talpur rulers on the trade routes region because of the most secure and appropriate arrangements enforced by the Talpur rulers on the trade routes.

Temple Tradition in Tharpārkar: An Architectural Study of Jain Temple Nagarpārkar

Asif Mahmood Rana

Abstract

Temple tradition in Tharpārkar is much different from all the other temples of Pakistan (whether Hindu or Jain) but quite similar to the temples of the Indian states of Rajasthan and Gujarāt. Tharpārkar's geographical position is very significant in relation with Mount Ābū, Ranakpur, Girnār and Shatrunjaya Hills, to understand the artistic and architectural influences. Jain temple Nagarpārkar, locally known as Bāzār Mandir, exhibits features of Cālukya Solāṅkī Architecture of medieval Gujarāt and Rajasthan, known as Māru-Gurjara architecture in modern academic works. Māru-Gurjara style, a development and over ornamentation of the earlier Nāgara style of North India, has been adopted by the Jains, probably in the remembrance of the golden era of prosperity under the Cālukya dynasty in the 11th and 12th century C.E. In the following paper architectural features of the said temple have been described in detail and analyzed to support this hypothesis. No significant work on art and architecture of Jain temples of Tharpārkar has been done prior to the following work.¹

Keywords: Jain Architecture, Cālukya Solāṅkī/Māru-Gurjara, Tharpārkar, Śvetāmbara.

Introduction

Tharpārkar has been home to Jains since remote antiquity (Lambrick, 1941). Jain merchants migrating from east in medieval period had the opportunity to trade through *Parinagar* port (Ojha, 1966). Tharpārkar was also an important *tirtha*, with several monumental temples, in medieval period. Remnants of these temples are evidence of their past magnificence in this region, *Bāzār Mandir* being one of these. Adorned with more than eighty sculptures,

¹ *The research has been carried out by the author of this paper under the supervision of Dr. Muhammad Hameed, section drawings have been prepared by Mr. Ashfaq Jut, and photographs have been taken by Mr. Adil Hashmi and the author himself.*

walls covered with frescos from interior, captioned in a hybrid Hindi-Gujarāti script in Gujarāti language, this temple has a typical architectural layout of *Cālukya Solāṅkī* style that Jains adopted in medieval period and now, it has become representative of Jain temples in and outside the subcontinent, though not confined to Jains only. The *Nāgara* style of *Bāzār Mandir* can be characterized by the curvilinear *sikhara* with *Solāṅkī* developments in the form of multiple offsets on the exterior of the temple and ornamentation with the sharply carved sculptures of guardians, demigods and animals in the niches or on the podiums.

Geographical Setting

To understand the styles and variations in script, art and architecture of the Temples of Tharpārkar, understanding the geographical setting in historical, ethno-religious and social perspective is very important, that needs a full-fledged paper. Society in Tharpārkar did not develop in isolation. Rather, it was a part of a greater social setup that still retain its characteristic features eastwards. Tharpārkar is the largest and eastern most district of Sindh, once part of Bombay presidency and Kutch agency. It is bordered by Rajasthan and Gujarāt in the North-East and South-East respectively. The district is on the North of Kutch district of Gujarāt. Most sacred Jain pilgrimage sites in the said states of India are 200-400kms away from Nagarpārkar. Sanghar and Umerkot are on its North, Badin and Mirpur Khas on the West (fig.1). *Bāzār Mandir* is situated on the South-West of the Nagarpārkar city, near Karoonjhar Hills (24.21.18.92N 70.45.12.81 E). Sardharo road links Nagar market, the *Bāzār Mandir* and Karoonjhar hills.



Figure 1 Jain Tirthas in Tharparkar, Gujarat and Rajasthan

Temple Tradition

Antiquity of architecture in the subcontinent has a profile of almost seven thousand years. With modest early stages in Mehrgarh, building tradition took a start (Jarrige, Jarrige, & Quivron, 2013). Though the zenith of loftiness of architecture in ancient India prevailed during mature Harappan phase but it seemingly lacked religious constructions. After the cave-shrines, it is supposed that the initial sanctuaries in Vedic period were of bamboo and thatch that has not survived (Brown, 1959). The earliest enduring temples in the subcontinent are the stupas (Rao, 1997). Subsequently, there is an unceasing temple tradition with all evolutionary phases. In Indian religions ground plans of the temples are as significant as the temple itself. The symmetry of a shrine is supposed to affect the worshippers and also in aligning the shrine with the symmetry of the cosmos. To achieve it, rules for temple architecture have been formulated in *Vāstu-shāstra*. Jains build temples as much symmetrical and ornamented as possible. The paper discusses plan, elevation, section and the architectural decorations of *Bāzār Mandir* with illustrations. In Nāgara tradition of temple architecture, a temple primarily has three portions in horizontal expansion, namely *ardhamandapa*, *mandapa*, and *garbhagriha* or *gambhara* in Jain Temples. *Bāzār Mandir* follows the same with a few accompaniments i.e., a *satsang* hall, *gaushāla* and a water well in front of the compound. Excluding the *gaushāla*, these additions are not uncommon in religious edifices of the sub-continent.

Plan of the Compound

Bāzār Mandir is a compound with a rectangular

plan (67x76 ft) disturbed with a minor curve on Western and the Northern wall. The compound consists of *Vimana* or the temple in the South-West, community hall in North-West and cattle shelter in the East (fig.2). An abandoned well of 9 ft 4-inch-diameter about 100 ft from the Western wall lays in front of the entrance of the complex. The community hall or the *Satsangh* includes a vast rectangular hall (40x22 ft) and an uneven room on the West that maintains the rectangular shape of the hall. Cattle shelter, also known as *Gaushāla* (67x24 ft), on the Eastern one-third of the compound, was probably used for cows. In a pre-renovation footage (Guddu, 2014), the door linking the hall and temple with the backyard is absent that suggests an outside entrance for the *Gaushāla*. Therefore, *Gaushāla* can be a later addition or entirely a separate enclosure.

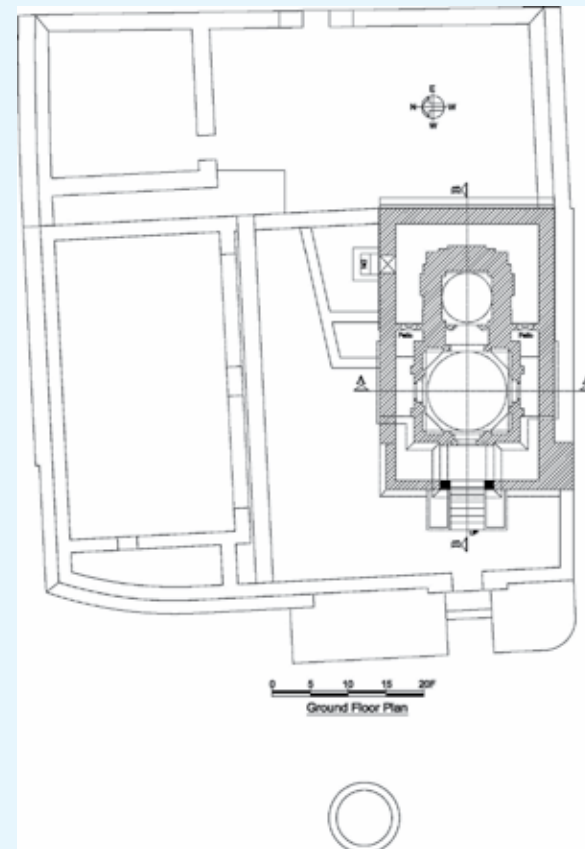


Figure 2. Plan of the Complex

Ground Plan of the *Vimana*

The rectangular building of the temple (37x23 ft) is oriented East-West. The entrance to the temple is on the West and *Gambhara* on the East. The temple stands on an elevated platform (4ft high). The temple is enclosed by a 2ft thick wall i.e. *prakara*.

The portico or the *ardhamandapa* is reached by eight steps (11-inches broad on average). The *ardhamandapa* (4ft 7-inches each side) is a square between the pair of columns lifting the eave and the pair of columns bordering the door frame of *mandapa*.

Ardhamandapa leads into the congregation hall *mandapa* that has four doorways on cardinal directions. Eastern doorway opens into an antechamber or *antrala*, western doorway leads to *ardhamandapa*, northern and southern into the ambulatory. The square *mandapa* (10ft 5inches each side, and 1ft thick) has been transformed into an octagon by adding blind archways on all the four corners. *Antrala*, that leads to *gambhara*, is a small rectangular portion (6x3ft) with about 3ft thick walls.

Gambhara or the sanctum is a rectangular room (6ft 7-inchesx7ft) with thick walls (3ft 3-inches on East and 2ft 4-inches on North and South). *Jhanga* has 5 off-sets.

Apparently, there is no basement but a closed rectangular passage (10x3ft) on the North of the temple under the ambulatory with a two-step entrance below the ground level is present.

Roof Plan

Overall, the roof follows ground plan except for it has projections (fig.3). *Ardhamandapa* is covered by a pyramidal dome with square plan (6 ft 3-inches on each side) made up of segments that join at the top. A socket is present at the top for holding the flag (*dhvaja*), a common feature of a Jain temple.

Mandapa roof, square in plan, joins the roof of *antrala* giving a rectangular shape. *Mandapa* is covered by a hemispherical dome (diameter 11ft) that is flanked by two subsidiary domes (diameter 3 ft 6-inches). These domlets are on

the projected roof along the square *mandapa* roof. Flag-pole sockets are also present just beside the finial position (fig.4). Over *antrala* two subsidiary *Sringas* with square base (2ft 9inches each side) stand (spire with five bands and *jhanga* with 3 offsets) (fig.3, 4 & 5).

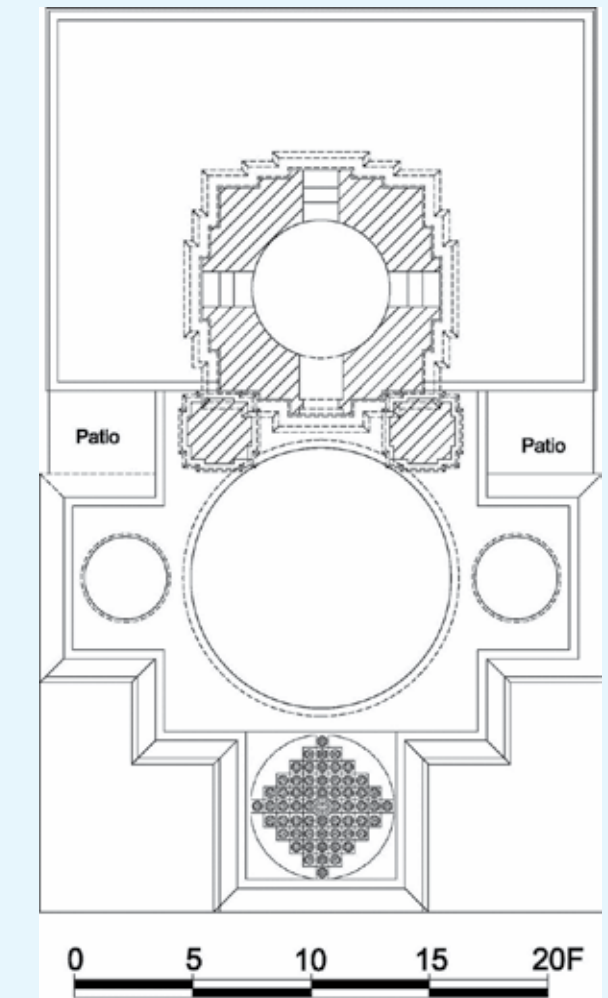


Figure 3 Roof Plan

The rectangular *Gambhara* roof extends over the ambulatory as well. Square base *Mulasringa* (the main spire) 9 ft from each side with five offsets has beautifully been adorned with sculptures of guardian demigods, *sadhus*, animals and birds. The main spire has 2ft thick walls and hollow from inside with round walls. It has 1ft 6-inch opening on four sides. Western opening gives narrow entrance while others are windows.



Figure 4. Roof of Mandapa and Ardhamandapa

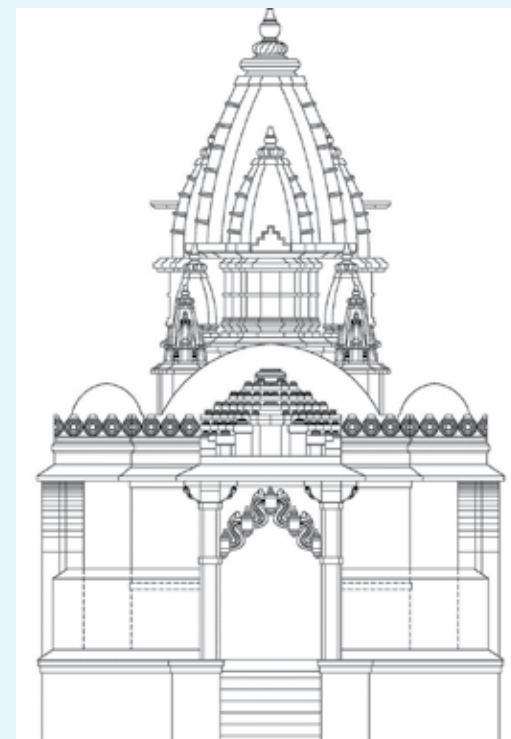


Figure 5 Front Elevation

Front Elevation



Figure 6 Upper Part of Jagati

The elevation of the temple is symmetrical and conventional (fig.5). 9ft high Boundary wall of the compound has the entrance on the west with a projected façade. The façade (top to bottom) has a band of merlons, a rectangular band with a molding having a sharp projection, eave, an unadorned band, a central band dividing the façade and about a foot-high platform. The shrine stands on a 4ft high Jagati.

The upper part of *Jagati* has a band of floral motifs, a band of botanical motifs and a projected band with a slop above it (fig.5 & 6).

Prakara (4ft high wall) surrounds the shrine. It is made up of about 14 courses of dressed stones of different sizes. Parts of prakara flanking the entrance have a pair of niches on each side. There is an additional recess between the niches on the left side. The top of the prakara has been topped with a mixture of kakri and lime. A flight of eight uneven steps (4-7 inches high) on the west leads to the portico. The jagati projected on the West has sandstone sculptures of elephant riders carrying palanquins of tirthankara, one on each side. The portico has been covered with a pyramidal dome supported through ornamental 9ft high pillars with square shafts. Between the pillars there is a multicusped peacock arch carved out of sandstone (fig.5). An eave runs around the roof. There is a sandstone peacock in the middle of the cornice of the portico at the front. The segments of the pyramidal dome also make the front and sides of the cornice to be pyramidal.

Parapet has been ornamented with merlons having a floral motif with petals in two layers (fig.5). The top-most band, under the merlons, has a chessboard pattern. The next band is plain, then there is a band of dentils, then a band of framed diamond motifs followed by a recessed band of chessboard pattern. Cornice has sculptures of peacocks, lions and *Yaksha/Yakshis* around it.

9ft high *Jhanga* has 3 offsets. A band with floral motifs splits the *jhanga* in two halves. On the west *jhanga* two niches above the sculptures of *chauri* bearers adorn the wall. A beautiful doorframe carved out of sandstone provides entrance to the *mandapa* from West. Doorframes on the Northern and Southern walls of *mandapa* are unadorned. All the door frames

are flanked by a pair of pillars embedded in the walls giving the impression of pilasters.

Sikhara

The 5-band segmented curvilinear *sikhara* or the *Mulasringa* stands right above the *gambhara* ornamented with embedded *urusringa* or the miniature spires on its corners (fig.5 & 7). Two *Sringas* or the subsidiary spires stand in front of the main spire. On each side of the main spire the central band or *raba* has chest spires known as *urabsringa* with five offsets. The unadorned embedded *urusringas* at the corners have three offsets.

21ft high (above the roof) *Mulasringa* of *Bāzār* temple is probably the most sculpturally decorated *shikhara* of temples in Pakistan. It doesn't seem to follow any single style with several distinctions from the traditional styles of the area. It has segmented *gandi* (outer band). The spire has seven *bhoomis* (segments) that make up *gandi* (fig.5 & 7). The next band *paga* is also segmented with a different element i.e., segmented ovals that look like *amalakas*. *Raba* itself is plain and the chest spires are duplicate miniature of the main spire.

3ft 4-inches high *Stupi* or the finial of the *Mulasringa* has three basic portions i.e. *kalasa*, *amalaka* and *gopuram*. *Kalasa* has been divided into six portions i.e. (top to bottom) a pot, two discs, another pot, and two other discs. *Amalaka* (2ft 5-inches in diameter) has 32 segments running obliquely. There are two more discs below the *amalaka* and then comes the *gopuram* or the ornamented *amalaka* with a band around it that itself is ornamented with diamond and spire motif.

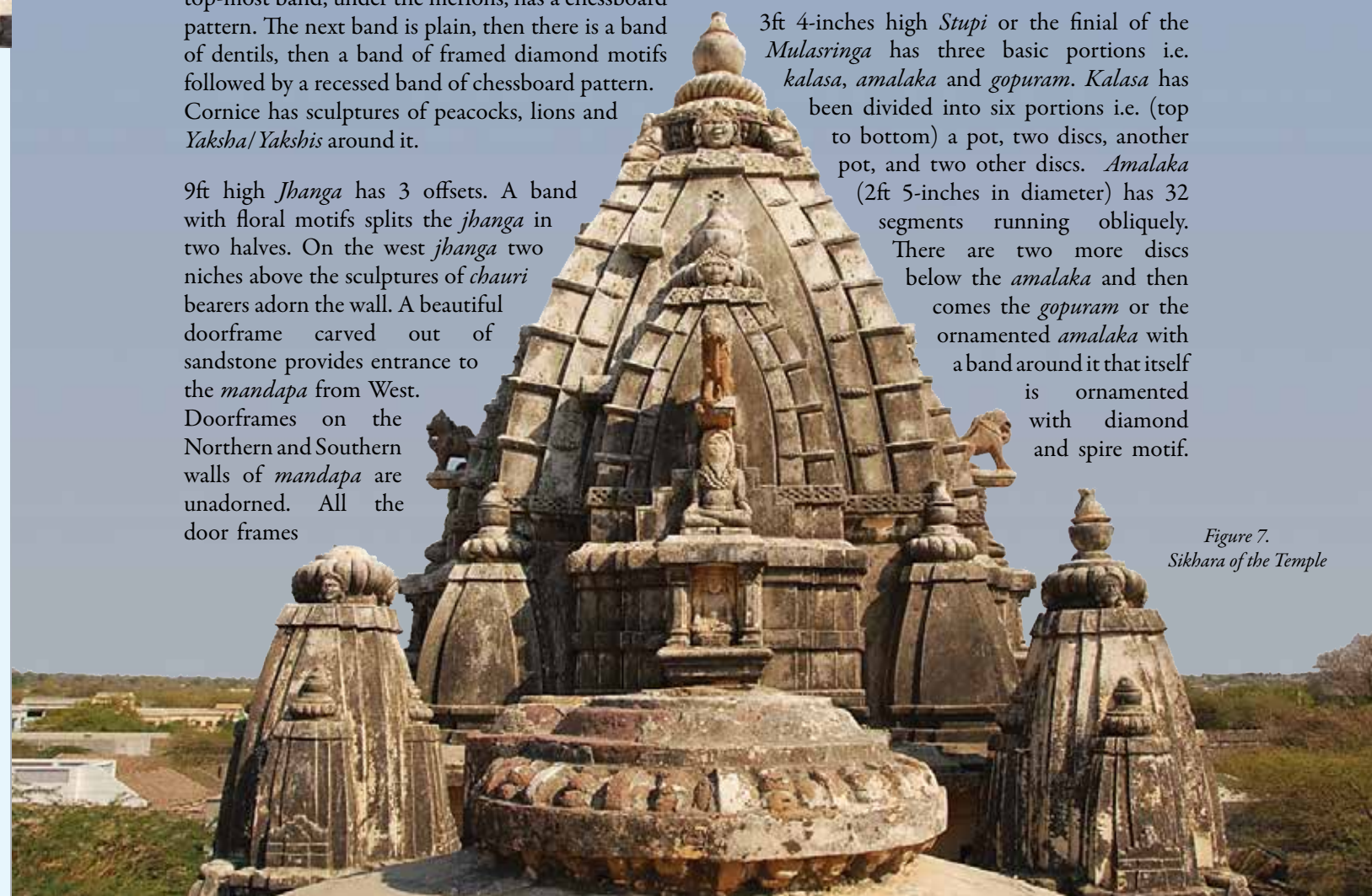


Figure 7. Sikhara of the Temple

The segments of *gopuram* are of two types, plain (32x) and bead-like (32x). The lower half of *gopuram* grips eight statues around it. Below the *stupi* there is a projected band framing diamond motif.

5-band Chest spire i.e., *Urasringa* represents the miniature of the temple except for it has *gandi* and *paga* divided into 5 segments instead of 7 segments of the *Mulasringa* (fig.5 & 7). The miniature pyramidal roof in front of *Urasringa* probably represents the top of *ardhamandapa*. Next to it, there is a statue of a *sadhu*. There is a sculpture of elephant standing on a pedestal that has been carved out of red sandstone. Underneath the statue of the *sadhu* there is a pediment with grooved pillars and Corinthian capitals enclosing an important sculpture of four-armed seated demigod holding flowers in elevated hands and two hands rest on the thighs (fig.7).

On the top of *antrala* a pair of subsidiary *sikharas* i.e. (*Sringa*) stand that are much simpler with unsegmented vertical bands (fig.5 & 7). Each *Sringa* has 5 offsets and chest spires with 5 offsets on four sides. On all the sides of these spires, there is a feminine sculpture wearing ear-rings and head dress.

Side Elevation

Side elevation of the main and subsidiary *sikharas* are architecturally same from all the sides but differ with respect to the sculptures. *Prakara* on the North, East and South is alike. It is highest around *pradaksina* and *mandapa* i.e., 14ft from the ground to the cornice. These sides have a rectangular opening (1x2ft) framed by wood and flanked by lead-ins for

ventilation, 9ft above the ground (fig.8). Parapet around *gambhara* roof has merlons identical to those on the front elevation but here eave and cornice are replaced by a projected band.

Section of the Temple

Interior of the dome of *ardhamandapa* has ceiling panels making four diminishing concentric rings (corbelled), capped by a plaque (*padma-sila*) 11 ft 10-inches from the floor (fig.9). Interior of the dome of *mandapa* has ceiling panels making up seven diminishing concentric rings with the plaque top at a height of 13 ft 6-inches. Beneath the dome the 5-band cornice has been divided into panels between the capitals of the pillars. *Mandapa* has eight pillars, each pair flanking the doorway of their corresponding walls, joined by multicusped arches. Four arches are on the four doorways. Rest of the arches are on the corners. On the North and South walls there are four niches in the form of shrine models that probably had *tirthankara* sculpture in it (fig.9).

Antrala ceiling has three steps of bricks meeting at the top. On the walls of *antrala* there are painted niches with sculptured carved on them. *Gambhara* roof interior or the dome interior is in the form four diminishing concentric rings that join at the *padma-sila*. The square plan of *gambhara* turns into an octagon at cornice that further turns into a circle aligning with the dome's base. The North, East and South walls have niches for statues. Walls have been divided by a shelf that runs along three sides. Beneath the shelves there are three niches, one in every side. *Mulasringa* is hollow from inside. It has an entrance

Figure 8. Side Elevation of the Temple (North)

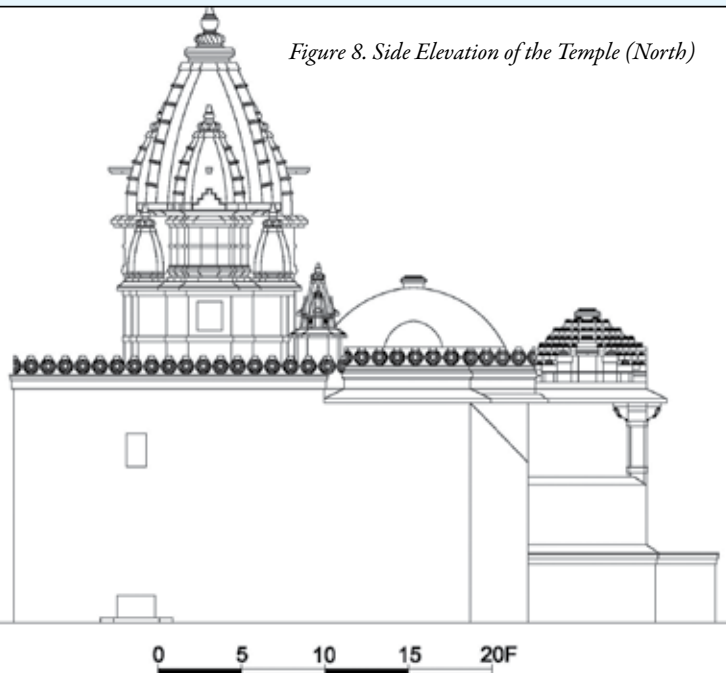


Figure 9. Section of the Temple B-B

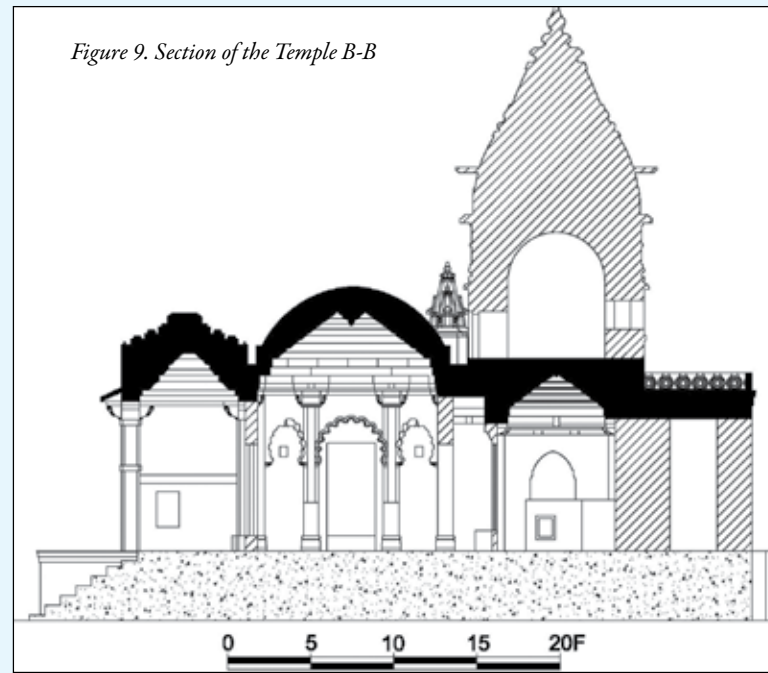


Figure 10. Pillars of Ardhamandapa

on the West that opens into a round cavity with a domical roof comprised of diminishing concentric rings capped with *padma-sila* (fig.9).

Architectural Decorations

Pillars

The pillars on the front of the portico have been carved out of sandstone. They have square shafts with the floral bands in the center (fig.10). All faces of shafts have been carved with floral and decorative motifs differently. The projected bands of west and south side have identical floral motif. Other sides have a floral climber running through the shaft. The recessed shaft corners have an ornamental motif similar to spinning top repetitive from top to bottom. Underneath the abacus a band of chessboard pattern runs with the curves of the shafts. Abacus is a three-step disc. The capitals have four projections with double scroll motif making the brackets that support the cornice. Marble pillar base has a motif similar to *chaitya* arch and moldings beneath it.

Pillars around the entrances of the *mandapa* have shafts divided into two portions, upper octagonal and lower square. The abacus is round disc and the capitals are in the form of brackets. The capitals on North and South have figures of *bhutas* carved in marble that pose to lift the roof. Overhead the square portion of the



Figure 11. Free Standing Pillar

shaft there are spinning top motifs. Base of the pillars have five offsets. Southern and Eastern pillar have shafts with three portions, the upper round, the intermediate octagonal and the lower square part with a projected band in the center. Pillars resemble pillars of *Pallava* style (5-9 century C.E.). There is a free-standing pillar placed outside the *sat-sangh* hall (fig.12). Its shaft has three parts, round topmost, octagonal central and square lower portion. There are decorative motifs on the lower portion. It has a similar base as compared with pillars of *ardhamandapa*. The *bhoota* capital has six brackets and *bhoota* sculptures. Abacus has round discs.

Pilasters

Pilasters of the niches around *Mulasringa* have octagonal shafts and Corinthian capitals (fig.12). Pilasters of the *Jhanga* niches have spiral/twisted shafts and base with a segmented band and a square end (fig.15). A pair of pilasters flank the door frame of the entrance of *mandapa* (fig.13) having bracket-like capitals. Square shafts are divided into segments with bands of chessboard pattern. Lower portion of the shafts have sculptures. Base is a 13-band panel with floral motif. Pilasters of the *antrala* niches are the miniatures of the *jhanga* pilasters (fig.16). The pilasters of the *mandapa* niches have twisted spiral shape columns.



Figure 12. Pilasters on Sikhara



Figure 13. Door Frame of Mandapa

Arches

Arch on the entrance is ornamental with peacock sculptures or maybe the goose. Here the birds pose to form the cusps (probably representing garlands) (fig.14). Four birds facing spandrils and their tails making 's' shape curves have been organized to form the arch. The lantern motif has been repeated at the intervals. Inside *mandapa* there are eight arches along the interior walls of *mandapa* (fig.9).



Figure 14. Peacock Arch of Ardhamandapa

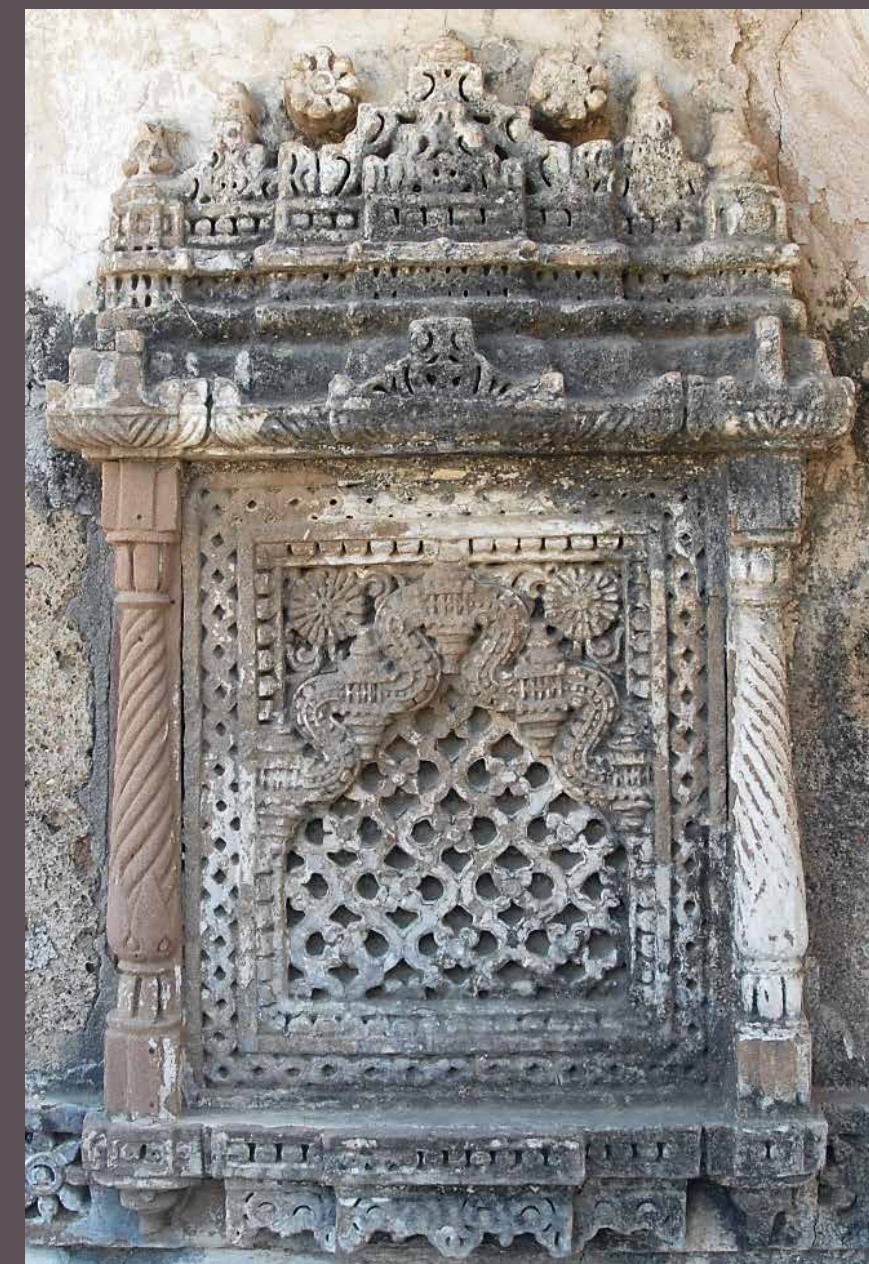


Figure 15. Niche in Jhanga

Niches

On each side of the *Mulasringa* a niche is there in the central band. Only the Western niche has a sculpture of a four-handed deity (fig.7), while others are empty (fig.12). Each of the empty niche has been supported by a pair of peacock sculptures. These niches have pilasters that have 8-facet shafts and Corinthian capitals.

On either side of western *jhanga* there is a niche with *jali* pattern, topped by a small peacock-arch, floral roundel in the spandrels framed with zigzag band. The niche has been capped by a beautiful pediment supported by a pair of pilasters with twisted spiral shafts (fig.15). Western side of *Prakara* has three niches on the left and two on the right. Left side niches are possibly the miniatures of *jhanga* niches without the *jali*. The central niche on this side is unadorned. Right side niches are the copies of their counterparts on the left.

Four domed-niches of the *mandapa* are empty, capped by a stone-carved ornamental pediment flanked by pilasters. *Antrala* walls have identical empty niches capped by pediments with sculptures on them and flanked by pilasters (fig.16). The eastern *gambhara* wall (fig.18) has a niche that housed *Mulanayaka* i.e., the chief deity of the temple. As the restoration proceeds, the sculpture of *tirthankara* has been installed here. On the same point outside plain niche is present. The walls of *sat-sangh* hall have plain niches. The marble niche



Figure 16. Niche on Antrala

on the northern wall has a ribbed dome, lotus finial, merlon and petals on its drum. Its shelf is a gopuram and a band binding the grooves.

Pediment

The Western forward-facing pyramidal *ardhamandapa* roof forms a pediment with seven panels (fig.5). In the center a peacock sculpture

stands on a podium. The panels next to it bear decorative motif. On the next panels, a floral motif with a roundel at the center has been carved. Outer most panels bear floral motif.

Stone carved pediment above the *mandapa* entrance has lost its details due to withering except for the outlines (fig.13). The lower dentil-band of this pediment is topped by an unadorned band with a floral motif at its center. The upper two bands have diamond motif. At the top there is a miniature of the *ardhamandapa* pediment flanked by lions.

Pediments on the interior *mandapa* niches follow the pattern of the above-mentioned pediment except for the reduced size and pairs of additional flowers. Pediments on *antrala* niches also follow the same pattern with additional sculptures on them (fig.16).

Door Frames

The entrance door frame of the compound is projected and has cornice moldings that are capped by a row of merlons. The frame has a wooden lintel and square recesses at its ends, possibly niches for lamps or sockets for wooden overhang.

The stone-carved entrance door frame of the *mandapa* has been intricately ornamented with sculptures and other motifs (fig.13). It is flanked by pilasters and topped by a pediment. Midpoint of the lintel has a figurine of seated *tirthankara* with spinning-top motif repeated on both sides. Door-sill has a round projection in the center that has been decorated with carved floral motif flanked by pinched face carved demons (*Kirttimukha*). The marble *gambhara* doorframe (fig.18) has simple decorations. At the middle of the lintel sculpture of a *tirthankara* in a square frame has been carved. Jamb have painted floral motifs, flanked by pilasters.

Merlons

A row of merlons runs above the door frame of the compound. Minutiae of the merlons has been withered (fig.20). Merlons are of pot like body and base. Merlons row above *mandapa* cornice follow the outline of the roof (fig.19). It is separate from the row above *pradaksina* wall. The former merlon row is in a better state with visible details visible and minor signs of withering, possibly a later addition. Every merlon has a *chaitya* with a 12-petalled flower in the outer whirl and 8-petalled flower in the inner.



Figure 17. Door Frame of Gambhara

Merlons on the top of *pradaksina* have lost details due to withering and hence appear to be older than others (fig.18).

Moldings

Moldings in the lower *jhanga* known as *Vedibandha* consist of a set of six distinctive bands. First at the bottom is a rectangular band, then a second recessed rectangular band. The third molding looks like cyma (Masih, 2015) from its upper curve. Next two moldings have beak shape with pointed projections. The uppermost molding is plain and thin.



Figure 18. Merlons around Gambhara roof



Figure 19. Merlons on the Mandapa roof



Figure 20. Merlons above the entrance wall

Cornices



Figure 21. Cornice of Mandapa

Outside the temple above the eave there is a band of chess board pattern that runs around the temple except for the entrance (fig.22). Over the eave a band of diamond motif runs. Over it a projected band of dentils capped by a slightly projected band surmounted by another recessed chessboard band runs. Above these bands merlons crown the roof.

Cornice in the interior has seven distinguishing bands (fig.21). The lower band has bell shaped pendentive motif. Next is a painted band, mostly withered. The third level has broad panels between the capitals of *mandapa* pillars. Then comes a thin band of dentils capped by a band of flower motif. The next band is a thin band of dentils. At the top there is a chessboard band which parts the cornice from the dome.



Figure 22. External Cornice

Discussion

There is ample evidence in terms of paintings, inscriptions and culture of Tharparkar that the region has strong ties with neighboring Indian states (Rana, *Jaina Temple, Nagar Parkar: Art & Architecture*, 2019). Therefore, the *Jains* of Tharparkar in general and Nagarparkar in particular and the architects of *Bāzār Mandir* were influenced by Gujarati and Rajasthan architecture or probably they came from there. *Jaina* temples of Punjab exhibit an altogether different style.

Jain temples of Tharparkar, other than *Bāzār Mandir*, do not have community halls. *Gori Mandir* and *Bhodesar Temple 2* have cells for monks along the periphery, a feature absent in *Bāzār Mandir*. *Gaushāla* within or near a temple compound is not general. Building of such *Gaushāla* became common in late 19th century (Rastogi, 2002). The backyard wall of the temple compound does not align with the rest of the *prakara* in form and preservation.

Bāzār Mandir follows *Nāgara* tradition with respect to the basic elements in horizontal and vertical expansion. The same plan has been followed in other Jain temples of Tharparkar except for the Bhodesar temple 2 and 3. The roof of *Bāzār Mandir* displays a development i.e., domlets on the projected roof on the sides of *mandapa* roof (fig.23 & 24). Another development is the alteration of the square plan of *mandapa* into an octagon by adding archways at the corners. Jain temple, Virawah lacks these advancements.

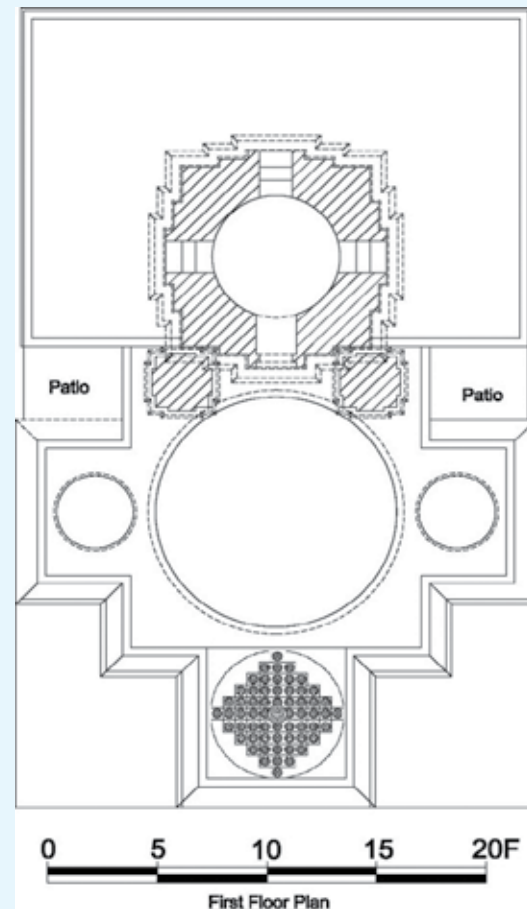


Figure 23. Roof Plan Bazaar Mandir

The 5-band curvilinear *Mulasringa* of *Bāzār Mandir* with its subsidiary *sringas* and sculpture-niches is a development of *Nāgara* style (fig.7). The peacock arch on *ardhamandapa* (fig.14) has been used in Gujarāti and Rajasthāni temples built in medieval and modern periods (fig.25). No example of such an arch exists in Pakistan. The marks on *ardhamandapa* pillars of the Virawah Temple suggest a removed similar arch but there is no firm evidence.

Pillars of *Bāzār Mandir* show close likeness with *Pallava* pillars (5th – 9th century C.E) used in Rajasthāni and Gujarāti temples (fig.25). Bracket-like capitals are used in other edifices of Tharpārkar e.g., *Bhodesar* Mosque (16th century C.E.), Virawah and Gori Temples, *Jam Khan Ji Wandiyo* site, tombs of Makli and *Chaukhandi* etc. Dome (from inside) of *Bāzār* temple also follows the local tradition of dressed stones arranged in the form of diminishing concentric rings through corbelled technique, found in the above-mentioned edifices. Merlons have a close resemblance with *Jaina* temple Virawah, *Bhodesar* mosque (Shakirullah & Qureshi, 2015) and ruins of Kubri.

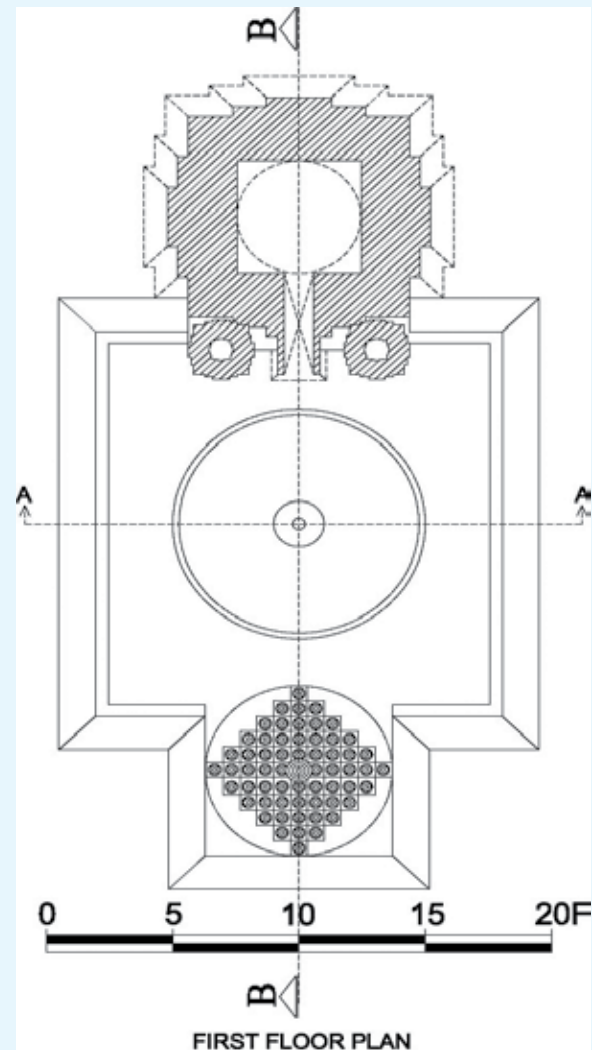


Figure 24. Roof Plan Virawah Temple

Features of Cālukya *Solan̄kī* Architecture

Temple architecture that developed under *Cālukya* dynasty was a continuity of the *Nāgara* architecture with some advancements (Hegewald, 2015) listed below:

1. More projections and recesses on *jhanga* and *sikhara*,
2. Niches for sharply carved sculptures on the exterior of the temple,
3. Elaborately carved pillars with sculptures,
4. *Kirttimukha* on doorsteps,
5. Use of buff and red sandstone and white marble,
6. *Mandapa* pillars in an octagonal array,
7. ceiling in the form of diminishing concentric rings and *padma-sila* in the center.



Figure 25. Lodurva Jain Temple

Conclusion

Bāzār Mandir of Nagarpārkar, built in late Mughal or early British period, follows a signature Jain style of temple architecture i.e. the *Māru-Gurjara* or earlier known *Calukya Solan̄kī* style, a developed form of north-Indian. The temple in question have all the architectural elements of *Solan̄kī* style listed above. Jainism had a short-term golden period of prosperity and development under the *Solan̄kī* kings *Siddha Rāja Simhajaya* and his successor *Kumāra Pāla* in 11th and 12th century C.E. The patronage of these kings resulted in monumental Jain edifices in which earlier tradition of temple architecture was advanced by adding more projections and sculptural niches, ornamental arches and beautifully carved pillars. The patronage ended after these kings but the style survived in the vicinity and spread along the migrations of the

Jain merchants and shastras and consequently influenced the temples of Tharpārkar including *Bāzār Mandir*.

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Historical Development of Modern Education System in Sindh: Policy and Change under the British Colonial Rule

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Abstract

This research paper deals with a critical appraisal of the circumstances that led to the emergence and progress of the system of modern education during the British rule in Sindh. The objective of this research is to provide a background of the modern education system that contains in its structure certain elements of the historic past particularly the British-Indian Education System. The paper helps to understand the paradoxical situations and dichotomies that the British government felt in the field of education in Sindh. The paper tries to investigate the scope of British educational policy, which was twofold. The paper offers a critical study for exploring dimensions of the education system in Sindh which was introduced on the basis of Macaulay's Minutes (1835), the Wood's dispatch (1854) and the subsequent report of the Education Commission. The paper also highlights the capitalistic aim of education of the British government that over-shadowed the aims of the indigenous Islamic education. The paper draws some conclusions.

Introduction

Political security and prosperity are some of the essential conditions for the progress and advancement of a country. The hundred years of British rule seem to be revolutionary in terms of scientific progress and development in Sindh. The declining medievalism of the eighteenth century was suddenly halted and an entirely new direction was given to the process of history by the introduction of the British civil and revenue codes, the new system of education, the introduction of railways, a new road system, trading patterns, harbors and budding new political system. For the first time newspapers were published and the process of modernization and politicization of the people began. **The British in Sindh brought new concepts and introduced the Western education system in the late 19th century.**¹

Every government requires a certain percentage of educated persons to carry out the executive as well as the administrative work. With the conquest of Sindh, the British government also felt the same need. In its administration of the region, they were faced with two major problems: the need to establish effective communication between the governors and the governed and to recruit suitable employees to subordinate posts in the administration particularly in the revenue and judicial services. Secondly, there was also declared government policy to instruct the local people in European arts and sciences.²

In this regard Martin Carnoy opines that education in a colonial country is designed by the colonial rulers to legitimize their domination and to serve their own economic needs.³ Economic and political control over the colonial country is essential for the survival of colonial rule and education is used to achieve this goal. The attempt is made to develop through education a new set of values and justification of colonial rule. Colonial education was meant for better control of the colonial country rather than its development. The introduction of modern education was an event of great historical significance. Probably the most enduring result of the British rule in India is the intellectual development of the people on a new line, and the consequent changes in their political, social, religious and economic outlook. This great transformation first took place in Bengal. From Bengal went forth the English educated teachers and the Europe-inspired thought that helped to modernize Hindustan.⁴

It appears that the educational policy of the British government was two in parts: in the first place, the government had to define its policy on the language

2 Hamida Khuhro, *The Making of Modern Sindh* (Karachi: OUP, 1999), p. 247.

3 *Martin Carnoy, Education as Cultural Imperialism* (New York: David McKay, 1974) p. 61.

4 S. P. Nanda, *History of Modern India (1757-1947)*, New Delhi: Dominant Publishers and Distributors, 2003, p. 269

1 M. Qasim Soomro, G. M. Lakho (ed.), *Sindh: Glimpses into Modern History*, Conference Proceedings, (Jamshoro: 2008), p. 131.

to be used for official purposes and secondly, what language would be used in Sindh's schools. Modern western education was introduced in Sindh on the basis of Macaulay's Minute (1835), the Wood's Education Dispatch (1854) and the subsequent report of the Education Commission. It began with the super structure and went downwards; University, colleges and high schools affiliated to the concerned university and then basic primary education. It was a unique educational development system characteristic of the downward filtration theory. Macaulay (1835) in his Minute on Education said "We must at present do our best to form a class who may be interpreters between us and the millions whom we govern; a class of persons, Indian in blood and color, but English in taste, in opinions, in morals, and in intellect".⁵ The colonialists perfected the mechanism of dismantling the old educational systems and replacing it with a system that served the colonial administrative machine. The Muslims, who had lost the power struggle with the British for control of India, had a deep distrust of the foreigners, while the British considered Muslims education as less productive.

In Sindh, Persian had been the official language until the British annexation in 1843 CE. Persian was the language of the elite, however, and was generally not spoken by the people. It was the language of the court and learning that had first become compulsory in the *maktabs* and *madressahs* of Sindh during the preceding Kalhora rule. Sindhi had so far remained a somewhat neglected language as far as official patronage was concerned. The new rulers did not speak Sindhi, nor were they used to carrying on work in Persian. This, on the proposal of Sindh's first Chief Commissioner, Sir Henry Bartle Frere, Sindhi was made the official language in 1853, at first on a trial basis.⁶ There were numerous scripts in use for Sindhi notably Arabic, Devanagiri and Landa (meaning without a tail) and Landa-based scripts; such as Gurmukhi, Khojki and the Khudawadi script which had been used historically to write Sindhi.⁷

Once it had been accepted in principle that Sindhi was to be the official language, the issue of script had

to be settled before any practical steps could be taken. Capt. George Stack and Capt. Richard F. Burton had a difference of opinion on this question. Stack argued in favor of modified form of Khudawadi script, while Burton advocated a modified form of Perso-Arabic script. Burton dismissed most of the contending scripts and proceeded to examine the claims of Arabic. He supported the case for Arabic with well-reasoned arguments. Finally, a decision in favor of Perso-Arabic script for Sindhi was officially declared in 1853 on a trial basis. Later on, an official letter signed by the British Chief Commissioner was issued on August 29, 1857, declaring Sindhi as the official language alongside English.⁸ Acquiring the status of official language boosted Sindhi both in education and literature. There was still be the question of deciding which of the two forms of Arabic script should be chosen; *Nastalikh* or *Naskhi*. Burton preferred the latter or modern Arabic characters.

However, during the period when the British government was taking its time to formulate its policy of education in Sindh, the local system of education carried on the best it could, with little change in villages and small towns where it depended on the support of the villagers and local notables, but decaying in *madressahs* and similar places of higher education. Burton, the foremost Britisher who had visited Sindh reported that there were six *madressahs* or higher places of learning in Thatta, Rohri, Ghotki, Hala, Shikarpur and Nasarpur respectively, which could be equated with universities and were directly supported by the Amirs.⁹ But royal patronage had ceased ever since the British conquest, although, the first *Sindhi*-medium school was established by the *British* in Shikarpur on 21st March, 1857 CE.¹⁰

Education System during the Talpur Period

In the times of the Talpurs (r. 1784-1843), for which we have definite information, education imparted by three different agencies. The Maulvis and Mullahs imparted religious education to the Muslim children; the Akhunds gave secular knowledge to both the Hindus and Muslims children; the Brahmins taught

the 3 R's to the children of the Hindu trading class. The *maulvis* taught in *madressahs* in which the education imparted was more than elementary and their teaching only to the Quran. They held their schools (*maktabs*) on the platform of a village mosque or under a tree and taught a mixed class of boys and girls to read the Quran without understanding it. In 1853, the number of such *maktabs* was reported to be over 600 and many must have escaped registration. Teaching was held in high esteem. The teacher did not condescend to make it a mercenary affair. They lived up to the ideal of simple living and high thinking and therefore generally commanded great respect. Only on a particular day or occasion, did they accept gifts brought by the students or their parents.

The Akhunds taught Persian, the then official language, to the children of the officials, to whom the knowledge of the language would be necessary in the transaction of court business. They also gave instruction in the methodology of writing letters. In all respects a good handwriting was insisted on. It was said that a good hand was half of education. There was no proper building. The Akhund collected the children at a private house or *autaq* (a gentleman's sitting room). The students squatted on the floor or sat on mattress. There were no classes as such. The course was confined to the completion of a few Persian books, such as Gulistan, Sikandar, Yusuf Zulkhfa, etc. and it took about five to seven years to complete the course. Like others the Akhunds did not charge fees, but accepted gifts in cash or kind.¹¹

The Brahmins taught the three R's together with book keeping. The writing was done in a script locally known as 'Hatai Akhar'a or the traders' script. The Brahmins accepted a handful of rice and a few sticks which each scholar brought to him daily, or a rupee or two every month from the parents. These three were the agencies, therefore, that served to spread education among the people in their own way.¹²

The education of women during the Muslim period was at a low ebb. Small Muslim girls went with their brothers to *Mullah* Schools to study the Quran, but

scarcely did they attain the age of ten or eleven years when they were put under *pardah* (seclusion), so that education made little headway amongst them. Some highly-gifted women, however, instilled with the love of learning, at times engaged private tutors. It is observed that such women, well versed in Persian literature and poetry, were to be found in both the Hindu and Muslim communities; but these were rare instances. Generally, learning was discouraged among women.

The rulers, as might be anticipated, had no educational policy worth the name. While a few institutions received state grants, the bulk of population was left to provide for its own education. The Akhunds and the Brahmins relied entirely upon providing education for their maintenance and continuance of their profession. Therefore, children's education presupposed a fairly good monetary condition of the parents, and was never enthusiastically undertaken by most of the population. The masses, thus absolutely neglected, remained generally ignorant and illiterate.¹³

Besides the *maktabs* and *madressahs*, a network of *pathshalas* and *ashrams*, was in place in every part of Sindh when the British East India Company occupied it in 1843 CE. A study of Burton's account regarding the education during the Talpur period reveals that there was a well-organized education system based on community participation, and well-maintained and developed in curricula and textbooks.¹⁴ Men of high moral and educational standard were employed to impart knowledge to children and ethics to men and women at local level. The courses at the *madressahs* were divided into the more general ones and the specialized ones. To begin with the subjects that were offered were as follows: *sarf* (grammar), *nahw* (syntax), *fiqh* (jurisprudence) and *tafsir* (commentaries on the Quran and *hadith*). After that the course was combined with *mantaq* (logic), *ma'ami bayan* (Rhetoric) and *usul-i-Quran, Umi uriz* (Prosody), *tibb* (medicine), *raml* (geometry), *nujum* (astrology), *jufur* (method of divining by numbers), *tasawuff* (philosophy) and *umikhat* (calligraphy).¹⁵

5 Alastair Pennycook, *The Cultural Politics of English as an International Language*, Taylor & Francis, 2017, p. 78.

6 Hamida Khuhro, op. cit., p. 243.

7 Sarla J. Narsian, *Historical Development of Education in Sindh*, in Mubarak Ali, (ed.), *Sindh Observed* (Lahore: Fiction House, 2005), p. 261.

8 Hamida Khuhro, op. cit., p. 258.

9 Ibid., p. 263.

10 G. M. Siddique, *Sukkur Then and Now* (Karachi: Oxford University Press, 2000), p. 126.

11 Hamida Khuhro, op. cit., p. 242.

12 Thomas Postans, *Personal Observations on Sindh: The Manners and Customs of Its Inhabitants; and Its Productive Capabilities* (Longman, Brown, Green, and Longmans, 1843), p. 147.

13 Sarla J. Narsian, op. cit., p. 257-259.

14 Richard F. Burton, *Sindh and the Races that Inhabit the Valley of the Indus: With Notices of the Topography and History of [the] Province*, (Asian Educational Services, 1996), pp. 134-148.

15 Fahmida Hussain (ed.), *Sindh, Past, Present and Future* (Shah Abdul Latif Bhitai Chair, University of Karachi, 2006), p. 63

Impediments in Introducing a New System of Education

At the time of the introduction of the colonial British education system in Sindh, education was completely decentralized. Different communities and religious institutions were following their own separate system and were teaching their own curriculum. The new system was designed for centralization of education to promote the rulers' colonial aims and objectives. It is easier to decentralize a system if only the integrating elements are kept intact, but very difficult to disintegrate an age-old indigenous system and implant an alien system all through.

To the majority Muslim population of Sindh, the alien masters' education system, both in contents and organization, was akin or relegation on Islam. Not so in case of Hindus who were worldly-wise people. They had gone through the *maktab* and *madressah* education under the Muslim rule and vied with the Muslims in learning Arabic and particularly Persian. "*Parsi ghoray charhsi*" was a motto more profitable for Hindus than Muslims. Now English was being taught as a sure passport for government jobs and positions of honor. So, they took to it more willingly and voluntarily. The Muslim religious leaders, in the first instance declared the new education to be as Kufr (apostasy), then the enlightened leadership took a lead to provide it for the Muslim youth who participated in it late and in less numbers than the Hindus.

The Muslim community was mostly confined to agriculture and rural activities. They were financially poorer than the Hindu Sindhis. Sending children to full-time school, instead of putting them to herding cattle or working at home or on the fields was an uneconomic proposition for most Muslim parents. The wide spread availability of religious education through *maktabs* and *madressahs* offset the necessity of going to the newly opened government schools. Necessity of a system, however, arose when a government school education guaranteed government jobs and secure employment.¹⁶

¹⁶ Sindh: Glimpses into Modern History, op. cit., p.132.

The Colonial Strategies to Westernize the Education System

The report on the condition of education in Sindh by Ellis in 1856 CE, indicates that the British government had not yet begun to change the pattern of education. There was neither any mention of the number of schools in existence nor of the actual number of children being educated, as those who could afford it engaged private tutors for their children. In many cases, the zamindar would pay for a teacher to educate his children, and some of the village children would also share the lesson. These informal classes would not, however, come under the definition of a formal school.¹⁷ As mentioned above, there were basically three types of schools; Muslim primary schools, teaching the Quran; the Hindu-Sindhi schools where Khudawadi and other variants of Sindhi were taught, as well as book-keeping and accounts; and the schools teaching Persian and Arabic. The third group catered for both Muslims and Hindu Amils, the latter afterwards going into government service. The teachers were mainly Muslims, Sayyids or Akhunds. Ellis reported that Sayyids of Thatta and Rohri were given liberal allowances, jagirs and presents. Mot learned men belonged to this community.¹⁸ Thatta and Rohri were renowned as places of learning and this quite evidently was the result of the Amirs' patronage of learning.

Initially, very little was done in the way of introducing English Education in the province, the few steps taken being non-official in nature. The commissioners together with the missionaries took the initiative of opening English medium schools. Some English medium schools were also set-up for the education of the children of junior European and Anglo-Indian officials. Apart from Preedy's Free School, which was a missionary institution, the Indo-British School was set up in Karachi under the patronage of Napier in 1847 CE for the education of the European and Anglo-Indian children of warrant officers, staff sergeants, clerks and others residing in the Karachi Cantonment. It was financed by public subscription and from small fees from those parents who could afford it. Government aid was granted to the school when the Court of Directors in 1852

¹⁷ B. H. Ellis, Report on Education in Sind, 29 Dec, 1856, Bombay 1855, para 50.

¹⁸ Ibid., para 63.

sanctioned Rs. 10,000 per year after the arrival of Sir Bartle Frere to be spent on education in Sindh. However, the British government preferred usually to support independent enterprises like the Indo-European school and the Karachi Frere School rather than to start ventures which would be its sole responsibility.¹⁹

Thus, education in English began first in Karachi and then in Hyderabad, and Shikarpur Collectrates initially following Burton's suggestions for qualifying a student for government service. Burton also suggested that the students should go through a course of Sindhi before starting English. There were to be not less than thirty students at each school. There were also to be vernacular schools at the five principal towns, Karachi, Thatta, Hyderabad, Sehwan and Sukkur. The total courses of study at both schools were to be not more than eight years and not less than five or six years. A superintendent of government schools was also appointed to supervise the working of these schools and see that government policy was put into effect. The other duties of the Superintendent were to translate suitable works into Sindhi, prepare a grammar and edit a book of *insha* (epistles) and other works such as arithmetic, history, and geography etc. Small scholarships and prizes were also awarded to the students.²⁰

With the collaboration of two able and resourceful administrators, Chief Commissioner Bartle Frere and Barrow Ellis the Commissioner's Revenue Assistant, a successful education policy in Sindh was developed. Realizing clearly that they would not be able to rely on the government for the whole of the sum necessary for the implementation of the scheme, they set about securing the funds from local sources. This they did partly by making schools a local charge on municipalities, or by sharing expenses between the government and private subscriptions and in one case by using a political fine. In Karachi, the municipality shared the expense of building and maintaining a school. A new building was opened in October 1854, and began with 68 boys. In Hyderabad, part of the expense was also to be borne by the Municipality.²¹

¹⁹ Edward H. Aitken, Gazetteer of the Province of Sind, (Government at the "Mercantile" Steam Press, 1926), p. 473.

²⁰ Hamida Khuhro, op. cit., p. 253.

²¹ Ibid., p. 277.

It was necessary, in addition to building the schools, to provide books. A book depository was established at the Karachi School, steps were taken to translate books for schools from Urdu, Persian and some from Marathi and Gujarati. There was a shortage of teachers though some had been found from among the government employees at Karachi and, as difficulty had been experienced in obtaining recruits from Bombay, a training college was a necessity. A system of monitorships was established at the Karachi Municipal School and was proposed for every school where the teacher was in need of assistance.²²

It was also proposed by Ellis that a number of schools be established, in which Sindhi, Persian and if necessary, Arabic were to be taught. Fees would be charged for tuition in Arabic and Persian, except where proficiency in Sindhi would entitle a student to free tuition as a reward. Eventually, Persian would become only 'an accomplishment' and greater attention would be paid to Sindhi. Arabic study was not as popular as Persian, but its exclusion could have kept away many who could otherwise have attended school. As a preliminary to Persian, Arabic continued to be taught in village schools in the early days of British rule, but its study as a language remained confined to the three chief district schools at Thatta, Halla and Rohri, where it enjoyed a great deal of popularity since all these three districts had important Sayyid communities.²³ Though a fee was to be paid for Persian and Arabic, tuition in Sindhi was free. This was to add an incentive to the study of Sindhi which had hitherto been confined to an elementary level. Thus, the report that Ellis submitted became a basis for the construction of the educational system in Sindh.

In practice, however, the plans thus laid out by Ellis and Frere for vernacular and English education fell far short of their authors' expectations. No appreciable progress was made during the twenty years since the report of the Education Commission intended to implement the Wood Despatch, though local pressure groups were beginning to form to agitate for greater educational facilities for Sindh. Subsequently, memorials from Karachi drew attention to the neglect from which the province suffered. In 1856, Goldsmid, the Assistant Commissioner for jagirs in Sindh, took up the office of Educational Inspector for Sindh in addition to his normal duties. He made

²² Ibid., p. 279.

²³ Ibid., p. 280.

efforts to increase the number of vernacular schools in order to widen the basis of the new education. In his report for 1859-60, Goldsmid mentioned that fifty-two vernacular schools had been opened with 2302 students, supported wholly by local or municipal funds.²⁴ The following year, there were sixty-two schools with 2339 students including in Shikarpur, Thatta and Sukkur.

Though in most cases the standard of these schools was not much better than those of indigenous schools, they were serving to familiarize the people of Sindh with the new system of education. In 1864, the English schools at Karachi and Hyderabad were constituted as High schools and could send students up for the Bombay Matriculation examination. Hyderabad was the real centre of education in Sindh, as is evident by the fact that its English school sent students to Bombay for further education. Furthermore, an Engineering school that had been opened up by Frere in 1855 in Karachi and provided a number of candidates for employment in the Public Works and the Telegraph departments, was forced to shut down due to lack of money; it re-opened in Hyderabad in July 1865.²⁵

In 1864-65, the schools in Sindh were categorized under the heads used in the other provinces of British India such as High schools, Zilla schools, Taluka schools, village schools and Normal schools. Throughout this period, education in Sindh especially in the vernacular schools was very poor. The basic reason for this was the insufficient funds allocated for educational purposes. The total sum of money allocated in 1861-62 CE was Rs. 30,502. The shortage of competent teachers was another serious drawback further hindered by lack of books in Sindhi. The lack of teachers was at least partly due to the fact that the new education system failed to attract the traditional educators of Sindh like the Sayyids and the Akhunds. It was not always possible for a poor village Akhund to travel far afield to study and government financial support was therefore absolutely necessary. As a result, government schools in the smaller towns existed on equal terms with the indigenous schools such as in Hyderabad, Rohri, Sukkur, Shikarpur and Umerkot. These government schools were well attended where the Sayyids and

the Akhunds were eager to adopt new learning. Language, literature and humanities generally were their favorite study but even in mathematics they were not far behind. However, a split occurred and remained between the traditional education of the rural and the new Anglo-Vernacular education of the towns, and this split can only be explained partly in terms of the attachment of the teacher class to the old learning. On the other hand, these teachers were willing to increase the scope of their learning.²⁶

It was perhaps too optimistic of the people of small towns such as Thatta and Sehwan to expect to be able to support English schools, as the primary inducement, the hope of entering government service, could not operate as strongly here as for instance in the larger towns of Sukkur and Shikarpur where the government itself maintained English classes. Gradually, therefore, with the closing down of many of the government schools after 1861, and the concentration on the large towns, the educational gulf widened between the rural and urban areas. The traditional education, discouraged by the government declined steadily. In the rural areas, use of the new education as a mean to enter government service was more difficult to appreciate.²⁷

The nature of the population distribution also largely determined the response of the different communities of Sindh to the new education system. Muslims made up 75% of the population of Sindh, but the majority were settled in the rural areas, and were mostly involved in agriculture. They were not much inclined to education. Hindus formed 20% of the population and mostly concentrated in the towns. For the most part, they were merchants or government functionaries of various kinds. There were also small groups of Sikhs, Parsis and Christians, the last two were confined to Karachi. The response of these different communities to the introduction of the new education system could be termed 'traditional'. As the government found itself unable to devote enough attention to the rural areas, the bulk of Muslim population rapidly fell behind the towns in education. In fact, the wealthy land holders preferred to employ Akhunds to teach their children and showed no desire for government service.

26 N. A. Baloch, Education in Sind Before the British Conquest and the Educational Policies of the British Government: Based on Report of Education in Sind (Jamshoro: Institute of Education, Sind University, 1971), p. ii.

27 Sarla J. Narsian, op. cit., p. 264.

24 R. P. I. B., 1959-60, Vol. 11, App. H. P. 42.

25 Report, Educational Inspector for 1865-66, R. P. I. B. Vol. 15. App. A, pp. 83-84.

In 1883, educated Muslims in Sindh were 1.4 % of the total Muslim population or 31.8 % of the number of schools. Hindu merchant groups, who formed the larger part of Hindu community, had no interest in learning as such and had no ambition to enter government service. Their attitude to the new schools therefore was that of complete indifference. Schools were set up in Jherruk, Keti and Shikarpur but beyond the learning of accounts and book keeping no other subjects could be taught with any success.²⁸ The community that took the greatest advantage of new schools was the other section of the Hindu population, the *Amils*.²⁹

However, the *Amils* were more advanced in education and the growth of education in the province continued to be painfully low as long as it lacked any institution of higher learning. For many years, the two English High schools were the most senior educational establishment in the province. For matriculation and for degree course students were forced to travel to Bombay. That the lack of a Degree College was a very real obstacle to education is proved by the fact that when at last the D. J. Sindh College was opened in 1887, there was a very rapid rise in the number of students who joined it.³⁰ In fact, the most significant educational event for the Muslims of Sindh was the founding of a high school modeled on the M. A. O. College, Aligarh in 1885. The Madressah-tul-Islam of Karachi was responsible for arousing real interest among the Muslims for education in English and for emphasizing its importance in the new order. With the institution of the Madressah-tul-Islam, Muslims began to qualify for and enter government service and the professionals, thus beginning a new phase in the social evolution of the country.³¹

It seems evident that the British educational system contained in its structure certain elements of the historic past including the earliest education system associated with Brahmanism and Buddhism, alongside the Islamic and the British-Indian education systems. The age-old Brahmanic and Buddhist education system subsisted along with the

28 Report Inspector Sind Division 1863-64, R. P. I. B. Vol. 15. App. D, p. 90, para 34.

29 Sarla J. Narsian, op. cit., p. 269.

30 Dayaram Gidumal, Hiranand, the Soul of Sindh, (iwan Metharam Dharmada (Public Charitable) Trust, 1932), p. 280.

31 Hamida Khuhro, op. cit., p. 295.

Islamic education system till the introduction of the Western education system in the later nineteenth century. Education in Sindh also benefited from the capitalist aims of the British education system. These overwhelmed the aims of indigenous Islamic education. Hindu *vidhyalas*, *pathshalas* and private education institutions welcomed the new knowledge and set-up, but the system based on Muslim *maderssahs* and *maktabs* survived alongside the new schools and colleges. This is the reason why the Muslim students took to the system late.

Attempts were also made to incorporate the *maktabs* and *madressahs* by offering them grants and inducing them to teach secular subjects as well as religious instructions. The necessity for mass education was recognized by the reformers of the time in order to adopt new ideas. In 1911 CE, G. K. Gokhale introduced his famous bill for the introduction of free and compulsory education throughout India. Besides, it was the policy of the government to encourage private enterprise in education. The importance of female education was also realized. Education was pursued more by girls in towns than those in the villages. The same reason was responsible for the smaller number of educated Muslims in the province. The government received cordial assistance in all measures taken to open vernacular schools in different towns.

Sindh had no university of its own until March, 1947 and its institutions were affiliated to the University of Bombay. It had five colleges, forty-five high schools and one hundred and twenty-four middle schools, according to the Annual Report of Education, 1940.³² The Report mentioned that Muslims constituted the bulk of the total population of the Province 72% according to the census of 1931.³³ But their number in educational institutions was much lower. The percentage of illiteracy among the males was 87 and among the females, it was 98 only six years before Independence.³⁴ Commenting on the educational backwardness of the Muslims and the indifference of the wealthy towards the cause of education, the Report remarked: "There are many rich Muslim *zamindars* and *jagirdars*, each of whom could run a first class high school, but unfortunately:

32 Annual Report on Education (1939-40), p. 27.

33 Ibid., p. 36.

34 Ibid., p. 14.

few of them have the spirit of the late Khan Bahadur Hasan Ali Effendi, and the late Khan Bahadur Mir Ghulam Mohammed and the late Mr. Noor Mohammed".³⁵

Conclusion

The British policies were basically for the control of the vanquished populace of the Indian subcontinent and aimed to create a small section of English educated urban elite which could act as intermediaries between the government and the masses. These lower level state functionaries and the sons of the landed, aristocratic local elites, who received British style education, gave rise to a class which was English educated. The chasm created thus between the English educated elite and the vernacular educated masses, the urban and the rural has persisted to the present day in the form of state-run institutions and elite institutions, and has become a source of alienation of those who perceive themselves as the have-nots of elite system of education. By making English a prerequisite for better jobs, the language policy has implicated it in social as well as economic formulations. The elite have used English to maintain their power and the less privileged section of society has been left disempowered by the inability to access English. English has become a divider not only economically but also socially as the present policies are favorable to those who are English educated. The chasm remains between the elite institution students, the "brown sahibs" of yore, in the form of westernized, hybrid identities and the students of the state-school educated masses.

The British remained a brief hundred years in Sindh, but during that short period there was an intensification of progress and change in the society. The most important and enduring aspect of this was the emergence of the modern education system which became the instrument of further and permanent change in the society. This system gave birth to a large educated middle class that consisted of a wide variety of people with different professions and skills including lawyers, doctors, teachers, merchants, industrial managers and workers.

³⁵ Umme Salma Zaman, *Banners Unfurled*, Karachi: Royal Book Company, 1981, p.28.

During that time, the investment of the British government in the field of education and social-work, by providing grants and aid had some concealed motives. The abandonment of allocation of stipends to the students of Arabic and Sanskrit was intended to hamper Muslims' progress. The British were in favor of teaching a foreign language (English) to Indians, which was the language of the ruling class, in order to promote the future vision, i.e., keeping in view of the rising demand of English to connect greater powers to India to flourish trade, business, etc. The Indians felt that the British wanted to mould Indians to be just their subordinates by using the modern education system.

Pakistan achieved independence from over a century of British colonial rule in August 1947. The colonial period did witness some progress in education. However, the progress was largely limited to what emerged as India. The regions comprising Pakistan were relatively backward in all respects, including in education. At independence, 85 percent of the population was illiterate and in the more backward regions of the country. The educational state of the Provinces of Pakistan can be judged by the above-mentioned facts.³⁶

³⁶ Ibid., p.29.

Towards the history of Transport in Zimbabwe with specific reference to road and air modes.

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Abstract

The importance of transport in the economic development of Zimbabwe has long been widely acknowledged. The transport revolution was/is the crucial ingredient in the economic, social and cultural changes in most of the countries and cities in the world and Zimbabwe is not an exception. The paper 'Towards the history of Transport in Zimbabwe with specific reference to road and air modes' seeks to document the history of transport in Zimbabwe. This research was undertaken to trace the development of modes of transport and their importance in the then Southern Rhodesia and the present day Zimbabwe. These modes include sledges, wagons, canoes, trains, motor vehicles and aeroplanes. The introduction of wheeled transport in what eventually became Zimbabwe is a later 19th Century phenomenon. The road transport also became linked to the railway, sea and air transport. The paper also outlines the conditions of roads during the times when the different modes of transport were used and to trace the development of those roads especially during the colonial period.

Key words; history, transport, modes

Introduction

The importance of transport in the economic development of Zimbabwean has long been widely acknowledged. Studies on the transport revolution in the eighteenth and nineteenth century America, Britain, Africa and elsewhere have unearthed the complex relationships between technological advances in transport and economic growth. These studies have also concluded that the transport revolution was/is the crucial ingredient in the economic, social and cultural changes in most of the countries and cities in the world and Zimbabwe is not an exception.

In pre-colonial Zimbabwe mobility was as critical as it is now and it was considered the avenue of opportunity as evidenced by the Shona proverb 'Chitsva Chiri murutsoka....'¹ Pre-colonial migrations and trade routes stretched far and wide across long distances. Human porters, animal draught power and wind powered vessels were used to lessen the burden of weight and increased speed. The introduction of wheeled transport in what eventually became Zimbabwe is a later 19th Century phenomenon. This came in the form of wagons, usually belonging to pioneering missionaries and traders from the 1860s onwards and up to the time of colonial occupation this remained the most widely used form of transport as noted by T.M. Thomas's *Eleven Years in Central Africa*.² Wagons and wagon laagers are even an important symbol and spectacle of Pioneer Column memorabilia to this day.

Prior to the introduction of the motor car, Rhodesia was served by carts, sledges, coach wagon services, railways and bicycles. People were also familiar with river/lake transport using canoes especially along the Zambezi River. However, the introduction of railways was a major turning point in the development of Southern Rhodesia. The railways provided cheap transport for both agricultural and mining produce.³ As from 1902 onwards, the motor car became the popular and the fastest mode of road transport. The road transport also became linked to the railway, sea and air transport.

¹ G.C. Mazarire, (2013) 'The gadzingo : towards a Karanga expansion matrix in 18th- and 19th- century Southern Zimbabwe', *Critical African Studies*, (5:1) 22, 5.

² T.M.Thomas, (2012) *Eleven Years in Central Africa*, Routledge, 163.

³ A.H. Croxton, (1982) *Railways of Zimbabwe*, David and Charles Company, 59.

This research was therefore undertaken to trace the development of modes of transport in the then Southern Rhodesia and the present day Zimbabwe. These modes include sledges, wagons, canoes, railways, motor vehicles and aeroplanes. It is also crucial to discuss the conditions of roads during the times when the different modes of transport were used and to trace the development of those roads especially during the colonial period. Since the start of recorded history, roads have reinforced economic growth. Transport on early roads and rivers permitted the transportation of food and raw materials and this was a contributor to the development of towns, cities and their surrounding areas.⁴

Modes of Transport and Roads in the then Southern Rhodesia

Sledges

Before people started to use wagons, carriages, carts, railways and motor vehicles, they placed big logs under the things to be moved and turned the logs along the ground. This seemed to be not an easy job and they invented small vehicles with four or two wheels called sledges. Sledges in Shona societies were mainly used to transport grain and sometimes could transport people from point A to point B (sledge-see Fig 1). Sledges are no longer commonly used in the present day Zimbabwe because they cause soil erosion, people are now using carts especially to transport grain from the fields to their homesteads.



Fig 1- a traditional sledge

4 The world Bank Group's Transport Business Strategy 2008-2012, (2008) 'Safe, clean and affordable...Transport for Development', Transport Sector Board, Washington D.C, 38.

Wagons (Coaches).

Although the stage coach, the donkey and scotch carts made their input, it was the ox wagon which really opened up Southern Rhodesia. As Thomas Baines commented, "Although everyone swore at the ox wagon no one was able to think of anything better".⁵ The coach- wagon facilities were popular from the 1890s up to the mid- 1920s operating mostly in areas such as Umtali (Mutare), Salisbury (Harare), Melsetter (Chimanimani) and Shabani (Zvishavane)⁶(see Fig 2).It was(wagon transport) the only way of transporting goods into Southern Rhodesia from the Cape and from Beira was through coach wagons. The most famous coach was the Zeederberg coach which operated from Pietersburg (South Africa) to Fort Salisbury (Harare).⁷



Fig 2: Umtali- Salisbury Wagon Coach, used to transport mail and people in the early 1920s.

The wagons were drawn chiefly by oxen, occasionally by donkeys, mules, horses, sixteen or eighteen beasts being spanned into each wagon. When horse sickness and rinderpest attacked Rhodesia's supply of beasts during the early 1900, Lt. Colonel J. Flint, an ex-Indian Army man, suggested the importation of camels.⁸ Then in 1903, twenty luggage camels and fourteen riding camels were brought into the country with their guides.⁹ It was found that a team eight

5 Beverly Whyte (1971) 'From Wagons to Wings' in *Illustrated Life Rhodesia*, 4(17), 29.

6 *The Rhodesiana Society, (1975) Occasional Paper 1 on Rhodesia 1896 to 1923*, 35.

7 *The Rhodesiana Society, (1975) Occasional Paper 1 on Rhodesia 1896 to 1923*, 35.

8 Beverly Whyte, "From Wagons to Wings"... , 29.

9 Beverly Whyte, "From Wagons to Wings"... , 29.

camels could do the work of sixteen oxen, and go further faster. Wagons were then totally substituted by railways in mid-1920s.¹⁰

Rickshaws.

Another form of transport that was used before the motor vehicle/car became popular was a rickshaw. A rickshaw is a two-wheeled cart in which one or two people can ride and was pulled by another person. Before the 1940s there were no motorized cabs/taxis in Bulawayo, and people arriving by train were conveyed to the city in rickshaw pulled by African men dressed in wild animal skins and sometimes with horns in their heads¹¹(see Fig 3).



Fig 3: A Rickshaw

Bicycles

In Zimbabwe bicycles have a greater place in the history of transport. In Zimbabwe, bicycles were introduced by Major Charles Duly in 1894.¹² Charles Duly arrived in Bulawayo in 1894, having cycled from Johannesburg in ten days. He began business with a milling plant and later disposed it and opened a bicycle shop in Bulawayo the following year 1895.¹³ Duly's cycle business quickly flourished as a result of the increase in Bulawayo's population after the 1896-1897 rebellion.¹⁴

10 Beverly Whyte, "From Wagons to Wings"... , 29.

11 www.bbc.co.uk/ahistoryoftheworld/objects/gSg4v660R_aDYyXRIHIdgO, accessed on 29 May 2015.

12 *Rhodesian Saga, (1962) Sunday Mail Magazine Section, 'Charles Duly- Cyclist, Soldier and pioneer Motorist'*, 12.

13 *Duly's Company Booklet, (1999) Duly's, 80 Years of service in Rhodesia, Harare*, 3.

14 *Rhodesian Saga, (1962) Sunday Mail Magazine Section, 'Charles Duly- Cyclist, Soldier and pioneer Motorist'*, 12.

In contrast to the vehicle makes of the 1950s and 1960s, bicycles continue to provide reliable transport in contemporary Zimbabwe.¹⁵

Steam-powered wheeled vehicles

Steam engines or traction engines were first imported into Southern Rhodesia in 1894 and were meant to haul goods from Beira to the then Umtali.¹⁶ It is all believed that the traction engines were also used to cart gold ore and other goods to the Theta Mine, near Kwekwe from surrounding small mines, the Antelope mine, Kaka, Abercombie, Parkgate and Bowbell mines. More traction engines were then imported into Rhodesia around 1896. The engines were imported as a substitute for oxen in the period after the cattle population in the country had been decimated by rinderpest in 1896.¹⁷

Apparently, the traction engine which is displayed at Mutare Museum is an example of the existing traction engines in Zimbabwe (see Fig 4). It has (traction engine) has aroused considerable interest amongst "steam engines enthusiasts" both locally and overseas. The Traction engine is displayed at the entrance to Mutare Museum and symbolizing the fact that road transport is one of the major themes covered by the Museum.



Fig 4: Steam Traction Engine displayed at the entrance of Mutare Museum (Photo from Mutare Museum).

15 Jan-Bart Gewald, (2007) 'Transport Transforming Societies: Towards a history of transport in Zambia, 1890-1930', *ASC Working Paper 74, African Studies Centre, Netherlands*, 14.

16 P.G Locke, (1991) 'A Unique Survivor of the Steam Age?', *Unpublished Paper, Mutare Museum Library*, 2.

17 P.G Locke, (1991) 'A Unique Survivor of the Steam Age?', *Unpublished Paper*...2.

Railways

Wagon /coach transport was gradually substituted by railways from 1897 although the wagons were used up until the 1920s. The first railway train reached Bulawayo on 4 November 1897 and this was initiated by Rhodes who acquired the capital for the construction of the railway lines from loans guaranteed by the B.S.A.C and a company was formed called the Rhodesia Railways Limited.¹⁸ Rhodes had a vision of building a railway line from Cape to Cairo, to open up Africa, to allow the minerals to be exported as well as to develop the land. This vision of Rhodes alone led to the construction of thousands of miles of railways in British Workshops and those of other countries.¹⁹

The construction of the railways was done in groups. Construction of the Beira- Salisbury (Harare) line was done in 1892, while Vyberg (South Africa)-Bulawayo line from South Africa began in 1893 and was completed on 19 October 1897.²⁰ The Beira to Salisbury line was then completed on 11 May 1899 (see the train on Fig 5).

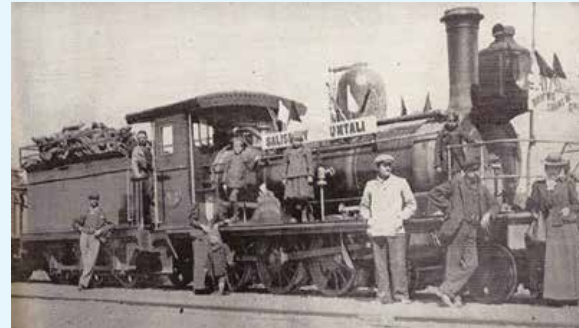


Fig 5- The Umtali- Salisbury Railway train 1899(photo from Mutare Museum).

The link between Salisbury and Bulawayo was completed in October 1902.²¹ The discovery of Southern Rhodesia's vast coal reserves near the Victoria Falls led to the construction of a railway line

18 P.F. Hone, (1909) *Southern Rhodesia*, London, George Bell and Son, 325.

19 Sir Robert Williams (1931) 'African Transport TO-DAY and TO-MORROW' In *African World*, (113) 260.

20 G. Murray, 'History of the Railways of Zimbabwe (Rhodesia) and the effect on the economy', www.kas.de/simbabwe/en/publications/39208 accessed on 25 March 2015.

21 G. Murray, 'History of the Railways of Zimbabwe (Rhodesia) and the effect on the economy'.

from Bulawayo to Wankie. Other railway links with South Africa, Zambia and DRC were constructed between 1903 and 1909.²² The construction of the line was undertaken by the Mashonaland Railway Company which again found the necessary funds by the issue of debentures guaranteed as to interest by the British South Africa Company, the latter acting as security.²³

In 1903 another railway line was constructed from Gwelo (Gweru) to Selukwe (Shurugwi) to tap the central gold-mining district on Southern Rhodesia.²⁴ This was then followed by the opening of another line from east of Bulawayo and connecting up the southern goldfields of Matebeleland.

However, the development of railways in Southern Rhodesia was directed by a handful considerations, among which was the need to serve the towns, mines and farms which were established in the early nineteenth century as well as to link the landlocked country with sea-ports in Mozambique and South Africa.²⁵ The construction of railway lines in Southern Rhodesia therefore improved the mining sector because the development of mining was largely dependent on the provision of adequate transport facilities.

The extension of the railway system was one of the most important objectives of the early years of Company rule in Rhodesia. The mines which had been closed down owing to the difficulty of getting heavy machinery up from the coast were in position to start operations once again.²⁶ Most of Zimbabwe's major cities have grown up in and around railway lines and industry for example Bulawayo was called a railway town because the railways was the biggest employer of the people during the years 1902 up to the early 1980s.²⁷

22 Simon Katzenellenbogen (1974) 'Zambia and Rhodesia: Prisoners of the Past: A note on the History of Railway Politics in Central Africa', *African Affairs*, (73)290.64.

23 Simon Katzenellenbogen (1974) 'Zambia and Rhodesia: Prisoners of the Past: A note on the History of Railway Politics in Central Africa'...64.

24 P.F. Hone, *Southern Rhodesia*,...325.

25 www.nrzc.co.zw/index.php/about-nrzc/nrzc-history accessed on 18 November 2018.

26 I.R. Phimister, (1981) 'Towards a history of Zimbabwe's Railways' In *Zimbabwean History, The Journal of the Historical Association of Zimbabwe*, 12, 71.

27 I.R. Phimister, (1981) 'Towards a history of Zimbabwe's Railways'... 71.

Undoubtedly the most celebrated moment in the ensuring uneasy relationship between the railway companies and the settler state in the period before 1947 was the passage of the Railway Act of 1926 which attempted to regulate company policies and profits.²⁸ This episode at least has attracted some scholarly attention. For George Gibbons, the Act 'gave the countries it served virtually all they wanted and maintained the railway system as a viable organisation, while for Ackson Kanduza, it symbolized settler victory over metropolitan railway capital and reflected the growing settler hold on the state apparatus.²⁹ Both studies root the origins of the Act in the desire of the settler state to exercise greater control over the direction of its economic affairs and both agree that the railway Commission or Tribunal established by the Act to oversee the working of the railway system had wide and binding authority over railway matters and gave the Southern Rhodesian government considerable control over the fixing of rates.³⁰

The railways received an important boost when in 1936 the copper companies of Northern Rhodesia agreed to use the Rhodesian railway system and buy Wankie coal.³¹ Parallel with railway development went road transport and the appearance of numbers of motor vehicles in the 1920s marked the end of the ox-wagon era.

From 1927 onwards the government contributed to the building of motor-roads which enabled the railways to run a system of motor-buses to link the trains and opened up the remote areas to farmers who could then take their products by lorry to the markets.³² The introduction of the RMS also was also a result of the rising competition from the motor car. Thus in 1927 an inter-departmental committee consisting of the Dairy Advisor, Mr. T. Hamilton, Assistant Director for Lands, Mr. A. Jennings and the Chief Road Engineer, Mr. Stuart Chandler, was set up to investigate the establishment of road motor services to new settlements and other areas

28 I.R. Phimister, (1981) 'Towards a history of Zimbabwe's Railways'... 71.

29 George Gibbons and Ackson Kanduza In I.R. Phimister, 'Towards a history of Zimbabwe's Railways'... 89

30 I.R. Phimister, 'Towards a history of Zimbabwe's Railways'...89.

31 P.F. Hone, *Southern Rhodesia*,... 328.

32 Emile.B. d'Elanger (1939) 'The History of the Construction and Finance of the Rhodesian Transport system'... 52.

where improved transport was a precondition for further development. The conclusion was that the road motor vehicle would not only provide a suitable method of feeding the railways but would prove an important factor in encouraging the development of outlying agricultural areas.³³

In addition to the regular services and the 'opening up' of promising farming country, the RMS provided a direct and cheap transport for both agricultural and mining produce, so bringing extra traffic to the rail system. In other words the RMS provided a door to door service to the white farmers and miners.³⁴

Roads and railways in colonial Africa invariably linked centres of resource production to coastal ports for overseas exports and imports and thus generally incorporated colonies into world capitalism.³⁵ A railway according to Paul Baran, is one of the 'innovations which shape up the entire pattern of the economy' and it; '...profoundly affects both the location of economic activity and composition of output... it makes possible the production of new goods and services.... it directly or indirectly (enlarges) the market for the whole range of products.'³⁶

The story of railway construction in Southern Africa is an integral part of the British expansion.³⁷ A.S. Mlambo supported this notion when he noted that, railways were a major agent in imperial expansion in Africa enabling the colonizing powers to establish and consolidate their political and military power over the subject communities and facilitating metropolitan capital's exploitation of the colonies' natural and human resources.³⁸

33 Emile.B. d'Elanger (1939) 'The History of the Construction and Finance of the Rhodesian Transport system'... 52.

34 Report of Director, (1929) Department of Lands and Surveyor General, National Archives of Zimbabwe, 22, file accessed on 28 November 2018.

35 Barbara .N. Ngwenya (1984) 'The development of transport infrastructure in the Bechuanaland Protectorate 1885-1966', *Botswana Notes and Records*, (16)73.

36 Paul Baran quoted in Barbara. N. Ngwenya, (1984) 'The development of transport infrastructure in the Bechuanaland...'73.

37 Louis. W. Bolze, (1968) 'The Railway comes to Bulawayo', in *Rhodesiana Publication* (18), Special Issue, 75th Anniversary of occupation of Matebeleland, 50.

38 Alouis. S. Mlambo (1994) 'From dirt tracks to modern Highway: Towards a history of Roads and Road Transportation in colonial Zimbabwe, 1890 to World War II', *Zambezia*, XXX (1), 149.

From the commencement of railway constructions in Southern Rhodesia, the whole system was operated by the Mashonaland Railways Company under the title, Beira and Mashonaland and Rhodesian Railways.³⁹ As from 1 October 1927, the Rhodesia Railways Company became the working company.⁴⁰ On 1 June 1979, the title of Rhodesia Railways changed to Zimbabwe Rhodesia Railways and finally to National Railways of Zimbabwe on 1 May 1980 after the nation's independence.⁴¹

The railway in Zimbabwe is a forerunner of the motor vehicle. In fact, the railways paved the way for the efficient transportation system in colonial and post-colonial Zimbabwe. The Motor vehicle then became more efficient than the railways, in other words it became the ingredient for political, social, economic and cultural transformations in colonial Zimbabwe up to date.

The 'Motor Age' In Southern Rhodesia.

The period 1902 up to 1929 is a watershed in the history of motoring in Zimbabwe. This is because during this time a close relationship between human beings and the motor vehicle was established. Motor vehicles became commodities of value and sources of life histories as well markers of social distance in Zimbabwe. Vehicles were acquired for different uses and reasons. This phase saw a variety of motor vehicles flocking into the country from different countries of the world. The vehicle models included the Gladiator (from France), the Schacht buggy (from Ohio, U.S.A), Humber Snipe (Humber Hawk (from the United Kingdom), 1908 Model 'T' Ford (the famous nicknamed 'Tin Lizzie'), from U.S.A, the Rolls Royce 40/50 model (from Britain) and the Napier 15 Horse Power only to mention but a few.⁴²

39 www.nrzc.co.zw/index.php/about-nrzc/nrzc-history accessed on 26 November 2018.

40 www.nrzc.co.zw/index.php/about-nrzc/nrzc-history accessed on 26 November 2018.

41 www.nrzc.co.zw/index.php/about-nrzc/nrzc-history accessed on 26 November 2018.

42 Duly and Company Limited, (1983) 'DULY's - One of the Pioneer Motor Companies', in *Heritage 3, Harare, The History Society of Zimbabwe*, 77.

To Charles Duly goes the distinction of having imported in 1902, the first motor car, the six and half horse power French Gladiator (see Fig 6) into Southern Rhodesia.⁴³ Duly's became the first motorist in Southern Rhodesia/Zimbabwe and his wife Edith, soon afterwards became the first woman driver.⁴⁴ It has been said that Duly invited a Chronicle journalist to take a trip with him in the French Gladiator (the motor car) to Forest Vale Hotel, a four and half mile journey covered in the fantastically short time of nineteen and half minutes.⁴⁵ The journalist then described the journey when he wrote the following in the Chronicle;

"We were soon away and past the High Court towards the cutting near Butters Buildings. Entering this we go down with brakes on about sixteen miles per hour, across the flat and climb the incline with the medium gear about ten miles an hour...Just before the dip, on go the brakes, and the spruit is negotiated at about fifteen and the long hill climbed as before at an eight and ten mile rate. Increasing as we near the top the high gear comes into play again and we travel at nearly top speed against a fresh westerly veld wind".⁴⁶

This episode shows that the close relationship of people and the motor vehicle has been established since the arrival of the first motor car in 1902.



Fig 6- Major Charles Duly, his wife, baby daughter and daughter's nurse in the French Gladiator; first car in Southern Rhodesia (1902)

From the arrival of the first car in Southern

43 Duly and Company Limited, (1983) 'DULY's - One of the Pioneer Motor Companies'...77

44 Duly and Company Limited (1983) 'DULY's - One of the Pioneer Motor Companies'...77

45 Beverley Whyte (1971) 'From Wagons to Wings'...19.

46 Beverley Whyte (1971) 'From Wagons to Wings'...19.

Rhodesia, vehicles began to flock into the country. Evidently this radical new means of transport rapidly won wider acceptance, for thereafter motor vehicles began arriving in the country in increasing numbers.⁴⁷ It has been recorded that by 1912 thirty four cars were registered in Salisbury and there were others scattered around the country.⁴⁸ The end of the 1914-1918 (First World War) war brought a plethora of cars to the country where today a motor car is considered a necessity and no longer the luxury of years gone by.⁴⁹

A.S Mlambo has also pointed out that, in the late 1920s the motor vehicle especially the motor car became more popular and large numbers of vehicles were brought into the country.⁵⁰ This is because the world was experiencing economic boom and many technological advances were transpiring. The below numbers were recorded between 1928 and 1929.

Year	Municipalities		Elsewhere		Total	
	1928	1929	1928	1929	1928	1929
Motor Cars	4 625	5 275	6 175	7 730	10 800	13 150
Other Vehicles	850	725	7 450	7 200	8 300	7 925

Table 1 - number of vehicles in Southern Rhodesia 1928-1929.

Source: NAZ, S482/477/39, Roads : General, Number of vehicles in the colony, Minister of Mines and public works to PM, 23 July 1930.

As from the post-Depression period up to a year before the Unilateral Declaration of Independence (U.D.I), 1964, the country experienced the economic boom especially in the agricultural sector and industries such as the motoring and mining. The few years between the first and second world wars were marked by steady progress and the strengthening of the motoring companies 'comprehensive service to the farmer and the motoring public.⁵¹ Duly and Puzey and Payne were importing heavy duty tractors

47 Beverley Whyte (1971) 'From Wagons to Wings'...19.

48 *Motoring Review* (1982) 'Motoring in Zimbabwe' *The Official Journal of the Automobile Association of Zimbabwe*, 3(1)14.

49 *Motoring Review* (1982) 'Motoring in Zimbabwe'...14.

50 Alouis. S. Mlambo (1994) 'From dirt tracks to modern Highways'...159.

51 Duly and Company Limited (1983) 'DULY's - One of the Pioneer Motor Companies'...78.

and other private vehicles. During those years, the commercial and industrial sectors were also well served by Albion, Leyland and Bedford heavy commercial vehicles such as buses, tractors, lorries and trucks as well as a series of private cars.⁵²

Private cars which became popular during this phase, include the Jaguar 2.4, Jaguar 5 and Jaguar MK. The Jaguar cars were also used as police vehicles by the British South Africa Police (BSAP). Some popular makes during this phase included Citroen A 8CV Torpedo, Citroen B Torpedo, Citroen C 5CV, Citroen Traction Avant, Vauxhaul Velox, Chrysler 8(1930) Austin, Morris Minors and Humber Phaeton. The Citroens were introduced in Rhodesia in 1935 and the main Citroen agent in Matebeleland was Southend Service Station of Bulawayo.⁵³ Duly Company was also importing Citroens. It is also during the years 1935 to 1939, the Humber Phaeton

was used as the Governor's car and was always stationed at Government House.⁵⁴

The Report of the Commission appointed to inquire into the control and co-ordination of Transport in Southern Rhodesia revealed that during the 1930s there was a greater improvement in the motoring industry.⁵⁵ During the 1930s, however, the improvement in the roads of the colony, coupled with the increasing efficiency of motor vehicles, has resulted in a marked development of road transport in Southern Rhodesia.⁵⁶ It is during this phase that a series of Acts were passed to control the increasing

52 Duly and Company Limited (1983) 'DULY's - One of the Pioneer Motor Companies'...78.

53 Duly and Company Limited (1983) 'DULY's - One of the Pioneer Motor Companies'...78.

54 *Southern Rhodesia Departmental Reports (1935), Stores and Transport*...p6.

55 *The Report of the Commission appointed to inquire into the control and co-ordination of Transport in Southern Rhodesia presented to the Legislative Assembly (1940)*, Rhodesian Printing and Publishing Company Limited, Salisbury, 6.

56 *The Report of the Commission appointed to inquire into the control and co-ordination of Transport in Southern Rhodesia presented to the Legislative Assembly (1940)*,...6

traffic in the country. One such example of the Acts is the 1936 Roads and Road Traffic Act which was passed as a system of control over road traffic generally.

The federal economic boom starting from 1954 resulted in the establishment of the British Motor Corporation (B.M.C). The B.M.C was established in the then Umtali in early 1960 and the first car was assembled on 8 October 1960.⁵⁷ G. Arrighi has attributed that the establishment of the local industries in Southern Rhodesia was given impetus by the emergence of the Second World War.⁵⁸ He highlighted that, the major reason was that goods that were previously imported became practically unavailable and this led to the high demand for local industries.⁵⁹ It is also in 1961 that the Ford Motor Car Assembly was established to serve the Federation.⁶⁰ The first Rhodesian assembled Ford was then produced on 14 July 1961.⁶¹

The years that came after the Southern Rhodesia's Unilateral Declaration of Independence, 1965 onwards, witnessed unfolding series of economic challenges. It is during this era that the economy struggled under the burden of expensive petroleum imports and this led to fuel rationing.⁶² This prompted the government to import low capacity vehicles such as the French models like Citroen DS 19 and DS 20, Renault 4, 5 and 6, Peugeot 304, Japanese Datsun Bluebird, Datsun 120 Y, Datsun Pulsar, the British Austin, Morris and the Italian makes such as the Alpha Romeo.

In 1980, the new Zimbabwean government also took over the highly controlled structure that was formed by its predecessor to deal with sanctions imposed

in 1965.⁶³ The government then maintained the existing controls over prices, resource allocations and investment by introducing tariffs.⁶⁴ These tariffs protected the domestic industry from foreign competition and controlled the importation of foreign products including motor vehicles.

As a result of the protection of the local motor vehicle industry by the government policy which restricted the importation and sale of vehicles in the country, a serious shortage of motor vehicles emerged. This was because demand was higher than supply. Pressure to purchase these vehicles then mounted at the Willowvale Mazda Motor Industry which was already operating well below its capacity. This historical phase saw the emergence of locally assembled vehicle models such as the Mazda B 1600, Mazda F 1300, Mazda B 2200, Peugeot 303, Peugeot 404, Peugeot 504 Station Wagon, Nissan Sunny, Toyota Corolla 1200, Toyota Cressida and Datsun 120 Y, Datsun Pulsar only to mention a few.⁶⁵ Certain Ford products appeared again in the motoring companies showrooms soon after independence (mostly Puzey and Payne and Duly's).⁶⁶ The major reason for this development was attributed to the removal of sanctions in 1980.

The Peugeot make was associated with the Rhodesian Front officials. Geoff Hill noted that the modest official cars driven by both the Rhodesian Front Government and that of Bishop Muzorewa were dumped in favour of a fleet of Mercedes Benz and Peugeot sedan in the early 1980s.⁶⁷ Then the 504 Peugeot station wagon has a heroic and colourful history as a taxi in Zimbabwe. Commonly known as the 'ET', the Emergency Taxi, provided a valued service to the Zimbabweans in the early 1980s up to late 1980s because during that time there were

transport problems because of the government's policy of limiting vehicle imports.⁶⁸

However, it should be noted that since the arrival of the first motor vehicle in the then Southern Rhodesia, the motoring industry experienced major changes. Vehicle ownership increased and the relationship between the motor vehicle, economy and people became intact. The value of the motor vehicle as a commodity and a status symbol also developed and different models reflected different tastes and value attached to these vehicles. Vehicles were purchased and are still being purchased for various reasons, some for bulky transportation, some for sport and leisure and some for farming purposes.

The early stages of the development of motoring business in the then Southern Rhodesia, the white minority were the major owners of motor vehicles. The majority of black Africans like Matambanadzo, Mwamuka and Musabayana later joined the industry starting from the late 1950s and early 1960s. In the late 1950s, Mwamuka started a transport business in Salisbury and in 1960 he established a service station in Highfields.⁶⁹

Comparatively the present day Zimbabwean motor industry is now dominated by the majority Africans and this was not the case during the colonial period.

Air Transport.

Air transportation in Southern Rhodesia began in the 1920s when a South African plane landed in Bulawayo on 5 March 1920.⁷⁰ Then in 1933 the Imperial Airways and the Beit Trust helped to found Rhodesia and Nyasaland airways or 'RANA' (which in Latin means a Frog- a fairly appropriate name for the 'puddle-hopping' service it provided between Rhodesian towns) which the government took over in 1940 and renamed it Southern Rhodesian Air Services.⁷¹ Financed heavily by the Beit Trustees between 1933 and 1937 RANA was able to build up its supply of aircraft and the first new acquisition was

a Westland Wessex aeroplane in 1934. This aeroplane carried only four passengers.⁷² A year later (1935), a 6-passenger de Havilland 89 Dragon Rapide and three Leopard Moths were purchased.⁷³

In 1946 the airline was reorganised as Central African Airways Corporation (CAA). The initial fleet consisted of 13 DH 89's, 5 Avro Ansons, 1 DH Tiger Moth and 1 DH Leopard Moth.⁷⁴ CAA operated as an international airline through the years of Federation and then divided into separate national airlines, Air Zambia, Air Malawi and Air Rhodesia. Air Rhodesia provided internal air services and international flights to South Africa, Malawi and Mozambique.⁷⁵

The year 1957 saw the opening of the new Salisbury Airport which had served as Salisbury aerodrome since 1922.⁷⁶ Bulawayo's airport was opened in 1959 and in the same year there was the introduction of "sky-coast" and "sky-cruise" holidays.

Due to political pressures the CAA was dissolved the 1st of September 1967 and Air Rhodesia Corporation was established under Rhodesian law, for the purpose of 'supplying the needs of Rhodesia for air transport services to the fullest possible extent consistent with the resources of the Corporation.'⁷⁷ In 1980 at independence, Air Rhodesia was then renamed Air Zimbabwe the name it still holds today.

Roads in Southern Rhodesia.

It is also crucial to discuss the conditions of roads during the times when the above modes of transport were used and to trace the development of those roads especially during the colonial period. Since the start of recorded history, roads have underpinned economic progress. Transport on early roads and rivers permitted the movement of food and raw materials and this was instrumental to the development of towns, cities and their surrounding areas.⁷⁸

57 *The Zimbabwe Herald, (Saturday 27 July 1985) 'A long way from the early days of assembly', 7.*

58 Giovanni Arrighi, (1967) *The political economy of Rhodesia*, 16. The Hague: Mouton, 44.

59 Giovanni Arrighi, (1967) *The political economy of Rhodesia*,... 44

60 Duly and Company Limited (1983) 'Duly's-One of the Pioneer Motor Company', Heritage, Publication Number 3, The History Society of Zimbabwe, Harare, 78.

61 Duly and Company Limited (1983) 'Duly's-One of the Pioneer Motor Company',...78

62 Joseph Mtisi et al, (2009) 'Social and Economic Developments during the U.D.I period', In Brian Raftopoulos et al, *Becoming Zimbabwe: A History from the Pre-colonial Period to 2008*, Harare, Weaver Press, 138.

63 E.A Brett, (2015) 'From Corporatism to liberalisation in Zimbabwe: Economic Policy Regimes and Political Crisis (1980-1997)', Critical States Research Centre, LSE, London, 6.

64 E.A Brett, (2015) 'From Corporatism to liberalisation in Zimbabwe: Economic Policy Regimes and Political Crisis (1980-1997)',...7.

65 Motor Trade Association (1981-1985) 'Motor Trade Diary and Job Register of 1981', Harare, Thomson Publications Zimbabwe, 28.

66 Interview with Mr Muzofa, the current General Manager of Duly's Company, Mutare, 29 June 2015.

67 Geoff Hill (2003) *The battle for Zimbabwe: The Final Countdown*, South Africa, Zebra Press, 214.

68 Geoff Hill (2003) *The battle for Zimbabwe: The Final Countdown*,...214.

69 Driveway (1960) *A Magazine for Shell Dealers in the Federation of Rhodesia and Nyasaland*, (1) 2, 1.

70 R. Kent. Rasmussen (1979) *Historical Dictionaries*, Number 18, London, The Scarecrow Press, Metuchen, 16.

71 R. Kent. Rasmussen (1979) *Historical Dictionaries*,...16.

72 Beverley Whyte (1971) 'From Wagons to Wings'..., 29.

73 Beverley Whyte (1971) 'From Wagons to Wings'..., 29.

74 Beverley Whyte (1971) 'From Wagons to Wings'..., 30.

75 R. Kent. Rasmussen (1979) *Historical Dictionaries*,...16.

76 Beverley Whyte (1971) 'From Wagons to Wings'..., 31.

77 Beverley Whyte (1971) 'From Wagons to Wings'..., 31.

78 *The world Bank Group's Transport Business Strategy 2008-2012* (2008) 'Safe, clean and affordable...Transport for Development'...,...38.

In the decade of colonization, Southern Rhodesia had a very rudimentary transportation structure, comprised mostly of dirt tracks inherited from the trails made by the hunters and adventurers who had traversed (navigated) the country before 1890.⁷⁹ During the company rule period (1890-1923) very little was done to establish good roads.⁸⁰ The British South Africa Company (B.S.A.C) was concentrating much on railway construction and had no interest in building roads. It was only during the time Rhodesia attained responsible government status that more attention was given to the upgrading and further development of roads.⁸¹ Where there were roads they were simple aides of the railway system which conveyed goods and people from the surrounding farms and communities to the nearest railway stations. These simple roads then gradually assumed double functions of serving as feeder lines to the railways as well as being the railways' competitors.⁸²

The contributions of the Beit Trustees to the development of communications in Rhodesia are well acknowledged. Their chief contribution has been in the provision of bridges on many of the main and branch roads.⁸³ One of these was the Birchenough Bridge over the Sabi River (1934-1936) which had only been passable through a drift when the river was low.⁸⁴ The Beit Trustees have also, in the case of the service from Fort Victoria to Bikita district, provided the necessary vehicles and garages for the road construction service.⁸⁵

79 Alouis. S. Mlambo (1994) 'From dirt tracks to modern Highway',...147.

80 Alouis. S. Mlambo (1994) 'From dirt tracks to modern Highway',...147.

81 Alouis.S. Mlambo (1994) 'From dirt tracks to modern Highway',...147.

82 Railways: General, 'Road Motor Transport: Competition with the Railways', National Archives of Zimbabwe, S488/470/39, In A.S Mlambo(1994) 'From dirt tracks to modern Highway...', 149.

83 Report of Director (1929), Department of Lands and Surveyor General,...75.

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85 V.E.M Machingaidze (1980) 'The Development of Settler Capitalist Agriculture in Southern Rhodesia with particular reference to the role of the State 1908-1939;...69.

Conclusion

Before the introduction of the motor vehicle in the then Southern Rhodesia, the main modes of transport were wagons, canoes, sledges, railways and bicycles. The researcher found out that with the advent of the motor vehicle age as from 1902, the relationship between people, economy and motor vehicles became interwoven and intact. A viable economy needs an efficient transportation system for it to develop and people need transport to move from point A to point B in order to get new opportunities and to perform different crucial transactions. So the motor vehicle is the catalyst for economic, social and political change.

Modes of transport particularly the motor vehicle have transformed the Zimbabwean community in the economic, political and social realms. Given the importance of the motor vehicle to the country of Zimbabwe, the time has arrived for scholarship to contribute more to the history of this form of transportation which has been neglected to certain extent.

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